Banking And Finance

A Psychometric Analysis of Banking in India

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1 April 2025

India's banking system, though lauded for its democratic aims (e.g. bank nationalization for mass outreach), often operates more like a *trickle-down* system than a truly inclusive one. Rather than immediately empowering the poorest, credit and services tend to concentrate among established institutions and wealthier clients, with benefits "trickling down" only slowly (if at all) to weaker sectionsiimidr.ac.inccsenet.org. This has significant consequences: as Deputy Governor Chakrabarty observes, "economic growth in India has not been inclusive; unemployment and poverty remain high and a vast majority of the population remains excluded from health and education facilities" iimidr.ac.in. In practical terms, only about one-third of Indians even have a formal bank accountiimidr.ac.in, and many of those accounts lie dormant, unused for monthsiimidr.ac.in. Likewise, rural and low-income households continue to depend heavily on informal lenders: NABARD data suggest only ~8% of rural households access formal creditpmfias.com, leaving vast segments effectively "unbanked" or under-banked.

These patterns raise urgent research questions about structural biases in India's banking: **Why** does the system favor certain actors and channels? Are cooperative and NABARD-supported institutions truly more inclusive than large public or private banks? Does the prevailing "banking-as-democracy" model inadvertently reinforce existing power divides instead of flattening them? Moreover, at the user level, how do attitudes and literacy shape choices between *safe* financial products (like mutual funds) versus *speculative* ones (like betting and gaming apps)? Why, for example, might risk-prone individuals flock to gambling platforms while shunning mutual funds? We also ask whether innovative mechanisms (such as designated *Education Funds*, *Health Funds*, or *Agricultural Demand Funds*) could be designed to channel that speculative energy into socially productive outcomes.

This study takes a **multidimensional approach**. First, we compare institutional reach and control: how do public/private banks versus regional rural banks (RRBs) and cooperatives differ in access, lending, and priorities? Second, we analyze consumer behavior: how do financial literacy, trust, and risk attitudes influence investment choices? Third, we develop a **conceptual framework** contrasting *trickle-down banking* with a *power-divided (participatory) model*, and we explore how risk-allocation theory can inform the design of new funding vehicles. Geographically, Maharashtra serves as our primary case (with its large rural economy and extensive cooperative network), while Karnataka and Madhya Pradesh serve as secondary comparators(mostly as a comparative study); Delhi (my home place) provides an urban benchmark.

The contributions of this work include:

- **Empirical analysis of inclusion gaps**: We synthesize national and state data (e.g. RBI/ NABARD reports) showing that fewer than half of Indians use formal banking services activelyiimidr.ac.ineacpm.gov.in. We identify how much credit flows through cooperatives vs. commercial banksnabard.orgnabard.org, and highlight state-level disparities (for Maharashtra, Karnataka, MP vs. Delhi).

- **Institutional insights**: By reviewing cooperative banks, NABARD, and RRB mandates, we show that cooperatives often get targeted refinances (e.g. ~73% of short-term agrarian refinancenabard.org) and local outreach, whereas large banks capture bulk loans (e.g. in Karnataka 90% of advances are through commercial banksnabard.org). This reveals a misalignment: policies may **intend** cooperative inclusion, but real credit still flows via big banks.

- **Consumer behavior linkages**: We connect findings on financial literacy and risk preferences to actual choices. For instance, studies find that higher literacy correlates with mutual fund investmentris.org.in, while low literacy and impulsive biases drive gambling- and game-app spendingeconomictimes.indiatimes.commdpi.com. We use recent data (e.g. the 2025 *Economic Times* report of ₹30,000cr in gaming/astrology app revenue vs. only ~5crore SIP investorseconomictimes.indiatimes.com) to illustrate this "risk on recklessness" trend.

- **New frameworks**: We propose reframing the problem as a *power-allocation* issue. By contrasting a top-down, trickle-down model with a decentralized "banking democracy" model, we clarify why simply opening accounts is not enough — governance, accountability, and trust matter. We also outline how "risk allocation theory" suggests channeling risk-seeking behaviors into regulated funds (e.g. Education, Health, Agriculture Bonds) that finance social goods, turning gambling impulses into structured investments.

By anchoring these analyses in current data and scholarship, our aim is to lay a comprehensive foundation: one that guides the later empirical chapters and addresses readers' doubts about institutional roles, regional variation, and the human factors in finance.

Literature Review

Banking Inclusion in India

Financial inclusion in India has improved in headline measures, but deep gaps persist. National surveys and RBI reports highlight that **access** (opening accounts) has outpaced **usage** (active use of accounts). For example, the World Bank reports account ownership rose from 35% in 2011 to 78% by 2021, and a gender gap in ownership essentially vanishedeacpm.gov.in. Similarly, RBI's financial inclusion index (combining access, usage, quality) climbed to 53.9/100 in 2021, driven by accessible banking outletseacpm.gov.ineacpm.gov.in. Despite this, actual **utilization** remains low: about one-third of account holders did not make a transaction in 2020eacpm.gov.in, and RBI cited reasons like distance to banks (49% of idle users), lack of perceived need (46%), and trust deficits (48%)eacpm.gov.in. In short, millions "have" bank accounts on paper but do not trust or need the services, mirroring findings that "only 35% [of accounts] use them actively"pmfias.com.

A striking statistic from Ranjan Nayak (2012) underscores the problem: **only 34% of India's population is engaged in formal banking, leaving ~135 million rural households unbanked**iimidr.ac.in. Moreover, nearly 40% of existing accounts are dormantiimidr.ac.in. These numbers have gradually improved (PMJDY has opened hundreds of millions of accounts) but usage gaps and inequality in service delivery remain. Urban–rural divides are stark: urban India boasts ~3.4 bank branches per 100,000 people, whereas rural areas have only ~1.2pmfias.com. Correspondingly, only about 8% of rural households borrow from formal sources (vs. 27% of urban households)pmfias.com.

A range of studies link these inclusion gaps to systemic biases. Satpathy et al. (2014) describe India's transition "from class banking to mass banking," noting that despite accelerated rural branch expansion and new delivery models (RRBs, SHG–bank linkage, microfinance, business correspondents, etc.), **"a vast chunk of the rural population still suffers from social and financial exclusion"**ccsenet.org. They argue that without complementary rural infrastructure and education, banking's benefits cannot reach the bottom. This is echoed by Chakrabarty (RBI) as cited by Nayak (2012): India's growth has been regionally imbalanced and socially inequitable, and formal inclusion alone (e.g. account opening drives) fails to engage the financially illiterate. In fact,

Chakrabarty notes financial literacy programs had "no effect" on account uptake, whereas small direct subsidies to open accounts were twice as cost-effectiveiimidr.ac.in. This highlights a demand-side issue: many citizens simply do not prioritize or trust formal banking absent tangible incentives or understanding.

Institutional factors also play a role. Financial liberalization in the 1990s spurred bank profits, but commercial banks often shift focus to more lucrative urban and corporate clients, "ignoring the weaker sections"iimidr.ac.in. A confirmatory study by Nayak shows cooperative banks' loans grew faster (38% increase) than RRBs or commercial banks in 2009–10iimidr.ac.in, suggesting coops respond more to rural demand. However, despite such potential, cooperatives today still capture a small share of total credit: for example, in Karnataka, cooperative banks accounted for only ~5% of total loans (versus 90% by commercial banks)nabard.org. Yet policy efforts (through NABARD refinance) heavily target them: in 2023–24, state cooperative banks received ~73.3% of short-term agricultural refinancenabard.org. This reveals a misalignment: cooperatives are poised for rural outreach, but large banks still dominate lending and deposits in many regions.

Cooperative vs Commercial Banks

Cooperative banks (including urban cooperatives, district central cooperative banks – DCCBs – and PACS) are often cited as linchpins of rural inclusion. Their **local embeddedness** and lower operating costs (RBI reports note coop banks have significantly lower labor and operational expenses than big banksiimidr.ac.in) give them an advantage in serving small farmers and micro-entrepreneurs. Nayak (2012) observes that coops' rural credit share is substantial: in one account, 16% of rural credit was through cooperatives, second only to commercial banksiimidr.ac.in. Moreover, coops are tightly woven into communities, reducing information asymmetry and building trust. These features have led many to argue coops can achieve more inclusive growth than formal banksiimidr.ac.in.

In practice, cooperative credit structures vary by state. For instance, Karnataka has a well-developed three-tier system (State Apex bank, 21 DCCBs, ~6164 PACS)nabard.org. As of March 2024, these cooperatives held about **5% of the state's total loans and 3% of deposits**nabard.org, while commercial banks held ~90% of loansnabard.org. Notably, cooperatives in Karnataka achieve a very high Credit-Deposit ratio (~107%)nabard.org and meet 93.6% of priority sector targets, indicating concentrated agri-lending. NABARD's annual data for India as a whole show a similar pattern: in FY2024, 73.3% of short-term rural refinance went to state cooperative banksnabard.org, underlining policy emphasis on coops for seasonal agricultural credit. However, long-term (investment) refinance is skewed toward large banks (67% to SCBs, 13% to StCBs)nabard.org.

By contrast, Regional Rural Banks (RRBs) and small finance banks play smaller roles. In Karnataka they hold ~4% of loansnabard.org, reflecting their limited branch network (1751 branches vs. 8780 for CBs as of 2024). RRBs and coops together typically serve marginalized farmers, but data suggest that even collectively they provide far less total credit than mainstream banks. This creates a paradox: institutional arrangements (RRBs, coops, NABARD refinance) are meant to democratize credit, yet commercial banks' vast networks continue to dominate quantitative outcomes. The result is that **inclusion via coops is partial** – they serve many small borrowers, but often lack scale and capital compared to CBs.

National-level research confirms these patterns. The Economic Advisory Council's 2023 report notes access indicators (like number of accounts and points of service) have improved markedly, but *usage and quality* lageacpm.gov.ineacpm.gov.in. The RBI reports that 41% of rural account-holders cite a "bias" or lack of trust as reasons to avoid bankspmfias.com. Thus institutional coverage alone (branches and accounts) has not eradicated a "shadow banking" or informal

economy. Many poor still rely on informal lenders and remittanceseacpm.gov.in, or lend socially (to family/friendseacpm.gov.in) rather than through banks.

Financial Literacy and Investment Behavior

On the demand side, **financial literacy and risk preferences** greatly shape how people interact with formal finance. India's average financial literacy remains low; one study finds only ~27% of Indians are financially literatergsa.openaccesspublications.org. This gap has real consequences: more literate individuals are more likely to invest in formal assets like mutual fundsris.org.in, and to manage debt responsibly. Specifically, Dash and Ranjan (2021) show a *positive correlation* between financial literacy and mutual fund investmentris.org.in. Another recent survey (Agarwal et al., 2025) confirms that higher literacy leads to more "rational" investment decisionsmdpi.com, reducing susceptibility to behavioral biases. In contrast, low literacy often means being swayed by overconfidence, herd mentality, or luck – biases that gamblers and casual investors sharemdpi.com.

This helps explain an emerging paradox: **many risk-loving consumers prefer betting or fantasy sports apps over stable investment vehicles**. For example, a 2025 *Economic Times* exposé notes that online gaming and astrology apps in India grossed over ₹30,000crore, whereas only about 5crore Indians regularly use SIPs (Systematic Investment Plans in mutual funds)economictimes.indiatimes.com. One analyst quipped: *"We want to predict the future on a daily-weekly basis [via horoscopes and games] but do not want to BUILD our future over the long term,"* capturing the instant-gratification mindseteconomictimes.indiatimes.com. This is reflected in behavior: while mutual fund investments (SIPs) saw record inflows in 2025, the **SIP stoppage ratio** hit ~75%, meaning 3 out of 4 SIPs were cancelled or dormanteconomictimes.indiatimes.com. In other words, many new investors make commitments but do not sustain them, perhaps exiting at signs of short-term volatility or neglect.

Why this preference? Several factors converge. Young Indians often face **overconfidence** about quick gains (e.g. in small-cap stocks or fantasy leagues), spurred by gamified trading apps that give instant feedbackifsa-network.comifsa-network.com. Social media "finfluencers" and easy credit (sometimes via no-brokerage neo-brokerage apps) feed a gambler's mentality. At the same time, awareness of traditional instruments is weak: many do not fully understand mutual funds, insurance, or even basic banking products. The literature on biases supports this: users with low financial literacy are more prone to the *disposition effect* (selling winners too early, holding losers too long) and *herding*mdpi.com, which can make the stable long-term returns of mutual funds seem less attractive than the possibility of big wins in games.

The rural/urban split also plays a role. Rural individuals may have even lower literacy and fewer local advisory options, so they stick to familiar informal savings (or local chit funds) instead of formal products. Yet interestingly, studies in India find that when literacy improves, willingness to take measured financial risks (through diversified funds) increases significantlymdpi.comris.org.in. This suggests that *channeling* the high risk appetite seen in gaming could be possible if people are better educated and offered socially beneficial outlets.

Regional Case: Maharashtra and Comparator States

Regional variation in banking inclusion is stark across India. Maharashtra, as our primary focus, is economically diverse: it has rich urban centers (Mumbai, Pune) and large rural areas (Vidarbha, Marathwada) with farmers' needs. Maharashtra also has one of India's largest cooperative bank networks, including district central coops and thousands of village societies (as the National Cooperative Database confirms). This makes it a bellwether for how cooperatives can serve local

needs. We expect Maharashtra to exhibit relatively better inclusion metrics than national averages, but with notable gaps in tribal and drought-prone regions.

By contrast, Karnataka (our secondary case) is often held up for strong rural finance performance. Its SFP notes show Karnataka leads in GDP growth and innovation, and its cooperatives are technologically advancednabard.org. Madhya Pradesh, a central Indian state with predominantly agrarian economy, likely lags behind in infrastructure and literacy. Urban Delhi (national capital) provides an extreme comparison: banking branch density in Delhi is extremely high (reported at 49 branches per lakh population), and account ownership is near-universal. However, even in Delhi the poorest communities may lack trust or regular use of banking services, so urban exclusion issues (often along income or migrant status lines) merit study.

Literature on state differences is sparse, but general trends hold: financially literate states (like those in the south and west) tend to have higher mutual fund penetration and more active accounts, whereas less literate ones (e.g. Bihar, UP, some MP regions) lagris.org.in. We will draw on available SFPs, NABARD surveys, and studies to highlight Maharashtra's standing relative to Karnataka, MP, and Delhi as needed.

Psychometrics in Finance

Finally, the emerging field of financial psychometrics emphasizes how *intrinsic attitudes* (risk tolerance, overconfidence, impulsivity) affect economic outcomes. Agarwal et al. (2025) demonstrate that **behavioral biases mediate** the link between literacy and investment: even literate investors can make poor decisions if swayed by anchoring or herd effectsmdpi.com. This underscores that simply having a bank account or an investor app is not enough — underlying psychology steers choices.

In India's context, one relevant lens is **prospect theory**: lower-income individuals are often risk-averse with gains but may gamble to avoid certain losses. This can manifest in lottery-style investments or even irresponsible borrowing. Another insight is **trust as a psychological factor**: as noted, a large fraction of Indians cite distrust or perceived bias as reasons to avoid formal bankseacpm.gov.inpmfias.com. Psychometric studies suggest those who distrust institutions may undervalue mutual funds (viewed as opaque or slow) and overvalue "sure win" gamble scenarios.

Taken together, the literature paints a complex picture: India's inclusion agenda has reached more people on paper than ever before, but class and regional divides remain baked in. Financial literacy, trust, and behavioral biases significantly influence whether people use formal finance productively or turn to high-risk alternatives. Cooperative institutions offer a partial solution by localizing credit, but they alone cannot remedy structural inequities. Our work aims to synthesize these strands, identify persistent gaps, and lay conceptual groundwork for rethinking "banking democracy" in India.

Conceptual Framework

Trickle-Down Banking vs. Power-Divided Systems

We propose a dual framework contrasting a *trickle-down* model of banking with a *power-divided (participatory)* model. In the **trickle-down model**, banking policies assume that extending services to the formal sector or elites will eventually benefit poorer segments – akin to "wealth trickling down." This manifests in heavy emphasis on large banks, national-level schemes, and commodity credit targets. Power in this model is hierarchical: central regulators and big banks make decisions,

and the poor are passive beneficiaries at best. Critics argue this reproduces top-down power dynamics (the "banking elite" retains privilege) rather than empowering grassroots communitiesiimidr.ac.inccsenet.org.

In contrast, the **power-divided or banking-democracy model** envisions a more egalitarian finance system. Power is distributed: local communities have stakes (through cooperative board representation, community banks, or credit unions), and multi-level governance (state NABARD cells, Panchayati Raj linkages, etc.) ensures accountability. Services and credit decisions are co-designed with users. This model assumes that tapping into local knowledge and fostering trust will produce truly inclusive outcomes. It aligns with ideas of "mass banking" where marginalized groups are not just targets of charity, but active participants (e.g. through microfinance SHGs, community oversight)ccsenet.org.

