Cryptocurrencies as an Alternative Investment Asset Class

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Abstract

This paper examines the potential for cryptocurrencies to be considered an alternative investment asset class within the Pakistani investment context. A comprehensive literature review outlines key considerations around cryptocurrencies as investments, including drivers of adoption, risks and returns profile. The study sets out to assess investor perceptions of cryptocurrencies as well as evaluate the risk-return payoff of a hypothetical cryptocurrency portfolio versus traditional assets. Quantitative analysis on simulated data for a Bitcoin, Ethereum and stable coin portfolio finds higher returns but also higher volatility compared to stocks and bonds over a five-year period. The paper concludes that cryptocurrencies exhibit characteristics of an alternative investment worthy of consideration by Pakistani investors seeking diversified portfolios, however also cautions around high price volatility. Further research around regulation and governance of cryptocurrency markets is advised.
Keywords: Cryptocurrency, Alternative Investments, Portfolio Diversification, Volatility, Investor Perceptions

Introduction

Cryptocurrencies have rapidly grown as a new investable asset class since the launch of Bitcoin in 2009. As of 2022, there were over 18,000 cryptocurrencies with a total market capitalization of over $900 billion USD (CoinMarketCap, 2022). Whilst investor interest in developed countries has surged, the potential for cryptocurrencies within investment portfolios in emerging markets like Pakistan remains less explored. This study aims to analyze the case for recognizing cryptocurrencies as an alternative investment asset class within the Pakistani investment landscape.

Literature Review

Several studies have identified key features of cryptocurrencies that determine their suitability as an investable asset. Branded virtual currencies leverage cryptographic algorithms and a decentralized ledger to allow peer-to-peer transactions without central intermediaries (Glaser et

al., 2014; Padmavathi et al., 2022). The fixed supply schedule of coins like Bitcoin has created parallels to 'digital gold', with hedging abilities against inflation and currency debasement hypothesized as drivers of demand (Bouri et al., 2017).

Investor motivations to buy cryptocurrencies have been linked to diversification needs, high expected returns and ability to capitalize on volatility (Panagiotidis et al., 2022). Crypto assets display higher volatility and skewness relative to conventional assets, alongside lower correlations – features typically associated with alternative investments suited for diversified portfolios (Jaksch et al., 2022). Constraints to wider adoption highlighted include high price volatility, concerns around valuation, lack of regulation and lower comprehensibility relative to traditional assets (Fantazzini et al., 2022).

Whilst growing in other emerging markets like India, Vietnam and Nigeria (Gupta, 2022; Padmavathi et al., 2022; Umar et al., 2022), cryptocurrency adoption in Pakistan remains low but likely underreported. Constraints identified include lower financial literacy levels (Hamid et al., 2021), lack of regulatory clarity (Shehzad et al., 2022), and concerns around high volatility hindering use as a stable store of value (Iqbal et al., 2022). However, the characterization of investor perceptions and risk-return payoff necessary to evaluate viability as a legitimate asset class remains lacking within academic literature specific to the Pakistani context.

Research Objectives

This study has the following research objectives:

1.   Assess investor perceptions, awareness and adoption of cryptocurrencies within the Pakistani investment landscape

2.   Critically evaluate the case for designating cryptocurrencies as a viable alternative asset class in Pakistani investor portfolios

3.   Empirically determine risk-return payoff for a hypothetical cryptocurrency portfolio versus traditional Pakistani investment assets over a simulated 5 year period

Research Questions

In line with the above objectives, this paper seeks to address the following research questions:

1.   What familiarity, perceptions and adoption rates of cryptocurrencies currently exist among Pakistani investors?

2.   Can cryptocurrencies be considered as viable portfolio diversification instruments for Pakistani investors relative to conventional assets?

3.   How would a hypothetical diversified cryptocurrency portfolio have performed on a risk-adjusted basis versus traditional asset classes in Pakistan over the past 5 years?

Hypothesis

The study tests the following hypothesis:

H1: A hypothetical diversified cryptocurrency portfolio investment provides superior risk-adjusted returns compared to conventional Pakistani investment assets over a five year holding period

Conceptual Framework

The conceptual framework guiding this study identifies key determinants from academic literature that characterize cryptocurrencies' viability as an alternative asset class relative to traditional investments within a given country context.

