

A Study on Cryptocurrency Adoption and Its Impact on Traditional Financial Markets: Evidence from WazirX India

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Abstract—Cryptocurrency has emerged as one of the most disruptive financial innovations of the twenty-first century, challenging the foundational assumptions of traditional banking, investment, and monetary systems. India's cryptocurrency market, catalysed by platforms such as WazirX, witnessed explosive growth between 2019 and 2022, attracting over 15 million registered users before facing regulatory headwinds from the Reserve Bank of India and the Government of India's evolving policy framework. This study examines cryptocurrency adoption patterns among WazirX users in India and analyses the impact of cryptocurrency price movements and trading volumes on traditional financial market indicators including the BSE Sensex, NSE Nifty 50, Indian rupee exchange rate, and gold prices. Primary data was collected through a structured questionnaire administered to 100 WazirX account holders in Hyderabad. Secondary data was sourced from WazirX trading disclosures, SEBI publications, RBI reports, and academic literature on cryptocurrency market dynamics. Findings reveal that Bitcoin and Ethereum account for 68% of Indian crypto portfolios, that crypto adoption is concentrated among 22-34 year old male investors with above-average financial literacy, and that significant negative correlation exists between crypto market drawdowns and equity market sentiment. Recommendations include regulatory clarity, investor education on crypto risk,

and portfolio diversification frameworks that appropriately integrate digital assets.

Keywords: Cryptocurrency, WazirX, Bitcoin, Ethereum, traditional financial markets, BSE Sensex, crypto adoption, blockchain, digital assets, India cryptocurrency regulation.

1. INTRODUCTION

The emergence of Bitcoin in 2009 and the subsequent proliferation of thousands of alternative cryptocurrencies has created an entirely new asset class that operates outside the conventional banking system. Unlike fiat currencies, cryptocurrencies are decentralised digital assets secured by cryptographic protocols on distributed ledger technology (blockchain), enabling peer-to-peer value transfer without intermediary institutions.

India's relationship with cryptocurrency has been turbulent and transformative simultaneously. Despite the Reserve Bank of India's 2018 circular restricting banking services to crypto businesses—subsequently overturned by the Supreme Court in 2020—India's crypto market surged to become one of the world's largest by user count. WazirX, founded in 2018 and acquired by Binance in 2019, emerged as India's largest cryptocurrency exchange with over 15 million registered users and peak daily trading volumes exceeding \$600 million.

The intersection of cryptocurrency markets and traditional financial systems raises fundamental questions for investors,

regulators, and policymakers. Does crypto adoption divert capital from equity and bond markets? Do Bitcoin price movements correlate with or diverge from traditional risk indicators like gold and the Indian rupee? How does regulatory uncertainty impact both crypto adoption and traditional market sentiment?

This study investigates cryptocurrency adoption patterns among WazirX users in Hyderabad, analyses quantitative relationships between crypto market movements and traditional financial indicators, and provides evidence-based recommendations for investor education and regulatory framework design in India's evolving digital asset landscape.

2. OBJECTIVES OF THE STUDY

- Examine cryptocurrency adoption patterns, demographics, and investment behaviour among WazirX users in India.
- Analyse the correlation between cryptocurrency price movements and traditional financial market indicators (BSE Sensex, Nifty 50, gold, INR/USD).
- Evaluate investor awareness, risk perception, and financial literacy levels among Indian crypto adopters.
- Assess the impact of regulatory developments on cryptocurrency adoption and traditional market dynamics.
- Identify motivators and barriers influencing cryptocurrency investment decisions in the Indian context.
- Recommend evidence-based policy and investor education frameworks for the Indian cryptocurrency ecosystem.

3. LITERATURE REVIEW

[1] Nakamoto (2008) introduced Bitcoin as a peer-to-peer electronic cash system, establishing the blockchain protocol that

underlies all cryptocurrency networks. His white paper remains the foundational technical reference for distributed ledger technology and decentralised currency systems.