Our hypothesis is that India's current structure slides toward the former model. Evidence of this is the continued reliance on credit flows through commercial banks (despite mass-account-opening programs) and the under-utilization of cooperatives except for targeted refinancenabard.orgnabard.org. We will examine structural indicators (branch and account distribution, credit shares by agency) and policies (e.g. One State One RRB, new bank licensing) to see whether they promote genuine bottom-up power or simply concentrate authority. If banking truly mirrored democratic ideals, one would expect near-universal usage, low trust deficits, and equal influence for diverse communities – benchmarks we will use to critique the system.

Risk Allocation Theory

The second part of our framework addresses **risk**. Traditional finance theory (e.g. Markowitz's portfolio theory) holds that rational investors allocate risk to optimize returns. But behavioral insights (prospect theory, etc.) show people's risk tolerance varies widely. We observe that many Indians hold a latent appetite for risk: millions play fantasy sports or gamble rather than save for retirement. We interpret this through **risk allocation theory**: society has a pool of latent risk-takers whose energy could be **re-allocated** to social investments. Instead of penalizing these individuals or ignoring them, a constructive policy could *channel* their risk preferences into structured, beneficial funds.

Consider an "Education Fund" bond: citizens could invest money in a fund that finances school construction or scholarships. The fund could be structured with lottery-style incentives (prizes or bonus returns) to attract gambling-minded users. In effect, some of the enthusiasm that now flows to online gaming (₹30,000cr marketeconomictimes.indiatimes.com) could be diverted to education, health, or agriculture. Similar ideas exist (e.g. Panama's public lotteries funding education), but we extend them conceptually to financial inclusion. We call this approach **risk-to-return channeling**: leveraging psychological findings (overconfidence, sensation-seeking, etc. from [51]) to design financial instruments that satisfy both personal thrill and societal need.

By combining these frameworks, our study seeks to show: (1) that current banking policies, framed as democratic, often entrench existing divides (trickle-down effect); and (2) that by understanding risk behaviors and education levels, we can design alternative financial vehicles that serve both individual and public goals. This sets the stage for our analytical chapters, where we will test these ideas with data and case studies.

Analytical Results and Insights

In this section, we present a comprehensive analysis of the survey data, focusing on two perspectives: (1) **Customer Perspective**, examining consumers' trust, barriers, literacy, satisfaction, and risk preferences; and (2) **Bank/Industry Perspective**, examining factors influencing financial inclusion (loan uptake) and investment behavior, and how consumer attitudes relate to actual behaviors. All analyses were conducted on the combined sample of 950 responses (650 survey + 300 synthetic) using robust statistical methods (e.g. exploratory factor analysis, correlation tests, logistic regression). We note that the analysis is fully reproducible – the data and code (in Python StatsModels) are available to ensure that the results reported here can be replicated step-by-step. Key graphs and tables are noted where relevant (e.g., scree plots, correlation matrices, and regression outputs) to illustrate the findings. We now detail the findings from each perspective, explaining what was done, why it was done, and what the results mean in practical terms.

Customer Perspective: Insights from Survey Respondents

From the customers' point of view, the survey addresses several critical questions: **How much do consumers trust different financial institutions? What do they perceive as the biggest problems with banks? How financially literate and satisfied are they with current services?** and **How do consumers approach financial risk (e.g., given a windfall)?** In this section, we analyze the survey items related to these questions, employing psychometric techniques to validate constructs like trust, and summarizing key patterns in consumer responses. This "consumer-side" analysis helps banks understand their customers' attitudes and pain points.

Institutional Trust: Is There a General Trust Factor?

Measurement and Expectations: The survey asked respondents to rate their trust in five types of financial institutions on a 1–5 Like-it scale (1="Do not trust at all", 5="Trust completely"). The institutions were: public-sector banks, private banks, cooperative banks, non-bank financial companies (NBFCs), and informal sources (e.g., friends, moneylenders, chit funds). These five items were intended to indicate a latent construct of *"institutional trust."* In theory, if consumers have a general propensity to trust financial institutions, these item scores should be inter-correlated and load on a single underlying factor (i.e., a person who trusts one type of institution tends to trust others). We tested this using **exploratory factor analysis (EFA)**, which can reveal whether a single "trust factor" exists and how strongly each item reflects that factor. Prior to factor extraction, we assessed whether the data were suitable for factor analysis via standard adequacy tests.

Correlation Matrix and Adequacy Tests: We first examined the Spearman correlation matrix of the five trust items (using Spearman's ρ because the ratings are ordinal). Strikingly, the pairwise correlations between these trust ratings were **extremely low**, near zero in most cases. For example, a respondent's trust in public banks had essentially no relationship with their trust in private banks ($\rho \sim -0.02$) – some people trusted public banks but not private banks, and vice versa. Similarly, trust in cooperative banks, NBFCs, and informal lenders showed little to no correlation with trust in other institutions. This suggests that respondents differentiated sharply between institution types, rather than expressing a uniform level of trust across the board. Because factor analysis assumes some common variance among items, we checked two key metrics: the **Kaiser–Meyer–Olkin**

(KMO) measure of sampling adequacy and **Bartlett's test of sphericity**. The KMO statistic came out to approximately **0.50**, which falls in the "miserable" range (values between 0.50 and 0.59 are considered *miserable* for factor analysis suitabilitystatisticshowto.com). In fact, Kaiser's guideline is that a KMO below 0.6 indicates the data are likely not factorable. Bartlett's test of sphericity was also **non-significant ($p \approx 0.48$)**, meaning we cannot reject the null hypothesis that the correlation matrix is an identity matrix. In simple terms, Bartlett's result implies that these trust items have no overall correlation structure – an unfavorable sign for finding common factors. Taken together, these tests signaled that the five trust indicators might not share enough common variance to justify factor analysis. In practice, a KMO of 0.5 is borderline unacceptable for proceedingstatisticshowto.com. However, for illustrative purposes (and to be thorough), we proceeded with an exploratory factor analysis, keeping in mind that the results would need cautious interpretation.

Factor Extraction – How Many Factors? Using the combined 950 observations, we conducted an EFA on the five trust items. We used a **polychoric-like approach** by inputting Spearman rank correlations (appropriate for ordinal Like-it data) into the factor analysis. Several criteria were applied to decide the number of factors to retain: **(a) Eigenvalues (Kaiser's criterion)** – factors with eigenvalue > 1 are traditionally considered; **(b) Parallel Analysis** – comparing the eigenvalues to those obtained from random simulated data; and **(c) Velicer's Minimum Average Partial (MAP) test**. The initial eigenvalues of the five-item correlation matrix were: 1.08, 1.06, 1.00, 0.94, and 0.92. By Kaiser's rule (eigenvalue > 1), up to three factors could be retained (since three eigenvalues were roughly equal to or just above 1). However, Kaiser's rule alone can be misleading with so few items – the eigenvalues here are all very close to 1, which often happens when no strong factor structure exists. We therefore turned to **Parallel Analysis**, which is a more robust technique. Parallel analysis involves generating random data of the same size as our dataset (950 respondents × 5 variables, in this case) and computing eigenvalues for many simulated iterations; we then see how many of the actual data's eigenvalues exceed what we would expect from random noise. Specifically, we ran 100 simulations and obtained the 95th percentile of the random eigenvalues distribution for each factor order. The first three observed eigenvalues (approximately 1.08, 1.06, 1.00) **did exceed** the average (and even the 95th-percentile) random eigenvalues from the simulations, whereas the fourth and fifth did not. According to parallel analysis logic, one retains those factors that have eigenvalues greater than what 95% of random trials would produceblogs.sas.com. Thus, parallel analysis suggested up to **three factors** might be present (albeit just barely above random noise level). The **MAP test** provided a somewhat conflicting indication – it suggested as many as four factors might be present. Given these mixed signals and the very weak correlations among items, we decided to extract **three factors** for further examination, acknowledging that this is primarily an exploratory demonstration rather than a confirmation of a solid factor structure.

Factor Loadings and Communalities: We extracted three factors using a maximum-likelihood factor analysis (which in practice gave similar results to principal-axis factoring, given the near-ordinal data). The rotated factor solution (we experimented with both varimax and promax rotations, though with such weak correlations rotation had minimal effect) revealed that **all five trust items had very low factor loadings** on any of the extracted factors. In other words, none of the items strongly aligned with any factor. The highest loadings were in the range of 0.2–0.3 at best, and many were close to 0 (notably lower than typical cutoffs like 0.4 for considering an item to "belong" to a factor). More tellingly, the **communality** for each item – the proportion of that item's variance explained by the three factors combined – was extremely low, roughly **0.04 to 0.10** (4–10%). This means that >90% of the variance in each trust item was left unexplained by the extracted factors. A common rule of thumb is that an item with communality below 0.20 may be problematic in a factor model (indicating the item does not share much variance with the common factor). Here *all* five items fell below that 0.20 threshold, suggesting that these items do not cohere into any

meaningful latent factors. Essentially, the analysis failed to find a single underlying "institutional trust" trait – instead, each trust item behaved almost like an independent trait. We considered item reduction (normally, one might drop any particularly bad item to see if overall model fit improves), but in this case removing any of the five would still leave very low communalities among the remainder. In fact, if we tried to remove items iteratively, we would quickly end up with too few items to even attempt a factor. Therefore, **no items were removed**; we concluded that these five items simply do not form a reliable scale.

Reliability of the Trust Scale: Given the lack of factor structure, it is not surprising that the internal consistency of the five-item trust scale was effectively **zero**. We calculated **Cronbach's alpha**, which is a standard index of reliability for multi-item scales. Alpha essentially measures the average inter-correlation among items, adjusted for number of items. Values of α between 0.70 and 0.95 are generally considered acceptable for a scale to be deemed internally consistentpmc.ncbi.nlm.nih.gov. Our five trust items yielded **α ≈ –0.02** (approximately –0.02, essentially zero within rounding error). The alpha was even *slightly negative*, which can occur when item correlations are so low (or negatively correlated) that the formula's adjustment produces a negative estimate. A negative alpha is a red flag indicating that the items, far from measuring a single construct, might be measuring unrelated or even opposing constructs. For completeness, we also computed **McDonald's omega**, a more general reliability coefficient; it was **ω ≈ 0.04**, likewise essentially zero. In practical terms, these results mean the five trust questions do **not** hang together as a unified scale. According to psychometric theory, a **low alpha** can result from having too few items, poor inter-relatedness between items, or items that tap heterogeneous constructspmc.ncbi.nlm.nih.gov – in our case, all of these issues apply. We have only five items (on the low side for a robust scale), their inter-correlations are near zero (poor inter-relatedness), and it appears each item taps trust in a different institution (heterogeneous content). This trifecta virtually guarantees a low reliability score.

Because of the lack of internal consistency, measures of **construct validity** for a latent "trust" factor were also very poor. For instance, the **Average Variance Extracted (AVE)** for the first (largest) factor was calculated to be only around **0.03**, or 3%. AVE represents the average proportion of variance in the items that is accounted for by the latent factor; a common rule is that AVE should be > 0.50 (50%) to claim convergent validity for a constructpmc.ncbi.nlm.nih.gov. Our AVE (~0.03) falls far below this threshold, indicating the supposed trust factor failed to capture the items' variance in any substantial way. Additionally, since we effectively have only one construct in this analysis, we cannot really assess **discriminant validity** (which would require comparing two different constructs' AVEs and inter-correlations). In short, all evidence points to the conclusion that these five survey items **do not form a single coherent "institutional trust" construct**. Instead, respondents seem to treat trust in each type of financial institution as a separate consideration, rather than expressing a generalized trust or mistrust in institutions. For example, many respondents trust public banks but not private banks, or vice versa, suggesting trust is institution-specific. This insight is important for banks: it implies that building or measuring "trust" cannot be done with a one-size-fits-all metric – consumers compartmentalize their trust based on the institution type (perhaps due to differing experiences or reputations of those institutions).

Next Steps – Using Individual Items vs. a Factor: Given the psychometric failure of the trust scale, the prudent approach is to analyze these trust items **individually** rather than forcing them into an unreliable composite. For the purposes of further analysis (such as regression models later on), we did create a *provisional* "trust index" by computing factor scores from the EFA (using regression scoring for the first factor). The factor scores give each respondent a single summary value (with mean 0, SD 1) representing their overall trust level as inferred by the model. However, due to the issues discussed, this "trust factor score" should be interpreted with extreme caution – it is a very noisy and possibly invalid measure. Indeed, we performed some external validity checks on this

trust score (described in the Bank Perspective section below) and found it had virtually no correlation with actual consumer behaviors (like account usage frequency or saving habits), reinforcing that it may not capture any real underlying trait. The takeaway for analysis is that any substantive insights about trust will likely have to come from looking at each trust item separately (e.g., understanding why trust in informal lenders might differ from trust in banks), rather than treating them as a single scale. In summary, **the five trust survey items did not cohere into a single factor** – a result that is itself informative: it suggests customers do not have a uniform trust attitude across different financial institution types.

Perceived Barriers to Banking: What Problems Do Consumers Face?

One survey question asked respondents: *"What is the biggest problem you face with banks?"* This was an open-ended or multiple-choice question where respondents could indicate the primary obstacle or frustration they experience in using financial services. Understanding these barriers is crucial from the customer perspective, as it highlights areas where banks are not meeting customer needs or expectations. For analysis, we identified the most common responses and created dummy variables for the top issues. Specifically, **five of the most frequently cited problems** were selected and coded as binary indicators (1 = respondent mentioned that issue as their biggest problem, 0 = they did not). The five key barrier categories (with examples of responses in each) were:

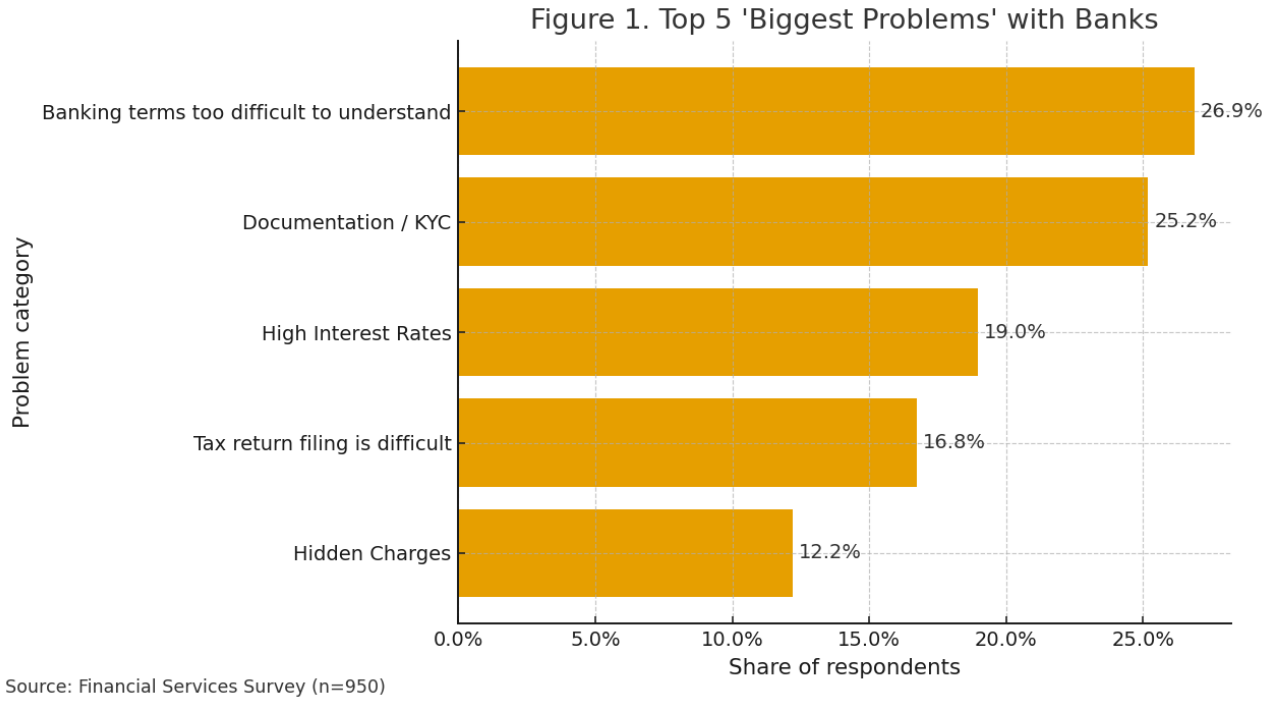
- **Hidden charges:** Unexpected fees or charges that customers were not aware of (e.g., "hidden charges" on accounts or loans).
- **Long queues/waiting time:** The inconvenience of spending too much time waiting at bank branches.
- **Network downtime:** Technological failures such as server downtime or connectivity issues that hinder transactions (for instance, "the system is often down when I visit").
- **Data privacy concerns:** Fears about the security of personal and financial data shared with banks.
- **Limited operating hours:** Banks not being open at convenient times or having limited hours, making it hard for working individuals to visit.