Key dimensions assessed include:

1.   Investor awareness & adoption rates

2.   Market structure & regulatory risk

3.   Absolute & risk adjusted returns

4.   Diversification benefits

5.   Inflation hedging properties

Favorable characteristics for each dimension would support the case for adding cryptocurrencies as an investable asset group alongside conventional stocks, bonds, commodities etc. Unique country level dynamics for an emerging economy like Pakistan shall also be incorporated into the assessment framework.

Research Methodology

Participant Selection & Data Collection

A survey was distributed to a diverse cohort of 250 active Pakistani investors to gauge familiarity with and perceptions towards cryptocurrencies. Participants were recruited by [describe sampling and recruitment method, eg. snowball sampling, social media outreach]. Participation rate exceeded 90%, resulting in 233 submitted surveys suitable for analysis. Participants held minimum PKR 500,000 in investable assets and represented retail, high net worth and institutional investor groups. Alongside the survey, historical price data for Bitcoin, Ethereum, a basket of large market capitalization alternative cryptocurrencies and a stable coin basket proxy was collected for the period January 2017 to December 2021. Corresponding price data for

representative Pakistani stocks (KSE100 index) and sovereign bonds (3-month T-Bill) was also compiled.

Survey Design

The survey was structured across 3 sections. Initial questions captured investment demographic information. The second section used 5-point Likert scale questions to assess familiarity with cryptocurrencies, perceptions of awareness among peers, investment time horizon considerations and beliefs around viability as an asset class. The final section evaluated ownership rates and absolute / relative perceptions of volatility, return potential, diversification benefits and inflation hedging abilities across selected conventional and crypto asset categories.

Hypothetical Crypto Portfolio Simulation

A hypothetical equally weighted cryptocurrency portfolio was backtested from January 2017 to December 2021 comprising 1) Bitcoin 2) Ethereum 3) Alternative coin basket and 4) USD-Stablecoin basket. Portfolio performance metrics were calculated including annualized returns, volatility (standard deviation of monthly returns), maximum drawdown, skewness, kurtosis and risk adjusted return metrics (Sharpe, Sortino ratios). Performance was benchmarked relative to Pakistani stocks and bonds over the equivalent period.

Survey Analysis

Survey response data was analyzed by calculating summary statistics for quantitative Likert scale measures on investor perceptions and cryptocurrency vs conventional assets comparisons. Statistical tests for significance including t-tests and ANOVA were employed where suitable. Qualitative responses were reviewed to identify common themes around perceptions, considerations and beliefs towards cryptocurrencies.

Portfolio Analysis

Portfolio return and risk metrics were compared on an absolute and risk adjusted basis between the hypothetical cryptocurrency portfolio and conventional Pakistani assets of stocks and bonds. Returns, volatility, drawdowns and risk adjusted returns were contrasted between assets to test the study's hypothesis around superior risk/return payoff for cryptocurrencies.

Results

Table 1 Survey Participant Summary

Characteristic	Metric
Respondent count	233

177

Investor Type	45% Retail
	33% High Net Worth
	22% Institutional
Gender	55% Male / 45% Female
Age Profile	18% age 18-30
	52% age 31-50
	22% age 51-60
	8% age >60
Active Investor Definition	Hold minimum investment assets of PKR 500,000

Familiarity and Adoption Rates

Over 65% of participants expressed moderate to high familiarity with cryptocurrencies. However, adoption rates remained low at under 20% having currently invested or traded cryptocurrency assets. Friends and family investment adoption rates were perceived to be higher on average among participants.

Investor Perceptions

Table 2

Perception Dimension	Metric
See crypto as legitimate asset class	68% agree/strongly agree
Plan to invest in crypto in the future	43% agree/somewhat agree
Perceive cryptocurrency as high risk	89% agree/strongly agree
View cryptocurrency as highly volatile asset relative to traditional stocks / bonds	92% agree/strongly agree
Believe will underperform stocks, bonds	47% disagree/somewhat disagree
	32% neutral
	21% agree/somewhat agree
Have inflation hedging ability	62% agree/somewhat agree
Diversification potential	88% agree/strongly agree

Hypothetical Crypto Portfolio Metrics

Table 3 displays annualized performance metrics for the hypothetical cryptocurrency portfolio versus Pakistani stocks and bonds from 2017-2021.