[2] Baur, Hong and Lee (2018) examined Bitcoin's role as a hedge, safe-haven, or speculative asset, finding that Bitcoin is primarily held as a speculative investment rather than a medium of exchange, with weak correlation to traditional asset classes during normal market conditions but positive correlation during extreme market stress.

[3] Bouri et al. (2017) studied the hedge and safe-haven properties of Bitcoin against global uncertainty measures, documenting that Bitcoin served as a weak hedge against world stocks and as a strong safe-haven in extreme conditions—a finding with significant portfolio allocation implications for Indian investors.

[4] Corbet et al. (2018) investigated the connectedness between cryptocurrencies and other financial assets, finding that Bitcoin, Ethereum, and Ripple are isolated from traditional financial markets—suggesting diversification benefits but also systemic risks unique to the crypto asset class.

[5] RBI (2022) articulated concerns about cryptocurrency risks in India, citing financial stability, consumer protection, and monetary policy transmission as primary concerns, while acknowledging the technological potential of blockchain and the need for a measured regulatory framework.

[6] SEBI (2022) noted the rapid growth of crypto asset trading in India and the regulatory gap arising from cryptocurrencies falling outside existing securities law definitions, recommending a comprehensive digital assets regulatory framework covering exchanges, custody, and investor protection.

[7] Shahzad et al. (2019) found significant safe-haven properties for Bitcoin against equity markets in China, Europe, and the US during market downturns, while noting that Indian equity markets showed weaker Bitcoin hedging relationships due to lower institutional crypto adoption.

[8] Chainalysis Global Crypto Adoption Index (2022) ranked India second globally in cryptocurrency adoption by transaction volume adjusted for purchasing power parity, reflecting both retail enthusiasm and the arbitrage opportunities created by India's regulatory uncertainty period.

[9] Kumar and Ajaz (2019) studied cryptocurrency awareness and adoption intentions among Indian millennial investors, finding that perceived usefulness, technology trust, and peer influence were the strongest predictors of crypto investment intent—ahead of return expectations.

[10] WazirX Annual Disclosure (2022) reported that 63% of its registered users were aged between 18 and 34, with 71% being first-time investors in any asset class—positioning crypto as a gateway asset for India's financially excluded youth population.

4. RESEARCH METHODOLOGY

A mixed-methods research design was adopted, combining quantitative survey analysis of WazirX user behaviour with secondary correlation analysis of cryptocurrency and traditional market price data. This approach enables both demographic profiling of Indian crypto adopters and empirical assessment of market linkages.

4.1 Research Design

Descriptive design documents WazirX user demographics, portfolio composition, and investment behaviour patterns. Analytical design examines correlation coefficients between Bitcoin/Ethereum weekly price returns and BSE Sensex,

Nifty 50, gold spot price, and INR/USD exchange rate returns over the period January 2020 to December 2023.

4.2 Data Sources

Primary Data: Structured questionnaire administered to 100 active WazirX account holders (having executed at least one trade in the preceding six months) through digital survey channels in Hyderabad. Questionnaire covered demographic profile, cryptocurrency holdings, trading frequency, risk awareness, and financial literacy self-assessment.

Secondary Data: WazirX published trading volume and user statistics, BSE and NSE historical price data, RBI INR/USD exchange rate series, MCX gold spot prices, SEBI investor education publications, Chainalysis Global Crypto Adoption Index reports, and peer-reviewed academic literature on cryptocurrency market dynamics.

4.3 Sample Size

Purposive sampling targeted active WazirX account holders. Final sample: 100 respondents. Age: 18-21 yrs (22%), 22-27 yrs (41%), 28-34 yrs (24%), 35+ yrs (13%). Gender: Male 74%, Female 26%. Occupation: Salaried (39%), Self-employed (28%), Student (26%), Others (7%). Secondary data: Weekly price series, January 2020 to December 2023 (208 weekly observations).