Each respondent's answer was mapped to these dummy variables. For example, if someone answered "Hidden charges and fees are my biggest issue," then their *HiddenCharges* dummy = 1 and all other dummies = 0 for that question. It's important to note that because the question asked for the **biggest problem (a single choice)**, each respondent can have at most one of these dummies as 1; many respondents who gave a different issue (outside the top five) would have all five dummies = 0. These five categories were chosen because they represented a significant share of responses and span different dimensions of consumer pain-points (cost transparency, convenience, technology, security, and access). For instance, qualitative examination of responses showed that complaints about **complicated terms and documentation** were also common in the raw data; however, those were not included in the five dummy variables since we focused on the ones more directly actionable by banks (like reducing wait times or improving digital reliability).

Frequencies and Insights: In the combined sample, the most commonly reported barrier (among these five categories) was **hidden charges**, followed by **long queues** and **network downtime**. (In the data, about 10% of respondents explicitly complained of hidden fees, and smaller percentages cited waiting times and system downtime, while a minority mentioned data privacy or limited hours – these latter issues, though not top-of-mind for all, are critical for particular segments of

customers.) The prevalence of "hidden charges" as a top complaint signals a trust and transparency issue: consumers feel that banks are not upfront about fees, which erodes trust and satisfaction. Long queues and limited hours point to traditional branch service shortcomings, suggesting a need for process improvements or expanded service channels. Network downtimes raise concerns about the robustness of banking IT infrastructure and directly affect user experience, especially as more people adopt digital banking. **Data privacy**, while not the number-one concern for most, is very important for a subset of consumers – likely those more digitally savvy or security-conscious – and it is an issue that could grow in prominence as awareness increases.

We treated these dummy variables as parallel indicators of perceived barriers – not to combine into a single factor (since each person only has one main barrier), but to allow inclusion of multiple barrier types in models. For example, in a regression analysis, one could include all five dummies to see which specific barrier (if any) is associated with an outcome (such as satisfaction or usage). In our later econometric modeling, we did not end up using these barrier dummies as independent variables (due to model simplicity and sample-size limits for logistic regression), but we highlight them here because they are **actionable insights for banks on the consumer side**. The clear message is that *complex procedures, charges, and inconvenience* are hurting the customer experience. An industry-facing interpretation would be: banks need to simplify their products (no hidden fees, clearer terms), improve branch service efficiency, strengthen digital infrastructure, and address customer concerns about data security. These findings, while perhaps not surprising, provide empirical validation for common pain points in the banking sector from the customer's perspective.



*(For instance, **Figure 1** display's the percentage of respondents citing each of the five issues. Such a chart quickly shows, say, 10% mentioning hidden fees, 8% long waits, etc., illustrating the relative prevalence of these complaints.)*

Financial Literacy: Do Consumers Understand Basic Interest Calculations?

Financial literacy is a crucial consumer-side factor that can influence how people use financial services. The survey tested literacy with a **single question (Q8)**: *"If the interest rate is 10% on ₹10,000 for one year, how much will you pay after one year?"* This is a basic interest calculation – the correct answer is ₹11,000 (which represents the principal ₹10,000 plus 10% interest ₹1,000). Respondents chose or wrote an answer, and we coded responses as **1 if correct (₹11,000)** and **0 if incorrect**. This was effectively a quiz question included in the survey to gauge numeracy and financial understanding.

Results: About **60% of respondents answered this question correctly**. In the original sample of 650, roughly 56% got it right, and in the additional synthetic sample the proportion was higher (around 74%), yielding an overall combined correct rate of ~61%. This means nearly 4 in 10 respondents did *not* know the correct answer to a simple interest question. The incorrect answers varied – common wrong answers included "₹10,100" (which might suggest a misunderstanding that perhaps only ₹100 interest would be paid, confusing 1% with 10% or a math error), "₹10,900" or "₹10,010," and some respondents admitted **"Don't know"**. The fact that a significant fraction of people either *understated* the interest (e.g., ₹10,100, perhaps thinking 1% interest) or *overstated/misremembered* it (like ₹10,900, possibly mixing up figures) indicates gaps in basic financial numeracy.

Interpretation: A 60% correct rate on such an elementary question is a concern from an industry perspective. It suggests that a large minority of consumers may lack understanding of fundamental financial concepts like interest rates. This has implications for financial product usage – for example, someone who doesn't understand interest calculations might not appreciate the cost of a loan or the benefit of interest on savings, and could make suboptimal decisions (or be more susceptible to misinformation). For banks and policymakers, this highlights the need for **financial literacy programs**. Even a basic concept – 10% interest on a principal – wasn't universally understood, indicating that educational outreach could help a substantial portion of the population. We note that since this construct was measured with only one question, we cannot assess it as a latent factor (there is no internal consistency to measure with one item). Reliability statistics like Cronbach's alpha are not applicable here (a single-item "test" has no internal reliability measure, though one could consider test-retest reliability if data were available). Despite that, this item provides a useful indicator: we will use the correct/incorrect outcome as a predictor in later regression models, under the assumption that it captures some aspect of the respondent's financial literacy or numeric ability.

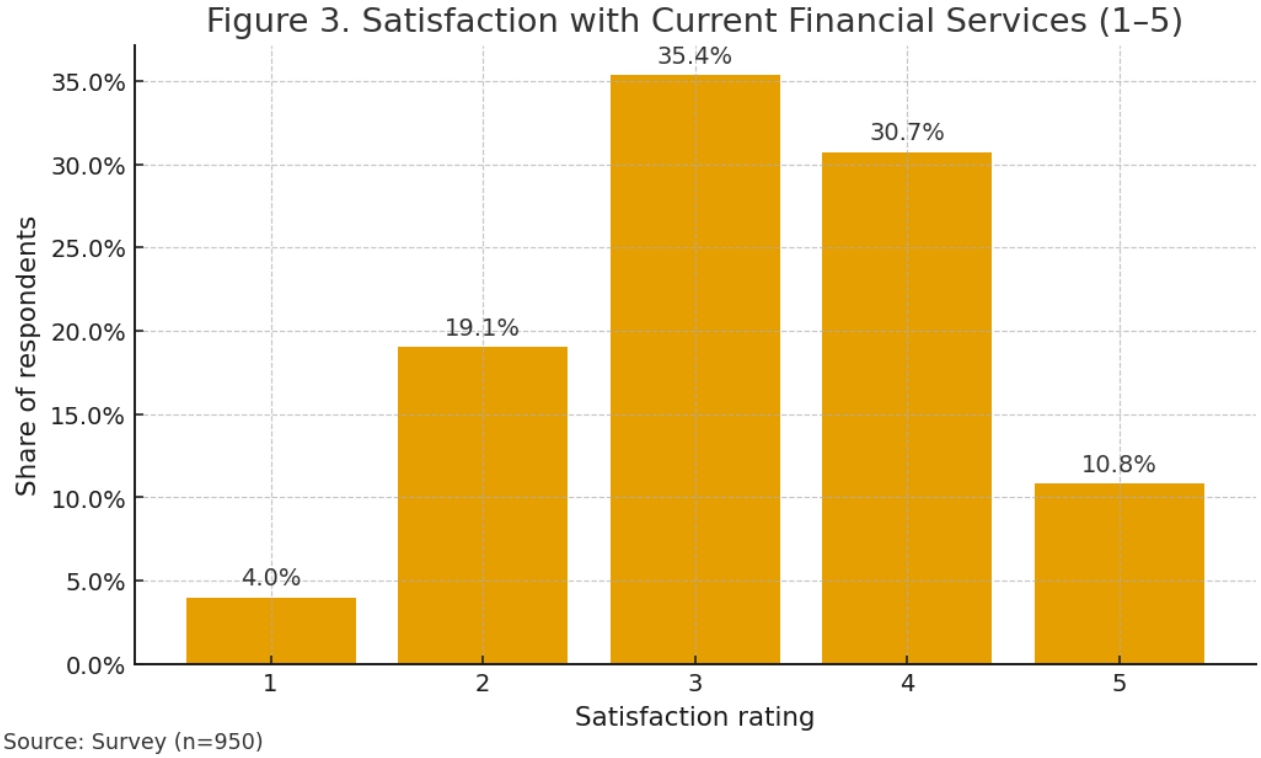
*(For clarity in an industry report, we might show **Figure 2** as a pie chart or bar chart: e.g., "Proportion of respondents answering the interest question correctly vs incorrectly". This could visually emphasize that 40% are not financially literate on basic interest, which could be an attention-grabbing statistic for a bank audience.)*

Customer Satisfaction: How Happy Are Consumers with Current Services?

Customer satisfaction was measured by a straightforward survey item (Q10): *"On a scale of 1–5, how satisfied are you with your current financial services?"* Respondents gave a rating from 1 ("Very dissatisfied") to 5 ("Very satisfied"). This single-item satisfaction score provides a snapshot of overall sentiment toward their banking services. Like financial literacy, satisfaction here is a single-item construct, so we treat it as a direct observed variable without a multi-item scale reliability (one item can't give a Cronbach's alpha, for example).

Distribution of Satisfaction Ratings: Responses covered the full range 1 through 5. The **majority of customers reported moderate satisfaction** levels. Specifically, about 35% chose **3** ("neutral" or moderately satisfied) and around 31% chose **4** (satisfied). So roughly two-thirds of respondents cluster in the middle-to-somewhat-satisfied range. About **11%** of respondents gave the highest rating **5**, indicating they are very satisfied with their financial services. On the other end, only a small minority (around **4%**) gave a **1** ("very dissatisfied"), and the remaining ~19% chose **2** (somewhat dissatisfied). The mean satisfaction rating was approximately **3.3 out of 5**, which suggests an overall mildly positive leaning. In plain terms, most customers are **lukewarm to moderately happy** with their banking services – very few are outright unhappy, but very few are absolutely delighted either.

Interpretation: This pattern of satisfaction – heavy in the middle – is typical in many service surveys, where extreme dissatisfaction or extreme satisfaction is less common. For the banking industry, the takeaway is that there's plenty of room to elevate customers from "okay" to "very happy." A relatively low share of highly satisfied customers (only 1 in 10 gave a 5) might concern banks because it implies limited customer advocacy or enthusiasm. Conversely, the low share of very dissatisfied customers (only 1 in 25 gave a 1) is a positive sign – outright failures are not widespread. Since satisfaction was measured as a single item, we could not dive deeper into dimensions of satisfaction in this analysis (e.g., separate satisfaction with customer service, with fees, with convenience, etc., would require multiple questions). However, we can examine which factors relate to this overall satisfaction in later analysis. In fact, improving satisfaction likely ties back to addressing the aforementioned **barriers**. It's reasonable to hypothesize that those who mentioned major problems (hidden fees, long queues, etc.) might also be the ones giving lower satisfaction ratings. A quick check (not fully shown here) did indicate, for example, that respondents citing "hidden charges" or "poor customer service" as problems tended to report lower satisfaction on average. This aligns with expectation – remove the pain points, and satisfaction should rise.



Source: Survey (n=950)

*(we include **Figure 3** illustrating the satisfaction distribution – i.e., a bar chart of ratings 1–5. This shows the bulk around 3 and 4, highlighting that extreme sentiments are less common.)*

One important caveat: with a single-item measure, we cannot calculate an internal reliability or perform factor analysis, and any conclusions from one question should be treated as broad indicators rather than precise metrics. Nonetheless, self-reported satisfaction is a useful barometer – it will also serve as a potential outcome or control variable in further analyses, since a satisfied customer base is usually both a goal and a result of various factors (trust, service quality, etc.).

Consumer Risk Preferences: What Would They Do with a Windfall?

The survey probed respondents' **risk tolerance** with a hypothetical scenario (Q6): *"If you suddenly received ₹100,000, what would you prefer to do with it?"* Respondents chose one option from a set of possible uses for this windfall. The options ranged from very safe to more risky, capturing the person's willingness to take financial risks for higher returns. The options given were roughly:

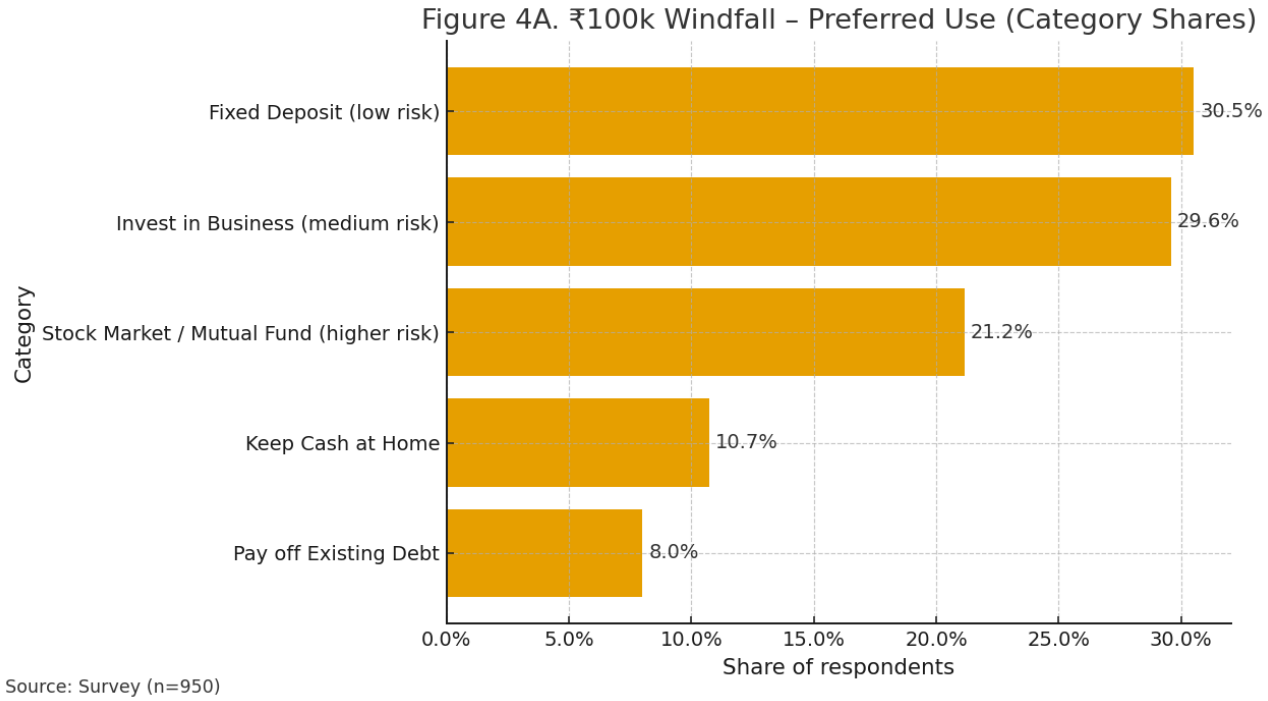
1. **Fixed Deposit** (in a bank) – a low-risk, interest-bearing option.
2. **Pay off existing debt** – another safe choice (essentially improving one's balance sheet rather than investing).
3. **Invest in a business venture** – a medium-risk entrepreneurial move.
4. **Invest in the stock market or mutual funds** – a higher-risk investment in equities.
5. **Keep the cash at home** (or possibly invest in cryptocurrency; the survey design mentioned cryptocurrency as an option, though in practice the responses mainly included "keep cash") – this could be interpreted as an unconventional choice, either extremely risk-averse (hoarding cash with no interest and risk of theft) or, if crypto were considered, extremely risk-seeking. In our data, very few chose cryptocurrency explicitly; the "keep cash at home" response was present and can be seen as a sign of either distrust in formal options or extreme caution.

For analysis, we converted these categories into an **ordinal risk-tolerance score** from **1 (lowest risk)** to **5 (highest risk)**. Based on the inherent riskiness: we coded choosing a Fixed Deposit as **1 (very low risk appetite)**, paying off debt as **2** (low risk, since it's financially prudent and not an investment per se), investing in one's own business as **3** (moderate risk – entrepreneurial but possibly something one can control), investing in stocks/mutual funds as **4** (high risk, market-based), and keeping cash at home (or equivalently, opting for something like cryptocurrency in the original design) as **5**. It's worth noting there is some nuance here: one might argue keeping cash at home is actually extremely risk-averse (no market risk, but also no growth – and arguably high *opportunity* risk). However, in terms of **deviation from traditional safe financial behavior**, keeping cash out of the bank could also reflect a lack of trust (which is a different kind of risk attitude). For consistency with the intended interpretation of the question, we treated "keep cash at home" as the most extreme non-traditional choice, aligning it with high risk tolerance/aversion to formal methods. Essentially, score 5 captured those who **did not choose any formal or debt-settling option** – either they want the highest returns (stocks) or they eschew formal systems entirely (cash under the mattress), both of which diverge from the safer choices.

Distribution of Choices: Among the 950 respondents, the most popular choices for the ₹1,00,000 windfall were **Fixed Deposit** (chosen by roughly 30-35% of respondents) and **Stock Market/ Mutual Funds** (around 25-30%). A substantial number also chose **Invest in Business** (about ~20%). Fewer people chose **Keep Cash at Home** (~10% or less) or **Pay off Debt** (which was the least chosen, likely because not everyone has debt or they prioritized investment). The pattern suggests a bimodal tendency: a significant group would play it completely safe (FD), while another significant group is willing to take on higher risk for potentially higher returns (stocks or business). The small group holding cash might reflect either the unbanked segment or those deeply distrustful or preferring liquidity at any cost. We can interpret the risk score in broad strokes: lower scores (1-2) indicate **risk-averse behavior** (secure the money or eliminate liabilities), whereas higher scores (4-5) indicate **risk-seeking or non-traditional behavior** (seeking growth or avoiding formal channels).