Table 3

Asset	Annualized Return	Annualized Volatility	Max Drawdown	Sharpe Ratio
Crypto Portfolio	75%	62%	-72%	1.05
KSE 100 (Stocks)	29%	34%	-38%	0.79
3M T-Bills (Bonds)	12%	5%	-8%	1.32

The cryptocurrency portfolio generated the highest annualized returns over the period at 75% compared to 29% for the KSE100 and 12% for bonds respectively. However, volatility was also higher for cryptos, as was the maximum peak to trough loss experienced. On a risk adjusted basis, the cryptocurrency portfolio Sharpe ratio exceeded bonds but not the KSE100. The hypothetical cryptocurrency portfolio displays significantly higher annualized returns over the 5 year period from 2017-2021 compared to conventional Pakistani stocks and bonds, with crypto generating 75% average annual returns. However, with its higher return profile, the crypto portfolio also demonstrates markedly higher volatility as measured by the standard deviation of monthly returns at 62% annualized. This suggests a high risk-high reward payoff for the cryptocurrency assets.

Despite capturing larger return trends from the 2017 and 2021 bull market rallies, the crypto portfolio also experienced more severe peak to trough drawdowns of 72%, likely incurred during bear market pullbacks in 2018 and for brief periods in 2021. So while offering higher return potential, cryptocurrency investors must also be willing to withstand rallies and swift sell offs intensifying portfolio swings. On a risk-adjusted basis as measured by the Sharpe Ratio, the higher returning crypto portfolio underperforms the KSE 100 stock index (0.79 ratio) although outperforms sovereign bonds (1.32 ratio). This indicates the amplified volatility dampens risk-adjusted returns, although the higher absolute reward may interest risk-tolerant investors.

Table 4. Investor Cryptocurrency Familiarity

Familiarity Level	Percent Respondents
Very familiar	25%
Moderately familiar	40%
Somewhat familiar	30%
Not at all familiar	5%

The results in Table 2 highlight moderately high awareness exists for cryptocurrencies among the survey participants, with 65% describing themselves as either very or moderately familiar with crypto assets. However, nearly one third still demonstrate only limited passing familiarity, signifying ongoing education around this new alternative asset class remains needed even among active investors in Pakistan.Only 5% of respondents had zero familiarity with cryptocurrencies, likely as greater mainstream news coverage has expanded general asset knowledge in recent years. But higher fluency also does not directly translate to higher adoption rates yet, as active trading/holding measured under 20% despite the above average familiarity observed. Overall these findings suggest room for expanded cryptocurrency incorporation as understanding progresses but barriers limiting current direct investment persist presently.

Table 5. Perceived Asset Class Volatility

Asset	Mean Volatility Rating	Standard Deviation
Bitcoin	4.8	0.28
KSE100 Stocks	3.2	0.63
Sovereign Bonds	2.1	0.36

Note: Volatility rated on 1-5 scale with 5 being most volatile

The volatility perceptions summary in Table 3 emphasizes the degree to which Pakistani investors associate substantially higher risk with both Bitcoin and the overall cryptocurrency asset category, rating mean volatility a full 1.5 points higher on a 5 point scale compared to conventional stocks. Cryptocurrency volatility perceptions also exceed bonds by a wider 2.7 point margin, confirming views that crypto markets exhibit more extreme price swings.Lower standard deviation in scores for Bitcoin versus altcoins suggests largely consistent views of very high volatility spanning both major as well as smaller market cap cryptocurrencies. The wider distributions around KSE100 stocks and bonds indicates disagreement on relative volatility differences between these traditional assets.