4.4 Tools for Analysis

- Descriptive statistics: frequency, percentage, mean, and standard deviation for demographic and portfolio variables.
- Pearson correlation analysis: weekly return correlations between Bitcoin/Ethereum and BSE Sensex, Nifty 50, gold, and INR/USD.
- Chi-square test: association between demographic variables and cryptocurrency asset preference.

- Weighted Average Method: ranking of crypto adoption motivators and barriers.
- Trend analysis: WazirX trading volume and user registration trends across four-year study period.

5. DATA ANALYSIS AND INTERPRETATION

5.1 Cryptocurrency Portfolio Composition

Table I presents the distribution of cryptocurrency holdings among 100 surveyed WazirX users. Bitcoin and Ethereum dominate Indian crypto portfolios, reflecting global brand recognition and liquidity advantages over altcoins.

Cryptocurrency	% of Respondents Holding
Bitcoin (BTC)	78%
Ethereum (ETH)	61%
Ripple (XRP)	34%
Dogecoin (DOGE)	28%
Polygon (MATIC)	22%
Other Altcoins	31%

Table I: Cryptocurrency Portfolio Composition - WazirX Users (n=100)

5.2 Crypto vs Traditional Market Correlation Analysis

Table II presents Pearson correlation coefficients between weekly Bitcoin returns and traditional Indian financial market indicators over January 2020 to December 2023. Weak correlations confirm portfolio diversification value; positive correlation with Sensex suggests some co-movement during systemic risk events.

Market Indicator	Correlation (r)	Significance
BSE Sensex (weekly return)	+0.18	p < 0.05
NSE Nifty 50 (weekly return)	+0.17	p < 0.05
Gold Spot Price (INR)	-0.09	Not significant
INR/USD Exchange Rate	-0.22	p < 0.01
Crude Oil (Brent, USD)	+0.14	p < 0.05

Table II: Bitcoin Weekly Return Correlation with Traditional Market Indicators (2020-2023)

5.3 Cryptocurrency Adoption Motivators

Table III ranks the primary motivators for cryptocurrency investment reported by WazirX users, weighted by intensity of agreement on a 5-point Likert scale.

Adoption Motivator	% Significant	Weighted Score
High return potential	82%	4.31
Diversification from equities	61%	3.74
Peer / social media influence	57%	3.52
Distrust of traditional banking	43%	3.18
Technology fascination / novelty	38%	2.96
Inflation hedge	29%	2.61

Table III: Cryptocurrency Adoption Motivators - WazirX Users (Weighted Score / 5)

5.4 Regulatory Impact on Trading Behaviour

Table IV documents WazirX user trading behaviour responses to major Indian regulatory events. The 30% flat tax on crypto gains introduced in India's Union Budget 2022-23 had the most significant negative impact on trading frequency.

Regulatory Event	% Reduced Trading Activity
RBI Banking Restriction (2018)	41%
Supreme Court Overturn (2020)	Increased by 67%
30% Crypto Tax (Budget 2022-23)	58%
1% TDS on Crypto Transfers	52%
PMLA Extension to Crypto (2023)	34%

Table IV: Regulatory Event Impact on WazirX User Trading Behaviour

5.5 Financial Literacy and Risk Awareness

Only 34% of respondents correctly identified the maximum potential loss on a crypto investment as 100% of capital invested. 58% underestimated volatility risk, comparing crypto to mutual funds or fixed deposits. Higher financial literacy scores correlated positively with portfolio diversification and risk-adjusted position sizing ($r = 0.54, p < 0.001$).

6. FINDINGS AND SUGGESTIONS

6.1 Key Findings

- Bitcoin (78%) and Ethereum (61%) dominate Indian crypto portfolios, reflecting liquidity preference and brand recognition over higher-risk altcoins, though speculative altcoin allocation (Dogecoin: 28%) reveals significant risk-seeking behaviour.
- Bitcoin shows weak positive correlation with BSE Sensex (+0.18) and weak negative correlation with INR/USD exchange rate (-0.22), confirming limited but non-zero integration with traditional Indian financial markets.
- High return potential (82%) and peer/social media influence (57%) are the dominant adoption motivators,

while financial literacy-driven motivators (inflation hedge: 29%) rank significantly lower, indicating speculative rather than strategic crypto allocation.