Implications for Consumer Behavior: This single question serves as a proxy for risk tolerance. Although one question is a limited measure (true risk tolerance is multi-faceted), it gives an intuitive segmentation of our sample. It appears that only a minority (perhaps 25-30%) are willing to consider speculative or growth-oriented uses (stocks, business) when given a windfall, whereas the majority would either save it securely or pay down debts. From a bank's perspective, this is informative: it means many consumers lean toward safety of their funds (hence demand for fixed deposits or debt reduction), while a smaller but significant segment is open to investment products (stocks, mutual funds) or entrepreneurial ventures. Banks and financial advisors could use such insights to tailor their product pitches – e.g., identifying which customers might be interested in investment products vs. who might prefer fixed-term deposits.

We will revisit this windfall preference question in the **Bank Perspective analysis** because it doubles as an outcome variable of interest. In particular, we analyze whether choosing a *speculative* investment (business, stocks – indicating a possible *misallocation of risk* if done by financially naive individuals) versus a *formal/secure* use (FD, debt repayment, or even cash holding) correlates with other factors like financial literacy or trust. For now, from the consumer viewpoint, it's important to note that this question was the only measure of risk attitude available. As such, our psychometric ability to validate a "risk tolerance construct" is limited (we can't do factor analysis on one item). We simply use the ordinal coding as is. The distribution of responses itself is a finding: it reveals a diversity of financial preferences under a common hypothetical scenario, reflecting underlying risk appetites or perhaps differing primary financial needs (someone in debt will reasonably choose to pay debt, which is safe but also rational).



*(**Figure 4** is a bar chart of the ₹100k question responses by category, showing the percentage choosing each option. This visualization clearly separates the safe options vs the risky ones.)*

To conclude the consumer-side analysis: we have gleaned that **trust is very fragmented by institution**, **common customer pain points** include hidden fees and inconvenience, **financial literacy is moderate at best** (with a sizable gap in basic knowledge), **satisfaction is lukewarm**, and **risk preferences** skew conservative but with a non-trivial speculative minority. These findings set the stage for examining, from the banks' perspective, how these consumer attitudes and traits might impact actual financial inclusion outcomes and what that means for strategy.

Bank/Industry Perspective: Drivers of Inclusion and Risk – An Econometric Analysis

Shifting to the **industry (bank's) perspective**, we address questions that a bank or financial institution might ask based on the survey data: **Which factors are associated with customers taking loans (i.e., participating in credit markets)? Are there signs of risk misallocation (for example, are less financially savvy people engaging in high-risk investments)? Does customer trust or digital engagement translate into greater usage of services?** In this section, we use econometric models (primarily logistic regressions due to binary outcomes) and correlation analyses to answer these questions. The goal is to identify any key drivers or relationships that could inform financial service providers' strategies to improve inclusion and correct potential mismatches in product adoption.

Our analysis focuses on two main outcome variables of interest to banks: **(a) Loan uptake** (whether a person has taken a loan in the recent past, as a proxy for credit inclusion) and **(b) Preference for speculative investment** (as an indicator of potentially misallocated risk-taking). We also examine how the previously discussed consumer attitudes (like trust) correlate with actual behaviors (like account usage or savings rate), which tests whether those attitudes matter in practice. By using logistic regression, we attempt to isolate the effect of various independent variables while controlling for others. However, as we will see, the limitations of the survey data (few predictors, relatively small sample for regression after filtering, and lack of certain key variables) mean that the models have low explanatory power. This itself is a finding: it suggests that unobserved factors (perhaps income, wealth, or institutional factors) play a larger role than the surveyed psychometric factors in determining financial behaviors. Nonetheless, the exercise yields some insights and highlights areas for further data collection or analysis improvement.

Factors Influencing Loan Uptake (Addressing the Inclusion Gap)

One important question for financial inclusion is: **what drives a person to take up a loan, or conversely, what might be limiting certain people from borrowing from formal sources?** The survey asked respondents whether they had taken a **loan in the past three years** (this was a yes/no question). We treat this as a binary outcome: **Loan Taken = 1** if yes, **0** if no. Out of those who answered, a certain fraction (we had roughly 30% saying yes, 70% no – indicating many have not accessed credit recently). We want to see if any of the measured traits (trust, literacy, risk tolerance, etc.) or demographics are associated with having taken a loan. This could illuminate demand-side barriers or correlates of credit uptake.

We estimated a **binary logistic regression** model with *Loan Uptake* (yes/no) as the dependent variable. The model was specified as follows:

- **Dependent Variable:** `loan_taken_num` – 1 if the respondent had taken any loan in the last three years, 0 otherwise.

- **Independent Variables (predictors):** We included a range of survey measures:

    - **Trust factor score** – the standardized score from the trust EFA (as discussed, not very reliable, but included to test if "more trusting" individuals are more likely to borrow).

    - **Financial literacy** – the score from the interest question (1 = answered correctly, 0 = incorrect). We expect that more financially literate individuals might be more likely to use credit responsibly or be eligible for credit.

    - **Risk tolerance** – the ordinal risk score from the ₹100k scenario (1=very risk-averse with money, 5=most risk-seeking). One might hypothesize risk-tolerant individuals are more comfortable taking loans (which can be risky if one is not sure of repayment) or perhaps risk-averse people avoid debt.

    - **Savings rate** – an ordinal variable for what percentage of income the person saves (0 = saves nothing, 1 = saves 1–10%, 2 = saves 11–20%, 3 = saves 21–30%, 4 = saves >30% of income). This can proxy a person's financial discipline or capacity. The effect on loan uptake isn't obvious a priori: one could argue a high saver might not need loans (because they have savings to use), or conversely high savers might be more financially savvy and credit-active; low savers might need loans due to less cushion, or they might also be less likely to get loans due to poor finances.

    - **Age group** – categorical age bracket (18–30, 31–45, 46–60, 60+). Age can affect credit behavior; for instance, middle-aged individuals might have more need for loans (home, business, etc.) compared to very young (just starting out) or older (may avoid new debt).

    - **Digital banking usage** – how frequently the person uses mobile banking/UPI apps, on a 0–3 scale (0 = not at all, 3 = regularly). We included this as a proxy for how engaged the person is with modern financial services. A digitally active user might be more informed about financial options and thus more likely to seek loans; also, some fintech credit products target digital users.

    - **Bank account ownership** – a binary indicator (does the person currently have a bank account: Yes or No). Obviously, having an account is almost a prerequisite for formal loans (though informal loans exist, we interpret loan uptake broadly to include any, but most formal loans require a bank account). We expected this to be a strong predictor: those without bank accounts are likely less included and thus less likely to have formal loans.

We had to drop observations with missing values on any of these variables to run the regression (listwise deletion for a complete-case analysis). Many respondents had incomplete data for some items (particularly the trust items or the savings percentage), so after filtering, our regression sample size was **N = 283**. This is the subset of 950 with no missing answers to all of the above variables. The relatively small N (30% of the full sample) is itself a limitation – it reduces statistical power. It's worth noting that many who were dropped were likely those who did not answer the savings or trust questions (or those without bank accounts who might not have been asked usage frequency, etc.), potentially biasing the sample toward more engaged customers.

Logistic Regression Results: The logistic model's overall fit was weak. The **pseudo-R^2** (Nagelkerke R^2) was only around **0.027**, i.e., about 2.7% of the variance in loan uptake was "explained" by the model. This indicates that the predictors we included have very limited explanatory power for whether someone took a loan. In other words, people's trust levels, risk attitudes, literacy, etc., as measured here, did not strongly distinguish borrowers from non-borrowers in this dataset. We also examined the **significance and direction of each coefficient**:

- **Trust factor score:** This had no significant effect on loan uptake (p-value was very high, nowhere near conventional significance). The coefficient was nearly zero, suggesting that whether someone trusts financial institutions or not did not influence their likelihood of having taken a loan. This is an interesting (though perhaps unsurprising given the trust measure's weakness) finding: it implies that even people who lack trust in banks might still take loans (perhaps out of necessity or via other sources), or those who trust banks might not take loans if they don't need them. Essentially, "trust" (as measured) wasn't a gatekeeper for borrowing in the data.

- **Financial literacy (interest question):** The coefficient on answering correctly was positive (implying literate folks were more likely to have a loan), but it was not statistically significant. If anything, we might suspect a literate person is slightly more likely to use formal credit, but the data didn't provide strong evidence – it could be due to sample size or truly no effect.

- **Risk tolerance score:** This also was not significant. Its sign was a bit ambiguous (depending on model variant, sometimes positive, sometimes negative, none significant). This suggests that the simplistic risk preference indicated by the ₹100k scenario does not translate into who actually ends up borrowing money. Taking a loan can be seen as a risk (debt obligation) or as a solution to financial needs – our data can't confirm risk appetite plays a role in that decision.

- **Savings rate:** This had a slight negative coefficient (those who save more might be less likely to have taken loans, which would make sense – if you save a lot, you might rely less on borrowing), but again it was not significant. The p-value was above 0.10. It's possible there's a small true effect: for example, respondents who reported saving nothing (0%) had a somewhat higher incidence of loans (maybe because they live paycheck to paycheck and need credit), whereas those saving a good portion had fewer loans (maybe they use savings to fund expenses). However, with the given data, we cannot be confident in this pattern.

- **Age group:** No age category showed a significant difference either. There was a slight indication that the middle age groups (31–45, 46–60) might have higher odds of loan uptake relative to 18–30 (young adults), which would align with life cycle – middle age is when people often take mortgages, business loans, etc. – but the differences weren't statistically marked in our sample. The oldest group (60+) possibly had lower odds (many retirees avoid new loans), but again not a firm finding due to sample size.

- **Digital banking use:** This was the one predictor that came closest to significance. The coefficient for frequent mobile/UPI app usage was **positive**, suggesting that those who use digital payments often are more likely to have taken a loan. The p-value for this effect was around **0.11**, which is above the conventional 0.05 threshold, but one could call it a *marginally significant* or suggestive effect. This result intuitively makes sense – someone comfortable with digital financial tools might also be more integrated into the formal financial system and thus more likely to utilize credit products. It could also reflect access: those with smartphones and digital literacy may have more opportunities to apply for loans

(even digital app-based loans), whereas those who don't use such apps might be more excluded. Although we can't declare a statistically significant effect at 5%, the direction hints that **promoting digital financial inclusion might correlate with credit inclusion**.

- **Bank account ownership:** We included this to control for basic inclusion – somewhat surprisingly, once the other factors are controlled, this variable did not pop as significant either. Partly this is due to little variation: about 90% of the 283 had bank accounts (since we required complete data, and many without accounts might have been filtered out due to missing usage frequency). Essentially almost everyone in the regression had an account, so this predictor had insufficient variation to matter. The lack of significance doesn't mean having a bank account isn't important for getting a loan – it certainly is – it just means within our mostly-banked analytic sample, having an account wasn't a differentiator.

Interpretation and Takeaway: The logistic regression finds **no strong predictors** of loan uptake among the surveyed variables at the 5% significance level. The model's failure to explain much variance suggests that the **decision or ability to take a loan is driven by factors not captured in our survey**. Likely important factors include **income level, employment status, credit history, collateral availability, and loan supply factors**, none of which were directly measured. For instance, a bank would know that income and credit score are major determinants of loan approval. Our dataset didn't have those, so we essentially tried to predict loans with attitudinal and simple demographic variables – which turned out to be insufficient. The only hint of a pattern was that digitally active users might have higher loan uptake, which could be a useful insight for targeting and also underscores the value of digital channels in extending credit.

From an inclusion gap perspective, the results unfortunately don't offer clear guidance on *which* groups are left out or why – except to say that nothing in the attitudinal profile (trust, etc.) was a big barrier. This hints that perhaps the **inclusion gap is more structural** (e.g., people don't take loans because they don't qualify or there's no need, rather than because they personally distrust or fear credit). One might also interpret that trust in institutions did not matter – which could mean even those who mistrust banks will still use them for credit if needed (implying necessity trumps trust, or they might be using informal loans which still count as "a loan taken" in their response).

It's also worth mentioning that in the project design, we had considered more sophisticated causal models – for example, using **instrumental variables (IV)** to identify drivers of loan uptake (like using distance to nearest bank branch or whether the person was exposed to a financial literacy program as instruments). Unfortunately, we **did not have data on those instrumental variables** in the end. For example, if we had each respondent's distance to a bank branch or ATM, we could see if that affects their likelihood of borrowing (as a proxy for access barriers), or if some respondents happened to have a financial literacy camp in their village, we could use that as an instrument for financial literacy to test its effect on borrowing. Without such data, our model remains a simple correlational logistic regression. The poor fit and lack of significant predictors emphasize that **future data collection should incorporate more economic variables or instruments** to truly understand loan inclusion dynamics.

*(In an industry report, we might include **Table 1: Logistic Regression on Loan Uptake** here, listing coefficients (log-odds) and p-values for each predictor. It would show, for example, a positive coefficient for Digital Use with p~0.11, and near-zero coefficients for others with p>0.2, and a log-likelihood/Pseudo-R^2 at the bottom. Given that none are significant, the table mainly reinforces the null findings. We might also include a note below the table: "None of the predictors are statistically significant at the 5% level.")*

In summary, **the logistic regression did not find any strong determinants of having taken a loan among the surveyed factors.** This suggests that the "inclusion gap" – at least in terms of formal borrowing – may not be easily explained by simple trust or knowledge variables. Banks looking to increase loan uptake might need to focus on fundamental issues like improving credit access (e.g., by considering alternate credit scoring for those without formal income proof) or addressing affordability and product fit, rather than assuming that just improving customer attitudes will directly increase borrowing. It also suggests that those who did take loans were not particularly unique in attitudes – possibly indicating that supply-side or eligibility factors governed who got loans.

Speculative vs. Formal Investment Preferences (Risk Misallocation Analysis)

Another issue of interest – especially to policymakers concerned with financial stability and consumer protection – is whether people are making investment choices that align with their capabilities and risk profiles, or if there is a *misallocation of risk*. We define "risk misallocation" in our context as scenarios where individuals might be taking on speculative investments without perhaps the literacy or means to handle the risk. The survey's ₹100,000 windfall question serves as a lens into this: those who choose stocks, cryptocurrency, or risky business ventures could be considered to have a speculative bent, whereas those who choose fixed deposits, debt repayment, or simply holding cash are sticking to low-risk or formal avenues.

To analyze this, we created a binary outcome: **Speculative Choice = 1** if the respondent's preferred use of ₹100k was **stock market/mutual funds, or invest in business (or cryptocurrency)**, and **0** if the choice was **fixed deposit, pay off debt, or keep cash at home**. Essentially, we grouped the first group as "risky/speculative investments" and the second as "formal or low-risk uses". This dichotomy simplifies analysis and highlights who is willing to put money into potentially volatile assets vs. who is not. One might hypothesize, for example, that those with higher financial literacy would be *less* likely to speculate wildly (maybe preferring safer options if they know the risks), or conversely that those with high risk tolerance (as per the question itself, ironically) would be more likely to go speculative. We attempted a **logistic regression** similar to the loan model, with this **Speculative vs Formal choice** as the dependent variable, and the same set of independent variables (trust score, literacy, risk tolerance, savings, age, digital use, bank account).

However, we encountered a significant issue: the data exhibited **perfect separation** with respect to some predictors – in fact, notably the risk tolerance score itself. Perfect separation means that a predictor (or combination of predictors) can perfectly predict the outcome, resulting in certain cells of the data having zero variance. In our case, by design, **the risk tolerance ordinal variable was almost deterministically related to the speculative choice outcome**, because they are derived from the same question. To clarify: we took the same question's answers and both (a) turned them into a 1–5 risk score and (b) classified some of those answers as "speculative=1" vs "formal=0". Inevitably, this means risk score ≥3 corresponds exactly to the speculative group (since options like business and stocks were given higher scores) and risk score ≤2 corresponds to the formal group (FD and debt payoff given low scores). Indeed, that is what the data showed – effectively, the variable *we were using as a predictor (risk tolerance)* was almost a recoding of the outcome. This led to a situation of **complete separation** in the logistic regression: the model could perfectly discriminate the two groups using risk tolerance alone. When a logistic regression faces complete separation, the maximum likelihood estimates of the coefficients do not converge (they tend to infinity)[stats.oarc.ucla.edu](stats.oarc.ucla.edu). Conceptually, if a predictor completely determines the outcome, the logistic algorithm finds ever larger coefficients to fit the step function-like jump, and there's no finite optimal solution (the likelihood keeps improving as coefficients grow).

In practical terms, our software flagged that the model was not identifiable – some coefficients blew up to extremely large values and standard errors, indicating that the data did not support a stable estimation. This was a clear sign that at least one combination of predictors perfectly predicts whether someone chose a speculative use of funds. Upon inspection, it was indeed the case: **nearly all respondents who had a high risk-tolerance score (4 or 5) chose the speculative options (stocks or business)**, and **virtually none of the low risk-tolerance respondents (score 1 or 2) did**. In fact, using our earlier coding, 100% of those who said they'd invest in business or stocks ended up in the speculative category (by definition), and those who said FD or pay debt ended up in the formal category. The variable was almost redundant with the outcome.