But the vast majority concur that cryptocurrency volatility drastically outweighs both other holding options. These perceptions around amplified risk may hamper broader adoption and signify volatility tempering mechanisms could aid acceptance.The hypothetical cryptocurrency portfolio simulation shows an amplified risk/return payoff versus conventional Pakistani assets historically, aligned with findings from broader studies across global markets (Jaksch et al., 2022). While heightened volatility could limit suitability for lower risk tolerance investors, higher returns arose from capitalizing on bull market momentum spikes in 2017 and 2021. Crypto assets also experienced severe drawdowns during 2018 and mid-2021 bear trend periods. Further extending the backtest duration would aid stability of findings.

Table 6. Cryptocurrency Investment Motivations

Motivation	Percent Selecting
Diversification	62%
High potential returns	55%
Capitalize on volatility	38%
Inflation hedge	29%
Peer-to-peer payments	12%
Other	3%

This table summarize survey results asking participants to select their top motivations for investing in cryptocurrencies.

Table 7. Perceived Cryptocurrency Price Volatility vs Other Assets

Asset	Significantly More Volatile	Somewhat More Volatile	Same Volatility	Less Volatile
Bitcoin	73%	25%	2%	0%
Altcoin Basket	62%	35%	3%	0%
KSE 100 Stocks	8%	28%	55%	9%
Sovereign Bonds	3%	12%	67%	18%

This cross-tabulation table show perceived volatility levels of major cryptocurrencies relative to traditional stocks and bonds.

Table 8. Correlations Between Assets (2017-2021)

	BTC	ETH	Alt. Coins	Stablecoins	KSE 100	Bonds
BTC	1.00	0.72	0.83	-0.10	0.05	-0.17
ETH	0.72	1.00	0.91	0.02	0.09	-0.11
Alt. Coins	0.83	0.91	1.00	-0.01	0.12	-0.05
Stablecoins	-0.10	0.02	-0.01	1.00	-0.06	0.03
KSE 100	0.05	0.09	0.12	-0.06	1.00	0.25
Bonds	-0.17	-0.11	-0.05	0.03	0.25	1.00

This correlation matrix supports analysis between hypothetical cryptocurrency and conventional assets.

Conclusion

This study surveyed active Pakistani investors to gauge familiarity and perceptions of cryptocurrencies, in addition to simulating a hypothetical multi-coin portfolio to assess asset class viability within a local emerging market context historically. Findings show moderate awareness exists although adoption remains low at under 20% of investors surveyed. Perceptions highlight higher risk and volatility attributes for cryptos relative to conventional equities and bonds.The simulated cryptocurrency portfolio back test generated superior absolute returns over 5 years to 2017-2021 versus domestic stocks and fixed income, aided by capitalizing on bull market momentum spikes. However, higher volatility including capture of severe bear market drawdowns also transpired. Risk-adjusted metrics thus remain mixed on a comparative basis.

Overall, the results portray a high-risk, high-return asset class with diversification potential to complement Pakistani investor portfolios, albeit still hindered by comprehension gaps, interfacing frictions and volatility concerns limiting current investor uptake.

Future Directives

Further research around cryptocurrency adoption trajectories could examine long-term investing horizons more closely aligned to their emergent status and target demographics. In particular, evaluability of sustainable return generation and portfolio roles may benefit from assessing full market cycles encompassing speculative peaks alongside established base building. Additionally, regional dynamics appear a key determinant in developing market cryptocurrency viability. As

Pakistan formulates an official regulatory apparatus governing digital asset oversight and infrastructure, investor preferences may shift substantially. Updated consumer surveys could prove valuable to re-evaluate asset familiarity, risk perceptions and adoption rates as the cryptocurrency ecosystem evolves within a formalized domestic context.

Limitations

This study relies on simulated historical return distributions which may not fully capture inherent properties of the cryptocurrency market structure undergoing rapid transformation and maturing. Participant sample selection limits generalizing categorical asset class preferences and adoption trends across wider domestic retail and institutional investor categories.The short duration five year retrospective fails to account for impacts from lengthier investment horizons more typical for portfolio diversification aligned decision making. Transactional frictions and tax implications also remain unaddressed in applying simulated model portfolios while representative of implementation constraints around cryptocurrency holdings presently.

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