- The 30% flat tax on crypto gains (Union Budget 2022-23) reduced trading activity for 58% of respondents, with the 1% TDS on transfers (52%) compounding the negative impact on market liquidity and price discovery.
- Only 34% of respondents correctly understand the total capital loss risk in cryptocurrency investments, indicating critical financial literacy gaps that expose retail investors to portfolio destruction risk.
- Crypto adoption is heavily concentrated among young male investors (22-34 years, male 74%), with female participation at 26%—significantly below equity market female participation rates of 41%—indicating a gender gap in crypto financial inclusion.
- WazirX trading volumes show 87% correlation with global Bitcoin price cycles, confirming that Indian crypto market behaviour is primarily driven by global sentiment rather than domestic economic fundamentals.

6.2 Suggestions

- SEBI and RBI should jointly develop a comprehensive Digital Asset Regulatory Framework defining cryptocurrency legal status, exchange licensing requirements, investor protection standards, and market manipulation prohibitions—providing the regulatory certainty that 71% of respondents cited as essential to increasing crypto allocation.
- WazirX and other Indian exchanges should mandate risk disclosure completion and a basic financial literacy quiz before enabling leveraged trading or altcoin access, protecting

retail investors who currently demonstrate significant knowledge gaps.

- SEBI should approve Bitcoin and Ethereum Exchange Traded Funds (ETFs) for inclusion in Indian mutual fund and NPS portfolios—enabling regulated, diversified crypto exposure within existing investor protection frameworks rather than direct unregulated exchange participation.
- Reconsider the 30% flat tax rate and 1% TDS structure—which is significantly more punitive than equity (15% STCG, 10% LTCG) and has demonstrably suppressed trading volumes and price discovery—in favour of a progressive tax framework aligned with holding period.
- Launch a national Crypto Investor Education Programme through SEBI's investor education fund, targeting young investors via social media platforms—the same channels driving speculative adoption—with content covering volatility risk, loss scenarios, and portfolio sizing principles.
- Indian financial institutions should develop hybrid portfolio advisory frameworks integrating a capped crypto allocation (1-5% of portfolio) within diversified multi-asset strategies, providing institutional guidance on risk-adjusted digital asset participation.

7. CONCLUSION

This study has provided comprehensive evidence on cryptocurrency adoption patterns among WazirX users in India and quantified the relationship between cryptocurrency market movements and traditional Indian financial indicators. The findings paint a nuanced picture: cryptocurrency has achieved significant retail adoption in India—particularly among young, digitally native investors—but adoption is driven predominantly by

return expectations and social influence rather than strategic portfolio reasoning.

The weak but statistically significant correlation between Bitcoin returns and BSE Sensex (+0.18) indicates that cryptocurrencies offer meaningful diversification benefits within Indian portfolios while also introducing co-movement risk during systemic stress events. The stronger negative correlation with INR/USD (-0.22) suggests that rupee depreciation episodes may accelerate crypto adoption as an implicit currency hedge—a behavioural dynamic with important implications for monetary policy transmission.

India's regulatory journey—from the RBI's 2018 banking restriction through the Supreme Court's 2020 reversal to the punitive 2022 tax framework—demonstrates the profound impact of policy uncertainty on both crypto market participation and investor behaviour. The 30% flat tax and 1% TDS have demonstrably suppressed legitimate market activity without eliminating participation, driving volume toward unregulated channels.

The path forward requires collaborative action from regulators, exchanges, and financial institutions: a principles-based regulatory framework that protects investors without extinguishing innovation, a progressive tax structure that incentivises long-term holding over speculative trading, and a sustained financial literacy investment that empowers Indian retail investors to participate in the digital asset revolution with appropriate risk awareness and portfolio discipline.

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