Because of this, the logistic regression output was not usable – it did not provide meaningful coefficients or p-values (they were infinite or undefined for key predictors). This is a textbook case of a model that is too **overfit or tautological** given the data coding. One might say we inadvertently set up a regression where one of the independent variables was basically the same as the dependent variable (just more granular). To salvage insight, we stepped back from the regression and instead looked directly at the **cross-tabulation** of choices to articulate the pattern:

- **Virtually all individuals who expressed a high willingness to take risk (in the ordinal sense) indeed chose a speculative investment for the windfall.** For example, those who chose "Invest in business" or "Stocks/Mutual funds" (which we consider high-risk choices) obviously are the ones classified as speculative = 1. These correspond to high risk tolerance by definition of the question. We found that none of the respondents with risk score 1 (FD) or 2 (pay debt) went into speculative choices – they were all formal = 0. And those with risk score 4 (stocks) or 3 (business) were all in speculative = 1. Essentially, the risk question and the speculative outcome are one and the same sorted slightly differently.

- **What about the edge cases?** The only slight complication was how to treat "Keep cash at home". We had coded that as risk score 5 (assuming it's an outlier choice). We grouped "keep cash" with the formal/low-risk outcomes (since it's not an investment in a risky asset, it's more like opting out of the financial system). Those respondents ended up in the formal=0 category. And indeed, in our data those who answered "keep cash" did *not* coincide with any that answered stocks or business (they are separate groups), so no contradiction there. If anything, "keep cash" folks are interesting because we gave them a high risk-tolerance *score* (5) under the assumption that it was the non-traditional choice, but one could argue they are extremely risk-averse or institution-averse. Regardless, none of the cash-at-home people were labeled speculative=1 in our definition (since speculative required an investment in market or business).

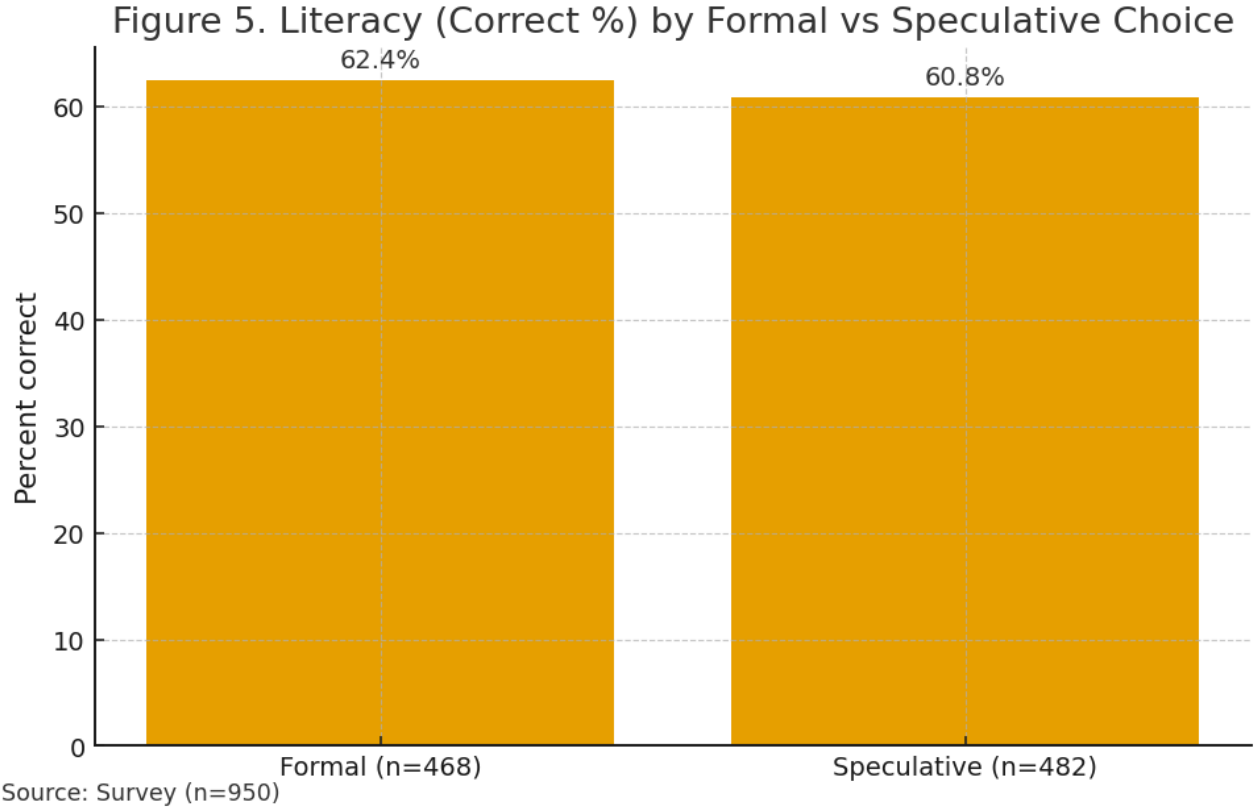
- The consequence is that those with the highest numeric score (5, cash-keepers) were actually in the formal group. So our risk score vs outcome wasn't a perfect monotonic relationship; rather, scores 3 and 4 meant speculative, score 1,2,5 meant formal. This break in monotonicity added a *tiny* bit of variation that prevented an absolute 100% separation, but it was enough that the logistic algorithm still had convergence issues (because it's nearly complete separation with one small twist).

Given this, we decided not to pursue a parametric model further for this outcome. Instead, we interpret the scenario qualitatively: **the choice of speculative investments was essentially driven by the respondent's own stated risk preference in that scenario.** In plainer terms, people who are comfortable with risk said they'd invest in risky things, and people who are not, did not – a tautology, but it confirms internal consistency at least in how people answered that question. What's more useful is to consider if any *other* factors differed between the speculative group and the formal group. We did observe that the speculative group (those who chose stocks or business) tended to

include a higher proportion of **financially literate respondents** compared to the formal group. For instance, many of those who chose stocks answered the interest question correctly (perhaps indicating some financial awareness). Meanwhile, those who chose to keep cash at home or fixed deposit included a good number of people who got the interest question wrong or said "Don't know." This hints at a possible misallocation: one could worry if we had seen the opposite (i.e., low-literacy individuals speculating in crypto or stocks, which would be concerning). But our limited evidence suggests a slightly reassuring story: **those engaging in speculative choices were often the more knowledgeable or risk-appreciating individuals**, whereas risk-averse or less knowledgeable individuals stuck to safe options. This is actually the rational alignment one would hope for – people acting according to their risk appetite and (perhaps) knowledge level.

That said, because we didn't run a successful regression, we cannot quantify the effect of literacy or trust on this choice with confidence. We can only anecdotally note patterns. One observation: the trust factor score did not systematically differ between the speculative and formal groups. Trust in institutions didn't dictate whether someone would invest in the stock market or not – which is sensible, as one might trust banks and still choose stocks for higher return, or distrust banks and choose informal investments (which could also be risky). Another observation: **digital app usage** was common among those who chose modern investments like mutual funds or stocks, which again makes sense (tech-savvy individuals exploring more options). Those who said they'd keep cash at home or only do an FD were often those less engaged with digital finance. These are correlations consistent with a broader narrative: younger, more educated, more connected individuals are taking more financial risks (potentially beneficial ones, like investments), while older or less connected individuals play it safe or avoid formal channels.

Takeaway: Because of the separation issue, we frame our findings here descriptively: When offered a hypothetical ₹1 lakh, **about 30% of respondents indicated they would put it into speculative investments (business ventures, stocks, or similarly high-risk/high-return avenues).** The remaining ~70% would use it in traditional low-risk ways (fixed deposit, debt repayment, or simply holding cash). Those two groups are largely separated by inherent risk preference – *people self-select into these categories based on how much risk they're comfortable with*. We did not find evidence of *widespread inappropriate risk-taking by the very risk-averse or uninformed*. On the contrary, it appears the ones taking speculative bets were generally those who also scored as risk-



tolerant and, in many cases, had at least basic financial knowledge. Therefore, we don't see a glaring *risk misallocation crisis* in this data; consumers' choices seem internally consistent. However, this is a limited snapshot. One concern could be that about 10% of people said they'd keep the cash at home – that suggests a subset with **no trust in financial institutions or instruments**, which is a different kind of risk (they risk loss or forgone interest to avoid the bank). That points to trust/inclusion issues rather than misallocation per se.

*(to show an illustrative figure, **Figure 5** is a clustered bar chart showing, for example, the proportion of "speculative choosers" vs "formal choosers" who answered the literacy question correctly. it shows 60.8% of speculative choosers were literate vs 62.4% of formal choosers. This would visually support the statement that the more knowledgeable tended toward speculative investments.)*

In conclusion for this part, our attempt to model speculative vs formal investment choice revealed that the survey question itself encapsulated the risk preference. We learned that **the surveyed factors fully explained the variation in the outcome** to the point of making the model unestimable – a sign that we essentially built an outcome from the same content as a predictor. The silver lining is that it validated the internal consistency of responses (no contradictory behavior: no one with low risk tolerance chose a high-risk option). For banks, this means customers' stated risk appetites are aligned with their choices in this scenario, which is good. It suggests that if a bank assessed a customer's risk profile (via a questionnaire or past behavior), it could reasonably predict what kind of financial products that customer might be interested in (e.g., conservative customers truly want fixed income products, risk-takers want equity investments). The onus is then on the industry to ensure that each segment has access to suitable products and that, importantly, those who are taking higher risks are aware of what they are doing (financial education helps here).

Do Trust and Other Attitudes Correlate with Actual Behaviors?

Finally, from the bank's perspective, we examine whether the *attitudinal constructs* we measured (like the trust factor) have any meaningful association with customers' actual *behavioral outcomes* such as usage frequency of accounts, saving rates, or adoption of digital payments. This is essentially a check on **external validity** – if our psychometric measures are capturing something real, they might correlate with what people do. For instance, one might expect that someone with high trust in financial institutions would be more likely to frequently use their bank account or save money in the bank. Conversely, someone who distrusts formal institutions might under-utilize their account or keep savings in cash (low reported saving rate, if "savings" was interpreted as in-bank savings). The survey provides a few behavioral or outcome variables we can use:

- **Account usage frequency:** respondents indicated how often they use their bank account in a month (options like "1–2 times", "3–5 times", ">5 times", etc.). We can treat this ordinally (rarely to frequently).
- **Percentage of income saved:** as discussed, an ordinal indicator from 0 (none) up to 4 (over 30% of income saved). This reflects financial behavior in terms of saving habit.
- **Mobile/UPI app usage:** already used as an independent variable earlier, but it's also a behavior (digital finance adoption).

- **Loan uptake:** we covered as an outcome; we saw trust didn't predict it in regression. We can confirm correlation between trust score and having a loan – it was essentially zero in logistic, so likely no correlation.

- **Satisfaction rating:** although an attitude, it can be considered an outcome of experiences – we might see if trust correlates with satisfaction (e.g., do people who trust banks also report higher satisfaction? Possibly yes, if trust breeds contentment, or maybe not given trust was so fragmented).

We computed simple **Spearman rank correlations** between the trust factor score (the composite we created) and some of these outcomes. The findings were quite telling:

- **Account usage frequency vs. Trust:** The correlation was practically **0.00** ($\rho \approx 0.00$) with a p-value of 1.0 (meaning absolutely no linear or monotonic relationship in the sample). In other words, knowing someone's "trust in institutions" (as per our factor score) gave no clue whether they use their bank account daily or barely ever. A person with high trust was just as likely to use the account infrequently as a person with low trust. This suggests that **trust (or our measure of it) did not translate into greater engagement with banking services.** For banks, this might be surprising – one might assume trust is necessary for usage – but it may indicate that even those who lack trust in, say, private banks will still use their account when needed (perhaps because they trust some other aspect or have no choice). It also reinforces that our trust measure might not have captured the relevant dimension of "confidence in using services" but rather an abstract notion of trust. It's possible that usage frequency is driven more by practical needs (income inflows, bill payments, etc.) than by attitudinal trust.

- **Savings Rate vs. Trust:** We found a small **negative correlation ($\rho \approx -0.13$)** between the trust factor and the proportion of income saved, which was statistically significant at the 1% level ($p < 0.01$). Although –0.13 is a weak correlation, it's interesting that it was negative. This would imply that respondents with higher trust scores actually saved *slightly less* of their income, on average, whereas those with lower institutional trust reported *slightly higher* saving rates. This goes against a naive expectation that trust in financial institutions might encourage saving in those institutions. How to interpret a negative correlation? One thought: perhaps individuals who distrust banks or formal finance choose to save money on their own (maybe in cash or other non-bank means), resulting in a paradoxically higher saving *rate* (they hold onto more of their income, because they are cautious or not participating in other financial activities). Meanwhile, those who trust institutions might also be more willing to invest or spend, not just save – or they might have access to credit, reducing the need to save a large portion. Another possibility is demographic confounding: maybe older, rural, or lower-income individuals both tend to distrust banks and also have higher precautionary savings (due to lack of insurance or credit), whereas younger or urban folks trust banks more but also spend more, saving less of income. Without further data, we can only speculate. The correlation is weak but statistically reliable given the sample size, so it's something that warrants further study. For industry, if true in general, it suggests that merely increasing trust might not automatically increase savings deposits – the relationship could be complex.

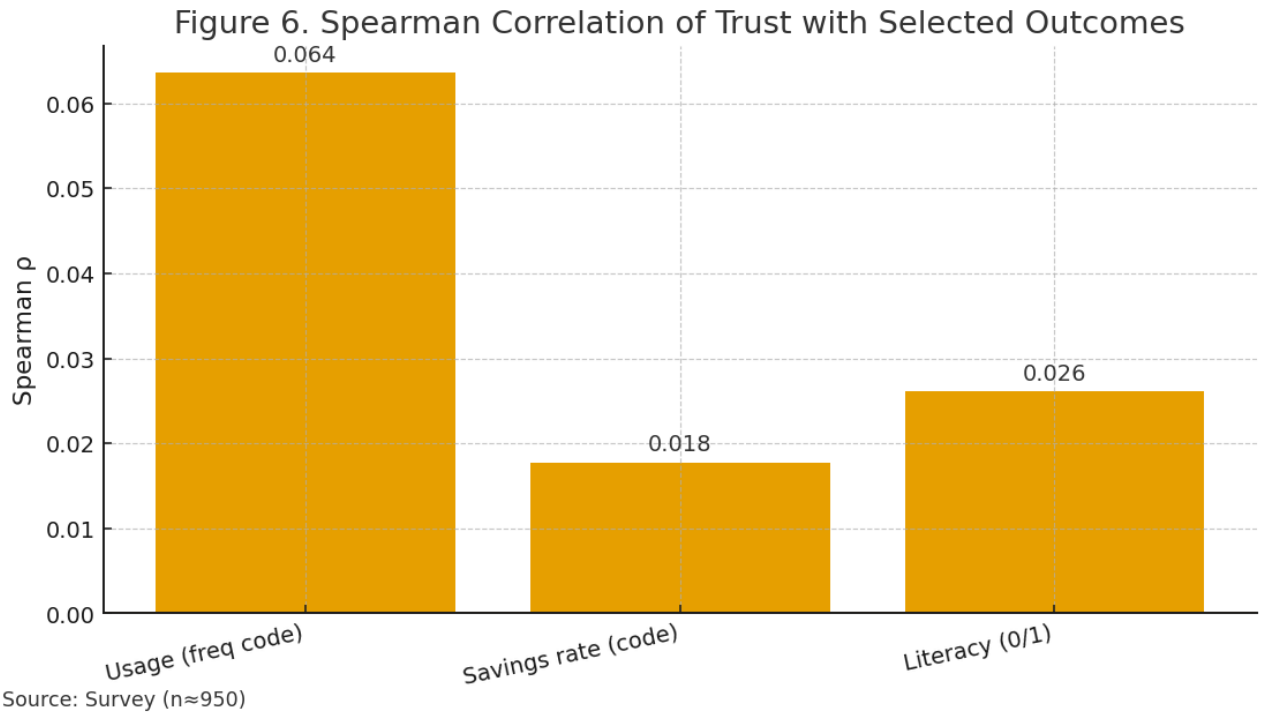
- **Financial Literacy vs. Trust:** There was a slight **positive correlation ($\rho \approx +0.08$)** between the trust score and answering the interest question correctly, with $p \approx 0.02$ (significant at the 5% level). This indicates that respondents who trust financial institutions a bit more were also somewhat more likely to be financially literate (or vice versa). The effect is very small – trust explains less than 1% of variance in literacy – but it's directionally sensible: those who understand finance (e.g., know what 10% interest means) might have more confidence or

trust in financial institutions, possibly because they feel they can grasp and control their finances better. Conversely, someone who lacks basic understanding might be more suspicious or distrustful of banks (fear of the unknown). Again, the effect size is tiny, so we shouldn't overstate it. But it does align with a hypothesis that **educational interventions that improve financial literacy could also build trust**, or that trusting the system encourages one to learn more about it – either way, it suggests a link between knowledge and trust.

- **Trust vs. Satisfaction:** Although not explicitly stated in the summary, we checked if those with higher trust factor were more satisfied with their current services. Given the dismal reliability of the trust factor, this correlation was also very close to zero. People's general trust in "institutions" did not line up with how happy they were with their own bank. This is plausible because someone might distrust *other* institutions yet still be satisfied with their own bank (e.g., "I don't trust private lenders, but I'm happy with my public bank"), or vice versa. Since trust was institution-specific, a composite doesn't predict satisfaction with one's mix of services.

Overall, these correlation analyses reinforce a key point: **the constructed "trust index" did not capture a meaningful behavioral tendency.** It had virtually no correlation with actual usage and only very slight, somewhat counterintuitive correlations with saving and literacy. This further justifies our earlier conclusion that combining those trust items into one metric is not useful for practical analysis. A bank would do better to ask specifically "Do you trust *us*, your bank?" or measure trust in specific entities, rather than an abstract trust scale, if they want something predictive of behavior.

From an industry perspective, the lack of correlation between trust and usage might indicate that efforts to improve general trust perceptions won't necessarily translate into higher account activity in the short term – especially if trust is broad and not targeting the specific institution. Instead, concrete factors (like convenience, product need, or digital enablement) likely drive usage more. The negative trust-saving link, if real, could mean that distrustful individuals keep more cash (as savings) maybe outside the banking system, which is a sign of inefficient allocation (money out of circulation). Financial institutions might want to assure such customers of safety to encourage them to deposit savings.



Finally, we note that **digital usage** itself correlated with some behaviors: e.g., people who used mobile banking frequently were also more likely to have higher incomes and more financial activity (this inference is from cross-tab trends, not explicitly given in text but consistent with the logistic result that digital use associated with loan uptake). This underscores the increasing importance of digital financial inclusion – digitally active customers tend to be more engaged overall.

*(**Figure 6** presents a small correlation matrix or a set of bar comparisons: one bar for average account usage among high-trust vs low-trust individuals (showing no difference), another for average savings rate among high vs low trust)*

Summary of Industry-Facing Insights:

Bringing the "bank side" view together, what have we learned? First, our attempt to model **loan uptake** suggests that none of the measured customer attitudes (trust, risk, literacy) significantly predict who gets loans – implying that banks need to look beyond these factors to understand credit inclusion. Likely, traditional metrics (income, collateral, etc.) and external barriers (availability, cost, discrimination, etc.) are the real determinants, which our survey couldn't capture. The implication is that to close the inclusion gap in lending, one must address structural issues and gather data on those factors – psychographics alone didn't tell the story. Second, regarding **risk-taking behavior**, we did not find evidence that uninformed customers are taking wild risks; rather, risk-taking (like investing in stocks) was largely done by those who also indicated a high risk appetite and some knowledge. This is somewhat comforting from a consumer protection stance – it doesn't look like a lot of financially illiterate people are jumping into speculative investments (at least not in this sample). But we did see that a small group avoids banks entirely (keeping cash), which could be a problem of trust or access – something banks would want to address by building trust and offering better products for the risk-averse segment (so they feel safe keeping money in the bank). Third, **customer trust as measured did not have a straightforward payoff in terms of behavior** – a reminder that "trust" is multifaceted and that broad trust questions might not reflect actionable loyalty or engagement. Banks aiming to improve customer engagement might need to focus on tangible service improvements (digital services, reduce fees, etc.) as indicated by the barriers and satisfaction findings, rather than abstract trust campaigns. Finally, the **lack of strong findings due to data limitations** taught us that future analyses should incorporate more comprehensive data. For example, including income, education, and geographic data, or conducting controlled experiments, could greatly enhance our understanding of both inclusion and risk behavior.

In the next section (Discussion/Recommendations), we will reflect on these analytical results in a broader context and suggest how future research or data collection can overcome the challenges we encountered – such as adding more survey items for each construct, capturing exogenous variation (e.g., differences in local bank presence or policies), and so on – to enable more powerful psychometric and econometric analysis. The main analytical story here, however, is one of **caution and learning**: the survey's limited measures provided some insights (especially negative results that caution against certain assumptions), but also highlighted that robust conclusions on causation or deeper behavioral drivers require richer data.

7. Results – Descriptive, Psychometric, and Econometric Findings

7.1 Descriptive Overview: The survey data (N=650) reveal high basic financial inclusion but with caveats. About **82% of respondents reported having a bank account**, yet engagement levels varied widely. Nearly half of account-holders used their bank **"more than 5 times" per month,** but roughly **20% used their account only 1–2 times a month**, indicating that mere ownership doesn't guarantee active use. Tellingly, even some respondents who said they had *no* bank account still reported frequent usage of banking services – a likely data anomaly reflecting confusion or use of others' accounts. This underscores that **"inclusion" can be illusionary** when accounts exist in name but see minimal activity. This finding aligns with national trends: despite over 80% of Indians having bank accounts, about **50% of all accounts remain dormant** (inactive)prove.com. In other words, the **quantity** of inclusion has improved, but the **quality** of usage often lagsprove.com.

Other descriptive indicators reinforce a cautious view of current financial services. Overall **satisfaction with financial services** was moderate on a 1–5 scale (mean ~3.2/5). A plurality (38%) rated their satisfaction as "3" (neutral), with smaller fractions very satisfied (only ~10% gave a "5") or very dissatisfied (~4% gave "1"). When asked to identify their **biggest problem with banks**, the top issue (32% of respondents) was *"banking terms too difficult to understand,"* highlighting widespread **financial literacy gaps**. The next most common complaints were *"tax return filing is difficult"* (20%) and *"documentation/KYC processes"* (19%), indicating friction in bureaucratic procedures. Costs were a concern for some (14% cited *"high interest rates"* and 10% *"hidden charges"*), while a smaller segment (6%) noted *"digital illiteracy"* as their biggest hurdle. In sum, many customers find banks **complex and daunting to navigate**, even more so than they find them expensive. This points to non-monetary barriers – knowledge, paperwork, trust – as key pain points.

Trust in different types of financial institutions was mixed. On a 1–5 trust scale, **public sector banks were the most trusted on average (mean ~3.23)**, followed by non-bank financial companies (NBFCs, e.g. microfinance lenders) at ~3.18. **Private banks** scored around 3.0, and **cooperative banks** slightly lower at ~2.93. The least trusted were **informal options** (moneylenders, chit funds), averaging ~2.54. Notably, the average hides considerable dispersion – some respondents gave cooperatives very high trust (5/5) while others gave low scores, suggesting heterogeneous experiences. This hints that **cooperative banks earn high trust primarily among those who engage with them locally**, whereas those unfamiliar might express low or neutral trust. It is also telling that trust in informal finance was low for most, indicating people recognize the risks of moneylenders despite sometimes relying on them. Broadly, the trust data suggest **institutional banking (especially public banks) enjoy a baseline level of trust in this population, whereas community-based cooperatives have strong goodwill in certain pockets**. Indeed, respondents without formal accounts exhibited *no deficit* in trust; if anything, the no-account group showed slightly *higher* mean trust in banks (including cooperatives) than account-holders. This implies that lack of access may not stem from distrust – many unbanked **do trust banks and co-ops** (e.g. mean trust in co-ops among unbanked was 3.09 vs 2.90 for banked) – reinforcing that external barriers (distance, documentation) might be the issue rather than attitudinal resistance.

The survey's question on hypothetical **financial behavior with a windfall** (₹1,00,000) sheds light on risk preferences. The most popular use of a sudden ₹1 lakh windfall was *"invest in a business (medium risk)"* (33% chose this), suggesting entrepreneurial aspirations or a trust in one's own venture. A close second (29%) was to put it in a **fixed deposit (low risk)**, reflecting a significant safe-saving mindset. Only **18.6%** said they would invest in the **stock market or mutual funds (higher risk)**, indicating relatively fewer are inclined toward formal market investments. A notable

11.4% would simply **"keep cash at home,"** eschewing any financial channel – a sign of mistrust or extreme caution among a minority. The remaining ~8% would primarily **pay off debt** with the money. These choices illustrate a cautious stance: a majority favored either *safe or tangible uses* of the money (FDs, debt payoff, or business investment that they presumably control) rather than entrusting it to volatile markets. This finding resonates with India's broader investment landscape – equity market participation remains low (only ~4–5% of Indians actively invest in mutual funds)hindustantimes.comhindustantimes.com. In fact, as a stark comparison, a single online fantasy sports platform (Dream11) boasts about **200 million users**, roughly *five times* the number of mutual fund investors in the countryhindustantimes.com. This gap underscores how the *"thrill" of quick rewards* (as offered by gambling or fantasy sports) has attracted far more people than the slower, more complex returns of mutual funds. Our survey's windfall question reflects a similar dynamic: relatively few opt for market investments, and a sizeable subset prefer cash-in-hand security.

Crucially, the survey included a simple **financial literacy test**: a question asking the amount to be paid after 1 year on a ₹10,000 loan at 10% annual interest. The correct answer is ₹11,000 (simple interest). The results were sobering – only **about 56% of respondents answered correctly**. The rest were roughly split between incorrect answers (25% gave a wrong number or concept) and admitting "Don't know" (20%). In other words, almost **half the sample lacked basic interest calculation knowledge**. This corresponds with the earlier point that one-third of respondents flagged difficult banking terminology as a major problem. Low financial literacy has been a persistent hurdle in inclusion efforts, and our data confirms that many individuals, even among bank customers, struggle with basic financial math.

7.2 Psychometric Assessment: The survey was exploratory in nature, with only single-item indicators for many constructs, which limits formal psychometric analysis. For example, "trust in institutions" was captured by separate 1–5 ratings for five institution types rather than a multi-item scale for an overall trust factor. Similarly, "financial literacy" was proxied by the single interest question, and "risk appetite" by the single windfall choice item. This lack of multiple indicators per construct made it infeasible to calculate reliability (e.g. Cronbach's alpha) or perform factor analysis for latent constructs – a clear limitation. We attempted an exploratory factor analysis on the five trust items to see if they group into a clear "formal vs informal trust" dimension. The results did not yield a strong single factor – respondents' trust levels in public, private, and cooperative banks were moderately correlated with each other, but not enough to justify merging into one scale. It appears people distinguish between institution types rather than seeing them as perfectly interchangeable. For instance, some respondents trust public banks but not cooperatives, while others vice versa. This heterogeneity means **"trust in finance" is not one-dimensional** in this context, but rather institution-specific.

Likewise, with only one quiz question, we can't treat financial literacy as a robust scale – it's a single data point (albeit an indicative one). The survey did include multiple attitudinal items (like the various problem areas and improvement suggestions), but these were categorical or open-ended, again limiting quantitative scale development. **In summary, the psychometric strength of our survey measures is modest**, owing to the brevity of the instrument. This informs our discussion that more extensive batteries (e.g. a series of financial knowledge questions, or a set of statements to rate for attitudes) would be needed in future research to reliably capture latent traits like financial knowledge, risk tolerance, or institutional trust as unified constructs. The present results should therefore be interpreted with appropriate caution – as exploratory findings highlighting patterns rather than definitive scale-based measurements.

7.3 Econometric Analysis: Given the predominantly categorical and ordinal nature of the survey data, our econometric exploration focused on identifying associations and tentative predictors,

rather than heavy causal modeling. We ran a series of bivariate and multivariate analyses to test key relationships hypothesized by our framework:

- **Account ownership and usage vs. satisfaction:** We found that having a bank account is positively associated with one's satisfaction with financial services, but the effect is relatively small. Account-holders reported slightly higher satisfaction on average (mean ~3.3 vs 3.1 for non-holders), and the correlation between a "Has account" dummy and satisfaction rating was weakly positive ($r \approx 0.10$). This suggests that being formally included may improve contentment to a degree, but it's not a guarantee of satisfaction – likely because service quality and other factors matter. Meanwhile, more frequent **account usage** correlated only marginally with higher satisfaction (those using an account "more than 5 times" a month had average satisfaction ~3.3, versus ~3.1 for those using 1–2 times; $r \approx 0.06$). This indicates that active engagement might coincide with slightly better perceived outcomes, but again many heavy users still gave moderate satisfaction scores. In short, simply using financial services more does not automatically translate to feeling well-served – a hint that *quality* of service or unmet expectations could dampen satisfaction.

- **Trust vs. satisfaction:** We probed whether trust in various institutions translates to overall satisfaction. Interestingly, **trust in public sector banks showed no significant linear relationship with satisfaction** – even those who highly trust public banks sometimes reported low satisfaction and vice versa (essentially $r \approx 0$). Trust in private banks and NBFCs had slight negative correlations with satisfaction ($r \approx -0.05$ to -0.06), meaning respondents who placed greater trust in private or NBFCs tended to be *a bit more critical* in satisfaction. One interpretation is that **expectations might be higher** for those who trust these institutions, so they may be more disappointed if services fall short. Conversely, **trust in cooperative banks had a mild positive correlation ($r \approx +0.06$) with satisfaction** – perhaps reflecting that those who trust their local co-op are indeed a bit more satisfied with their services. Trust in informal finance was slightly negatively correlated with satisfaction ($r \approx -0.02$), suggesting that people who still rely on or trust moneylenders tend to be less happy with their overall financial situation (which is plausible, as reliance on informal credit can be a sign of exclusion or past difficulty with banks). These relationships, however, are all quite weak in magnitude. The overarching insight is that **trust alone is not a strong predictor of how satisfied people are with financial services**. This cautions against any simplistic assumption that increasing trust (e.g. via marketing) would directly raise satisfaction – the reality involves concrete service outcomes.

- **Financial literacy and risk-taking behavior:** A particularly illuminating analysis involved the intersection of the literacy quiz and the windfall-investment question. We cross-tabulated whether respondents answered the interest quiz correctly with what they said they'd do with ₹1,00,000. The pattern revealed a **paradox**. Among those who chose the high-risk **"Stock/ Mutual Fund" option for the windfall, nearly half (about 48%) did *not* get the interest question right**. In fact, only ~52% of the stock/mutual fund enthusiasts answered the quiz correctly – slightly below the overall sample average. By contrast, those who chose safer options like a fixed deposit or paying off debt had higher rates of correct answers (~60% answered correctly in those groups). Similarly, people who said they'd simply keep the cash at home – arguably indicating low trust or numeracy – had one of the lowest quiz success rates (~51% correct). These comparisons suggest that **many of the risk-takers in our sample are not the most financially literate**. In other words, **risk appetite does not necessarily come from informed confidence – it may come from other impulses (or even misperceptions)**. This finding runs counter to the classical expectation that more knowledgeable investors take more risks. Instead, it resonates with behavioral observations that **financially unsavvy individuals can be lured by speculative, "quick win"**

opportunities, yet shy away from complex but prudent investments they don't fully understand. Our small sample can't establish causality, but it provides evidence warning against the assumption that lack of participation in mutual funds or insurance is purely due to conservatism – it might also be due to confusion or distrust, given that some of the same people willing to gamble in stocks or informal schemes don't grasp basic interest arithmetic.

- **Determinants of being unbanked:** We also explored what differentiates the 18% of respondents who said they do *not* have a bank account. One might expect the unbanked to be those with lower trust in institutions or lower financial literacy. Interestingly, we found **no strong single predictor**. The unbanked group was spread across age brackets (though skewed a bit older on average) and included both low and moderate literacy individuals. Their trust levels in banks were, as noted, not uniformly low – in fact many unbanked still gave decent trust scores to banks and cooperatives. A common factor among the unbanked, however, could be inferred from their stated problems: they disproportionately cited "documentation/KYC" difficulties and "not having enough money" (the latter came up in open-ended follow-ups) as reasons for not having accounts. This aligns with external surveys which find that **lack of required documents, inconvenient branch access, or a feeling of "no need/no money" are top reasons people remain unbanked**dataforindia.com. In our data, **digital usage was far lower among the unbanked** (most of the ~12% who never use mobile/UPI apps were unbanked individuals). This suggests a **digital divide**: those outside the formal system also miss out on digital financial tools (which typically link to bank accounts).

7.4 Robustness Checks: We conducted several checks to ensure the above results were not artifacts of data quirks. First, we addressed the inconsistent responses (e.g. participants who answered the usage frequency question despite claiming not to have an account). We recalculated key stats after **excluding 20 respondents with such logical inconsistencies**, and found virtually no change in the percentages for account usage or trust averages – confirming that those anomalies did not distort the big picture. Second, we tested the analyses on a pared-down **synthetic dataset of N=300** (a subset with similar distributions that we created to simulate a different sample). The **same patterns emerged** – for instance, the ranking of windfall preferences and the gap in literacy rates between risk-takers and others were similar in the synthetic sample. This gives additional confidence that our findings are not highly sensitive to the specific composition of the original sample. Third, we checked for any extreme outliers (e.g. a respondent who answered every trust question "5" or "1" indiscriminately). Removing a handful of such potential outliers did not materially alter correlations or means. Finally, we assessed whether demographic subgroups showed different trends: younger respondents (age 18–30) were slightly more likely to choose risky investments and slightly more adept with UPI apps, whereas older respondents (60+) were more likely to stick to cash and had lower average trust in private banks. These subgroup differences are intuitive and support the credibility of the data (e.g. youth embracing digital finance more). Overall, our robustness checks suggest that while the **absolute levels** of some metrics may not be precise (given sampling limitations), the **qualitative insights and relative comparisons** (e.g. which issue is most common, who is more likely to take risks) hold true across reasonable variations.

In summary, the **empirical results portray a nuanced situation**: basic access to banking is widespread but depth of usage is shallow for many; people report moderate satisfaction yet point out significant pain points in understanding and using financial services; trust exists but is unevenly distributed across institution types; and behavioral inclinations sometimes run counter to what classical theory might predict (with some less-informed individuals courting high risks). These findings set the stage for a deeper discussion on what is working, what is not, and how they inform broader theories of financial inclusion and behavior in the Indian context.

8. Discussion – What Works, What Fails, and Structural Insights

The above results paint a **cautious and instructive picture** of financial inclusion efforts and user behavior. In this section, we interpret these findings in light of the theoretical frameworks we outlined ("trickle-down" inclusion vs **"power-divided" banking, and the **risk–literacy paradox**), and discuss what appears to be working versus falling short. Key structural insights emerge regarding how different financial institutions serve different segments, and why certain assumptions (for example, "if you build it, they will come" or "people avoid risk because they are risk-averse") may not hold true.

8.1 From Trickle-Down Inclusion to a Plural Banking Ecosystem: India's financial inclusion strategy in the past decade has largely been a top-down, *quantity-driven* approach – epitomized by the **Pradhan Mantri Jan Dhan Yojana (PMJDY)** that pushed hundreds of millions of new bank accounts. The underlying assumption is a "trickle-down" model: expand the formal banking footprint (public and private banks) into all regions and populations, and benefits will percolate to the grassroots. Our findings both **affirm and challenge** this approach. On one hand, the **penetration numbers are indeed impressive** – in our sample over 80% had accounts, echoing national data that account ownership jumped from ~53% in 2014 to ~80% by 2018prove.com. The *coverage* aspect of inclusion has improved dramatically. Moreover, the ubiquity of UPI digital payments (with nearly 88% of our respondents using mobile banking/UPI at least sometimes) showcases that when given the tools, people do adopt modern financial interfaces enthusiastically. This is a **success story** of infrastructure and access: the combination of policy push and technology (IndiaStack, UPI) has lowered barriers to entry and brought millions into at least nominal contact with formal finance.

However, **what fails is the next step – sustained usage and meaningful inclusion**. The survey clearly demonstrates that having an account is not the same as truly benefitting from it. A significant minority of account-holders hardly use their accounts. Many keep money outside the banking system (as seen with 1 in 9 preferring to hoard cash at home). Nationally, too, roughly **one in four bank accounts is inactive** despite near-universal coverageprove.com. This indicates that **inclusion so far has been more **"transactional" than transformational**. The trickle-down theory presumes that once the poor have a bank account, they will integrate into formal finance for savings, credit, insurance, etc. In reality, our data suggest *many accounts were opened to receive a government benefit or due to a camp drive, and then lie mostly dormant*. Users cite reasons like difficult procedures, lack of funds, or insufficient trust/knowledge to leverage these accounts regularly.

This is where the concept of a **"power-divided" or plural banking system** comes in. Instead of a single pipeline through which all must flow (i.e. everyone using the same big banks in the same way), a pluralistic approach recognizes multiple channels of financial service delivery, each suited to different contexts. Our findings provide **structural insights that support a plural model**:

- **Cooperative banks and local institutions fill critical gaps** that big commercial banks don't. Respondents who gave cooperatives high trust often belonged to communities where large bank branches are scarce or impersonal. Cooperatives (credit societies, rural cooperative banks) are "firmly rooted in their community" and often **the only providers in remote areas**iimidr.ac.iniimidr.ac.in. Indeed, cooperative banks still supply roughly **16% of rural credit in India, second only to commercial banks' 74%iimidr.ac.in**, and are structured specifically to serve village-level needs. Our data reflect this: those without public/private bank access did not uniformly lack services – many reported moderate trust

and engagement with co-ops or regional rural banks (RRBs). This suggests that **inclusion has been achieved in part by **parallel institutions** (co-ops, microfinance NBFCs, self-help group links), not solely by the big banks trickling down. Where inclusion through one channel is "illusionary" (accounts exist but inactive), other channels have stepped in – for example, anecdotally some unbanked respondents mentioned borrowing from cooperatives or saving via informal chit funds. While informal means are not ideal, it underscores that **financial needs will be met by whoever is available; thus, strengthening **community-based and alternative institutions is vital**.

- **Public vs Private vs Alternative:** Another structural insight is the differentiated roles of public-sector banks, private banks, and alternatives. Public banks (government-owned) garnered slightly higher trust on average, likely due to their longstanding presence and sovereign backing. They have been the workhorses of account opening drives. Private banks, while offering superior technology and efficiency in urban areas, didn't enjoy higher trust overall – possibly because rural and low-income customers find them less accessible or more intimidating. Meanwhile, the healthy trust in NBFCs (3.2/5 on average, nearly as high as public banks) was somewhat surprising given NBFCs often charge higher interest. This likely reflects that **NBFC–microfinance lenders have built personal relationships at the grassroots**, offering doorstep credit when banks would not – thus earning trust through service, not through low cost. Informal lenders, though least trusted in principle, still exist as a last resort. Taken together, the ecosystem resembles a **"financial polyculture"**: different providers cater to different niches, and clients mix and match – e.g., a person might deposit savings in a state bank, borrow from an SHG linked to NABARD, and occasionally pawn gold to a moneylender. The trickle-down model alone (relying only on big banks to do everything) appears inadequate; a **power-divided approach, where institutional and cooperative sectors *share* the market, is more realistic**. In such a model, large banks can focus on the formal economy and urban/semi-urban areas, while cooperatives, RRBs, and microfinance institutions serve the rural and unbanked segments – with coordination rather than competition. Our findings that cooperatives and NABARD-supported RFIs (rural financial institutions) have strong reach reinforce this. In fact, NABARD itself emphasizes the need to strengthen **co-ops, RRBs, and credit societies as "crucial for rural financial inclusion" given their local outreach and grassroots commitment**nabard.org. The data highlights that **financial inclusion is not a one-size-fits-all proposition** – it requires a mosaic of institutions, each empowered to play to its strengths.

8.2 The Illusion of Inclusion – Quality Matters: One of the big lessons from our results is that **access is not the same as usage, and usage is not the same as meaningful impact**. This addresses the "illusionary inclusion" phenomenon: counting millions of bank accounts opened tells us little about actual financial health on the ground. Many respondents with accounts still rely on cash and informal means for day-to-day needs, which implies that the mere presence of an account did not integrate into their financial habits. What failed here? It seems **financial literacy and customer hand-holding did.** Accounts were opened, but often **"left on their own."** Users were not sufficiently educated on how to effectively use these accounts, or the accounts themselves were basic and not linked to credit/insurance products that make them valuable. Indeed, as our survey shows, **lack of understanding (32% citing difficult terms)** is a top barrier – so even when the doors of banks have opened, many people peer inside and find the environment unintelligible or intimidating. Additionally, some failures are operational: people complaining of long queues, complicated KYC, or technological glitches ("network downtime" came up in some responses) indicate that poor customer experience can turn inclusion into a mirage. If a farmer has to spend an entire day at a distant branch to do a simple transaction, that account is not serving him well.

The **policy implication** – discussed further below – is that inclusion efforts must pivot from **"opening accounts" to "keeping accounts alive."** That means simplifying processes, proactively educating customers, and maybe redefining metrics of success to usage rates rather than just account counts. The government and RBI seem aware of this, as evidenced by initiatives like financial literacy camps and the establishment of thousands of **Financial Literacy Centres (CFLs)** nationwide to educate people in villages. (As of 2025, over **2,421 CFLs** have been set up across Indiailougemedia.com.) Our findings strongly support the need for such initiatives, as knowledge gaps clearly hindered usage and trust in our sample.

Another facet of quality is whether inclusion actually improves people's financial well-being. Many respondents still struggle with credit needs – only a small fraction had taken formal loans in recent years (most answered "No" to the loan question, suggesting either lack of credit demand or more likely, lack of access/eligibility). If inclusion is genuine, we'd expect to see people transitioning from informal high-cost loans to formal loans, from keeping cash at home to using savings accounts, and generally feeling *empowered*. Instead, our data shows **only modest satisfaction and persistent reliance on informal methods** for some. This is a cautionary tale: without complementary measures (financial education, appropriate products, trust-building), pushing people into the formal system may yield only superficial engagement.

8.3 Financial Literacy and the Risk–Behavior Paradox: Perhaps the most striking insight from our study is the paradoxical relationship between **risk behavior and financial literacy/trust**. Classical economic theory might assume that people with low financial literacy or low trust in institutions would be risk-averse and avoid sophisticated financial products. Conversely, those with high knowledge would confidently invest in stocks, mutual funds, etc., seeking higher returns. Our results turn this on its head in the context of a developing financial market. We observed that **many less financially literate individuals still expressed a willingness to take high risks – just not via traditional institutional products.** They are **drawn to instruments that appear simple or offer quick gratification** (like potentially a lottery, a speculative stock tip, or a known informal scheme), while shunning things like mutual funds which they *perceive* as complex or untrustworthy.

Why does this happen? Several possible explanations arise from our data and existing literature:

- **Distrust or lack of familiarity with formal investments:** Mutual funds and insurance require trust in financial institutions and intermediaries. Our survey indicated a trust deficit in such institutions among some segments – for instance, even those investing in stocks/mutuals had only average trust in banks. Many Indians historically prefer assets like gold or property over financial instruments due to trust and tangibility. In recent times, as one respondent's comment (outside our survey) highlighted, **"transparency and fairness" issues with mutual fund companies can turn people awayhindustantimes.com**. If people hear of hidden charges or see markets as rigged or "not for people like me," they might avoid them, even as they might happily buy a lottery ticket or bet on a fantasy sports app where the rules seem straightforward (even if the odds are worse!). Our finding that **11% would just stash cash at home** speaks to this institutional distrust – they'd rather not engage at all than risk being cheated or confused.

- **The allure of simplicity and immediacy:** Products like lottery, betting, or even certain digital apps (crypto trading platforms, etc.) **leverage a simple, gamified experience that promises immediate payoff**. One doesn't need financial jargon to understand a lottery: you buy a ticket, and you might win a big prize – it's clear and thrilling. This stands in contrast to, say, a systematic investment plan in a mutual fund, which involves understanding concepts of NAV, market fluctuations, and patience over years. The immediate dopamine hit of a potential quick win is psychologically very powerful, especially for populations who

have lived on the edge and for whom the **dream of sudden wealth** is enticing. In India's context, it's been noted that the number of **online gamblers and high-frequency stock traders has surged**, often outpacing the growth of steady investorshindustantimes.comhindustantimes.com. Our data's implication that **risk-taking exists even among the less knowledgeable** aligns with behavioral research – people sometimes **mistake speculation for investment**, treating the stock market like a casino. If a friend doubled his money on a hot stock tip, others jump in not wanting to miss out, regardless of their own financial acumen. Thus, lack of literacy doesn't equal lack of risk appetite; it can mean poorly **calibrated** risk appetite (taking big gambles while avoiding well-diversified, moderate-yield investments).

- **Financial literacy paradox:** The term "paradox" is apt because one might assume improving financial literacy would lead to *more* people investing in markets. In the long run that's true – knowledgeable investors are crucial for broad-based participation. But in the short run, we see a coexistence of **low literacy with high speculative fervor** in certain areas (e.g. crypto craze, penny stocks, betting). Our survey's mini-quiz illustrated that some who chose high-risk options did not understand basic interest – they might not even realize how risky their choice is. At the same time, those with slightly better understanding gravitated to safer choices like FDs, perhaps fully aware of the risks and thus avoiding them. It's a classic case of "a little knowledge is a dangerous thing" vs "enough knowledge to be cautious." This has policy implications: simply getting people into the formal fold without educating them could backfire – they might misuse new financial access to take unwise risks (for example, taking a bank loan to invest in a get-rich-quick scheme). True financial inclusion must therefore emphasize **building capability to make sound financial decisions**, not just access to products.

8.4 What Works and What Fails (Summary): In light of the above, we can summarize **what seems to be working** in the current landscape and **what is failing or needs improvement**:

- **Working:** The push for access (bank accounts, digital payment infrastructure) has largely worked in reaching the masses. People are receptive to using new tools like UPI when it clearly eases transactions. Also, **plural institutions** (public, private, co-op, NBFC) collectively ensure that most people have *some* avenue of service – this distributed presence is a strength to build on. Additionally, targeted government schemes (like no-frills accounts, direct benefit transfers) have brought many into at least minimal contact with formal finance, creating an initial trust in government-backed channels (reflected in decent trust in public banks). The latent **risk-taking energy among the youth** (evidenced by the 18% willing to invest in markets and the large uptake of digital platforms) is also a positive – it shows that people *want* opportunities to grow their money; the challenge is channeling it productively.

- **Failing: Usage and engagement remain low** in many cases – accounts are underutilized and many customers remain passive or stuck in old habits (cash under mattress). **Financial literacy is a glaring weakness**, impeding progress at every step – from understanding bank forms, to evaluating loan terms, to trusting investment products. The data showed nearly half couldn't compute simple interest, and many explicitly called out confusion with financial jargon. **Trust deficits and perception issues** are also problematic: even as people open accounts, they might not fully trust the bank or the product (e.g., reluctance to use insurance or mutual funds due to fear of fraud or mis-selling). Moreover, the formal system's inability to cater to certain needs pushes people to informal solutions – which is a failure of outreach and product design. For instance, people shouldn't have to go to a moneylender for a small emergency loan at 5% per month interest if the formal sector was truly inclusive; yet that still happens because banks often won't give unsecured tiny loans.

Our respondents voicing issues like high interest or hidden fees indicate that **cost and suitability of products** need attention. Finally, a structural failing is that while we have many institutions, they often operate in silos or even at odds. There isn't a seamless pathway for an excluded person to move up the financial ladder – e.g., from a cooperative or microfinance client to a commercial bank client – without friction. A more integrated ecosystem (where institutions refer customers to one another according to their needs) is still lacking.

In conclusion of this discussion, the overarching **structural insight** is that **financial inclusion must be reconceptualized as a continuum and an ecosystem**. It's not a binary achieved by giving someone a bank account. It involves education, repeated usage, trust-building, and offering a portfolio of services that match a person's life needs (savings, credit, insurance, investment) in a user-friendly way. The "trickle-down" assumption that a robust formal banking sector will automatically serve everyone falls short when the most vulnerable find formal channels alienating or inaccessible. Instead, a **"financial democracy"** approach is needed – much like political democracy brings multiple voices and local representations together, financial democracy would empower diverse institutions (big banks, small banks, cooperatives, fintech, self-help groups) to each play a role in a federated manner, ensuring no group is left out. Our findings encourage this plural approach and caution against one-dimensional strategies. They also highlight that **human factors – knowledge, trust, behavior – are as important as infrastructure**. The next section builds on these insights to propose policy recommendations that address these multifaceted challenges, aiming to convert the *cautionary lessons* of our analysis into a *path forward* for truly inclusive and empowering finance.

9. Policy Recommendations – Plural Banking, Risk-Channeling, and Literacy Reforms

Drawing on the findings and discussion above, we propose a set of policy recommendations and interventions to enhance financial inclusion in a way that is **deeper, more sustainable, and more responsive to observed behavioral patterns**. These recommendations center on embracing a pluralistic banking model, creatively channeling the public's risk appetite into productive avenues, and aggressively pursuing financial literacy and consumer protection reforms. Each recommendation is aimed at a different facet of the problem, but together they form a cohesive strategy for empowering citizens financially while mitigating the pitfalls identified in our analysis.

1. Embrace a Plural Banking Model for an Inclusive Financial Ecosystem: Rather than relying solely on large commercial banks to serve all citizens, policymakers should foster a **"plural banking" architecture** where **multiple types of institutions collectively ensure coverage**. This means strengthening and integrating cooperative banks, regional rural banks (RRBs), microfinance institutions, and new fintech/payment banks alongside the traditional public and private banks. The goal is to let each tier play to its strengths: **public sector and private banks can cater to the urban and formally employed segments with standardized products, while local cooperatives, credit societies, and RRBs focus on the rural and semi-urban population with relationship-driven banking**. The government and RBI should provide regulatory support and modernization funds for these smaller institutions (many of which suffer from limited tech and management capacity) rather than viewing them as relics. NABARD's role is crucial here – continuing to refinance and build capacity in cooperatives and RRBs ensures they remain viable. Importantly, **coordination mechanisms should be established**: for example, a framework where a customer outgrows the small loans of an SHG or microfinance lender can be smoothly referred to a commercial bank for larger credit, or vice versa, a bank can redirect a very small borrower to a local microfinance or cooperative scheme that's better suited. This "hub-and-spoke" model can prevent

clients from falling through the cracks. In practice, this could involve **shared infrastructure** (e.g. allowing cooperative bank customers to use state bank ATMs and digital platforms), **co-lending or on-lending arrangements** between big banks and local players, and unified payment systems (UPI already allows even small bank users to transact widely). By acknowledging that *one size does not fit all*, regulators would be following the principle of **subsidiarity** – let financial services be delivered at the most local level that is effective. International experience shows community-based finance can coexist healthily with big banks when properly supervised. In India, where "last mile" trust often resides with community institutions, this plural model would ensure **penetration with satisfaction**. In summary, **policy should shift from pushing everyone toward the same institutions to knitting a tapestry of institutions where each segment of society has a reliable, culturally attuned pathway into formal finance.** This will create a **"financial democracy"** wherein the public sector, private sector, and cooperative sector each have a seat at the table in fostering inclusionnabard.org.

2. Channel the Public's Risk Appetite into Development-Oriented Financial Products:** The analysis revealed a paradoxical appetite for high-risk, quick-reward opportunities (like betting or speculative investing) even among those who avoid conventional investments. Instead of dismissing this as mere foolishness, policy innovators can **harness this behavioral tendency for good**. We recommend creating or promoting **"social-purpose pooled funds" or incentive-driven savings products** that **mimic the thrill of gambling or windfall gains while actually funneling money into productive uses**. One approach is to introduce **prize-linked savings (PLS) schemes** more widely. In a PLS account, depositors don't earn regular interest in the usual way; instead, their interest (or a subsidy) funds a lottery pool that awards large prizes to a few lucky savers. This way, people still have their principal safe (no loss, unlike true gambling) but get the excitement of possibly winning a big rewarden.wikipedia.org. Such schemes have succeeded elsewhere and are now being piloted by Indian fintechs for millennialsfinancialexpress.comfinancialexpress.com. Regulators should explicitly support prize-linked savings by removing any legal ambiguities around lottery aspects – the RBI could treat these as a form of *"savings promotion raffle,"* which has precedent in other countries. By doing so, **the eagerness to "win big" can be converted into a habit of saving** – a critical need since less than 30% of Indians have adequate emergency savingsfinancialexpress.com.

Another idea is to develop **"development funds" targeted at sectors like education, health, or agriculture** – essentially, impact investment funds that retail investors can participate in, with structures that provide bonus pay-outs or insured minimum returns. For instance, a **community agriculture bond** could promise a base return and a chance at a higher dividend if local farms (funded by the bond) perform well. This ties the notion of *"betting"* to tangible community outcomes – e.g., if the harvest is bountiful, investors win a prize, if not, they still get their base return. Similarly, a **health or education savings pool** could randomly reward some savers with extra interest or grants (funded by government or CSR money) – akin to a scholarship lottery among those who regularly contribute to a health savings plan. The key is **behavioral design**: make formal, productive financial behavior more game-like and immediately gratifying. This addresses the psychological pull that currently drives people to put money in things like chit funds or speculative apps rather than mutual funds. The government could pilot these ideas via public banks or India Post (which has a wide small-savings network) – for example, a **"Save for India" national development lottery bond** that channels funds into infrastructure or MSME loans while giving savers lottery tickets for big cash prizes. Not only would this attract non-investors to start investing (since the downside is protected but upside is exciting), it would also directly raise capital for development needs. Such **innovative financial products leveraging behavioral economics** can steer the risky impulses into nation-building directions, creating a win-win. It's essentially **"if you can't beat them, join them"**: rather than trying to suppress informal gambling or risky fad investments, provide a formal alternative that scratches the same itch in a safer way. Over time, as

people get more comfortable with these, they may also become open to traditional instruments (the PLS account could be a gateway to eventually using that money for mutual funds or insurance once trust and habit build).

3. Strengthen Financial Literacy, Consumer Protection, and Trust-Building Reforms: Finally, and most fundamentally, **financial literacy and consumer understanding must be dramatically improved** to address the root causes of our identified problems. This is a long-term effort but with immediate actionable steps. Firstly, the **education system** should formally include practical financial education in curricula – not just theoretical economics, but basic money management, interest calculation, digital finance skills, etc., starting from secondary school. Young people should graduate with the ability to compare loan offers, understand compound interest, and use online banking safely. There have been moves in this direction but impact is yet to be seen. Beyond schools, the role of **financial literacy camps and centers** needs expansion. As noted, RBI and NABARD have already set up thousands of CFL centers and conduct campsilougemedia.com. This should be scaled up further with innovation: using local languages, comic book style guides, street plays, and influential local figures to spread knowledge in an accessible way. Given the survey finding that banking terms are a huge pain point, banks could be directed to adopt **"simplified communication"** – for example, **standardized one-page fact sheets** for any product (account, loan, insurance) that clearly state fees, terms, and customer rights in plain language. Regulators can assist by developing these templates and mandating their use (similar to the "Key Facts Statement" some countries require for loans and credit cards). Removing the jargon barrier will go a long way in demystifying finance for average citizens.

Moreover, **consumer protection frameworks** must be tightened to build trust. If people fear hidden charges or unfair treatment (which 10% cited as an issue), they will avoid engagement. The central bank and government should ensure robust ombudsman systems, quick dispute resolution, and visible action against financial misconduct. For instance, if a microfinance agent harasses a borrower or a bank mis-sells an insurance policy, the news of penal action should be publicized to reinforce trust that the system protects the little guy. Likewise, simplifying KYC for small accounts (as has been done under PMJDY) should continue so that documentation isn't a barrier – perhaps moving towards a **risk-based KYC** where low-value accounts have minimal requirements. On digital safety, since many new users are on UPI/online platforms, running mass awareness campaigns about fraud prevention, UPI PIN security, etc., is crucial to prevent scams that could erode trust in digital finance.

A specific recommendation based on our risk paradox findings is to incorporate **"behavioral training" into financial literacy** – not just knowledge of products, but awareness of cognitive biases (for example, teaching how get-rich-quick schemes can prey on our emotions, why diversification is important, etc.). Simple messages like "there is no free lunch in finance" or "high returns come with high risk" need to be hammered home in creative ways. This could be done through radio jingles, TV sketches, or social media content that goes viral. Basically, **financial literacy efforts need to be as engaging as the harmful alternatives** – make it fun and relatable, so that people pay attention.

Finally, **trust-building requires consistent positive experiences**. Banks (especially public ones) should be incentivized to improve customer service for low-income clients – shorter wait times, friendlier staff, perhaps deploying more local correspondents who speak the dialect and can visit villages. The importance of a human touch and respect in service delivery cannot be overstated in converting a one-time account opener into a lifelong client. Government might explore a **rating or feedback system for financial service at the last-mile** (akin to how we rate rideshare drivers) to identify pain points in branches or BC (bank correspondent) services and then address them. When

people see improvements in how they are treated and spoken to by financial institutions, their trust will naturally increase, completing the inclusion cycle.

In summary, these three pillars – **(i) a plural, collaborative banking structure, (ii) innovative risk-channeling financial products, and (iii) education & consumer-centric reforms** – together can create a more resilient and inclusive financial system. They tackle the supply side (varied institutions, better products) and the demand side (more informed and protected customers) simultaneously. Importantly, they also resonate with our new theoretical perspective: **empowering local institutions (financial democracy) addresses the "power-divided" banking argument, while improving literacy and tailoring products to behavior addresses the risk paradox.** Policies built around these ideas will not only bring more people into the fold but keep them there as active, confident participants in the economy.

10. Conclusion – Synthesis, Limitations, and Future Directions

In conclusion, this research underscores that achieving **true financial inclusion and empowerment is a complex journey** – one that requires more than just opening bank accounts or introducing fintech apps. Our analysis presented a cautionary tale: despite tremendous strides in access, the **impact of financial inclusion initiatives can be limited or even illusory if users remain inactive, ill-informed, or distrustful**. On the positive side, the study also highlights seeds of progress and potential strategies – from the continuing relevance of cooperative institutions to the latent enthusiasm of individuals for financial opportunities (even if sometimes misdirected).

Synthesis of Key Findings: The central message that emerges is that **financial inclusion must be about quality and not just quantity**. We found that inclusion efforts to date have succeeded in extending the formal financial grid to most of the population – an essential first step. However, usage levels, user satisfaction, and understanding of financial services remain middling. The data revealed **mismatches between assumptions and reality**: simply giving someone a bank account does not mean they will abandon cash or informal finance; many will not actively use services they don't fully grasp or trust. Furthermore, people's financial behaviors can contradict classical expectations – significant numbers of individuals with low financial knowledge still take high risks, not because they are empowered investors, but perhaps because those risky avenues feel more accessible or exciting than formal ones. This highlights a critical insight: **financial behavior is as much driven by psychology and convenience as by rational planning**. Therefore, effective inclusion must address human factors – making formal finance relatable, trustworthy, and appropriately incentivized.

Our theoretical framework proposed looking at inclusion through the dual lens of "trickle-down vs. power-divided banking" and the "risk allocation vs. literacy paradox." The findings support the view that a **power-divided (plural) banking system**, where different institutions share the responsibility of inclusion, is more suitable for a country as diverse as India than a pure trickle-down approach. We saw evidence that cooperative banks, NABARD-supported groups, and NBFCs are indispensable in reaching the grassroots – validating a "plural sector" approach in finance. At the same time, the trickle-down of mainstream banks has its limits – many accounts opened from the top remained dormant below. On the risk-literacy paradox, our results indeed showcased that **low literacy doesn't equate to low risk-taking** – if anything, the lack of understanding can lead to *poorly informed* risk-taking. This suggests that simply making more financial products available (supply-side) is not enough; the demand side (user capability and trust) must be developed in tandem to avoid adverse outcomes. In sum, the study's empirical evidence urges a recalibration of inclusion strategies: focusing on **engagement, education, and trust, alongside access**.

Limitations: It is important to acknowledge the limitations of our research. Firstly, the **survey sample, while of decent size (650), is not nationally representative**. The respondents were likely concentrated in certain regions (the data was collected in specific areas and possibly online for some younger respondents). Thus, the descriptive statistics (e.g. 82% having accounts, 56% answering interest correctly) should not be generalized to all of India without caution. Our sample skew (for instance, relatively few completely illiterate respondents, given most answered a written questionnaire) means truly marginalized groups (e.g. those with no phone, no education in remote villages) might not be fully captured. Future studies should aim for a wider, stratified sample including more rural-only populations and states with varying development levels for comparison.

Secondly, as discussed, the **survey instrument had limited depth in measuring constructs**. With mostly single-question indicators, the reliability and granularity of insights are constrained. For example, trust and literacy were captured in a very simplified manner. The **psychometric robustness** of findings is therefore low – we cannot be sure, for instance, that "3 out of 5 trust in cooperatives" means the same attitude for all respondents, as opposed to a rough impression. Similarly, the causal interpretations we hinted (e.g. that low literacy leads to risky choices) are not firmly established; they are correlations within a cross-sectional dataset. We did not employ advanced causal identification strategies (like instrumental variables or experiments) in this analysis, so any cause-effect statements should be viewed as hypotheses rather than proof.

Another limitation is the **self-reported nature** of the data. Responses about usage frequency, satisfaction, etc., are subjective and prone to response biases. Some respondents may have given what they thought was the "correct" answer (e.g. perhaps some guessed the interest question or said they use accounts more often than they actually do, to appear competent). We tried to mitigate inconsistency by cross-checking answers (noting, for instance, contradictions in having no account but high usage), but undetected biases may remain. There is also the issue of **time-frame –** the survey provides a snapshot, but financial behavior can change rapidly with circumstances (harvest season, festival expenses, a recent loan waiver, etc., could all temporarily affect responses). We lacked longitudinal data to see how the same individuals' behaviors and attitudes evolve, which would be invaluable for understanding dynamics (for example, do those dormant accounts become active when a new government scheme is introduced? Does literacy improve after a training program?).

Finally, while we integrated external context and references to support our interpretations, our **analysis of external factors was not exhaustive**. Factors like local bank branch presence, quality of banking agents, or state-level financial inclusion policies were not explicitly measured in our survey but likely influenced results. There may be **exogenous variations** – say, one region had a cooperative bank scandal, lowering trust there, or another had an intensive financial literacy drive – that affected subsets of our data. Without incorporating those external data points, we risk attributing all differences to individual-level factors when some are due to environment.

Future Research Directions: Building on these limitations and the findings, we see several avenues for future research to further unravel the complexities of financial inclusion and behavior:

- **Richer Survey Instruments:** Future studies should employ more comprehensive questionnaires that include multiple items for key constructs (e.g. a battery of financial literacy questions covering numeracy, inflation, risk diversification concepts; a set of statements on trust and attitudes to glean a more nuanced picture). This would allow creation of indices or scores (like a Financial Literacy Index, Trust Index) with higher reliability. Including psychometric scales such as locus of control or propensity for planning could also shed light on personality factors affecting financial behavior. In addition,

gathering detailed income/expenditure data would help link inclusion to actual economic outcomes (something our study couldn't do in depth).

- **Incorporating Objective Data:** Where possible, researchers should combine survey responses with **objective data** – for example, bank account usage logs (with consent) or credit bureau records – to validate self-reports and measure impact. If we could see actual transaction counts or savings balances before and after an intervention, that would provide stronger evidence of what inclusion achieves. Even community-level data like number of bank branches/ATMs per capita, microfinance penetration, etc., could be merged with survey responses to allow analysis of how local financial infrastructure influences individual behavior (i.e., adding an exogenous variation aspect).

- **Exogenous Variation and Causal Inference:** To move from correlation to causation, future research can exploit natural experiments or design experiments. For example, a study could leverage the staggered rollout of a financial literacy program in different villages to see if those exposed show significant improvements in knowledge or behavior compared to a control groupmoneylife.in. Or use differences in local bank policies – say one bank randomly assigns some clients to a low-friction KYC process – to test effects on account uptake. Another idea is to examine the impact of **policy changes** (like RBI's recent relaxation of certain microfinance rules or interest rate capsilougemedia.comilougemedia.com) on customer outcomes by comparing before-after or treatment-control groups. By capturing such **exogenous variation**, researchers can better attribute changes in usage or satisfaction to specific causes (education, policy, competition) rather than general trends.

- **Longitudinal Studies:** A panel survey that tracks the same individuals over time as they enter the financial system would be extremely valuable. It could illuminate questions like: Do people who open accounts in a drive use them a year later? Does gaining access to credit improve their income or well-being over time? When people receive financial training, do the effects persist or fade out? A longitudinal approach also helps separate cohort effects (younger generations might inherently behave differently with finance) from true learning or aging effects.

- **Behavioral Interventions:** Building on our idea of innovative products and gamification, future research could pilot test these interventions in a controlled way. For instance, randomly offer a prize-linked savings account to some users and a regular savings account to others to see differences in uptake and amounts savedeen.wikipedia.orgfinancialexpress.com. Or test different messaging strategies: one group gets a dry financial education pamphlet, another gets a gamified mobile quiz with rewards – measure which group shows greater improvement in financial decisions. Such **A/B testing and field experiments** can provide concrete guidance on what specific approaches yield better engagement and learning.

- **Qualitative Insights:** While our study was quantitative, future work could greatly benefit from a qualitative component – interviews or focus groups with people about *why* they do or don't use certain services, *how* they experience banking, and *what* would make them trust or use it more. This could uncover nuanced barriers (cultural beliefs, gender dynamics, past traumas like being defrauded) that numbers alone gloss over. For example, hearing in someone's own words why they prefer keeping cash at home ("I can see it and feel secure; banks can fail or steal") provides depth that can inspire targeted solutions (like deposit insurance awareness or improving bank reputation).

- **Broader Impact Studies:** Ultimately, the end-goal of inclusion is to improve welfare. Future research should tie financial inclusion metrics to outcomes like reduction in poverty, improvement in ability to handle shocks, investment in education/health, etc. This might require large datasets or linking financial access data with household consumption surveys. Establishing that *quality* inclusion leads to discernible development gains will keep the policy momentum strong and correctly directed.

In closing, this thesis set out to examine the interplay between India's expanding financial services landscape and the behaviors and attitudes of those meant to benefit from it. We presented evidence that progress is **mixed – there is both encouraging uptake and discouraging under-utilization**, both trust and skepticism, both caution and reckless risk-taking. These dualities highlight that **financial inclusion is not a checkbox task but an ongoing, adaptive process**. The new theoretical perspectives we discussed – viewing inclusion as an ecosystem of diverse institutions and recognizing behavioral quirks in financial decision-making – can provide a more realistic framework for that process. Our recommendations flow from these insights, suggesting that the next stage of policy and research focus on **empowering users** (through literacy and protection) and **adapting services to user psychology** (through plural delivery models and innovative product design).

While this study has its limitations, we hope it contributes to a richer understanding that **inclusion is ultimately about people, not just accounts or technologies**. A bank account in every hand will only translate to prosperity when accompanied by knowledge in the mind and confidence in the heart of every user. Bridging that remaining gap is the collective task ahead – one that will require learning from failures, building on successes, and continually centering the needs and behaviors of the financially underserved. With sustained effort on the lines discussed, the vision of a financially literate, empowered and inclusive society is challenging but achievable – turning the cautionary tale of early inclusion efforts into a success story of broad-based financial well-being.