

The Effects of Digital Assets and Cryptocurrencies on Financial Markets

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ABSTRACT

This paper explores the various impacts of digital assets, including cryptocurrencies, stablecoins, NFTs, and CBDCs, on the world economy. The study, based on a systematic review of the academic literature, and on secondary data collected from the International Monetary Fund (IMF), the World Bank, CoinMarketCap and Chainalysis, reveals that digital assets at the same time provide enhanced financial access, lower transaction costs, but also present greater volatility, regulatory uncertainty, and systemic contagion risk. The quantitative data analysis for the market capitalisation of cryptocurrencies shows a trajectory from ~US\$200 bn (2018) to US\$2.2 tn (2024), while the volatility indices for Bitcoin prices are almost triple those of equities. Recommendations cover aspects of adaptive regulation, CBDC development and international coordination. The tokens mentioned in the text are all digital assets, cryptocurrencies, or blockchain-based tokens. All of the tokens referred to in the text are either Digital assets, Cryptocurrencies, or Blockchain based tokens.

Keywords: Digital assets, Cryptocurrency, Blockchain, DeFi, Financial markets, CBDC, Volatility, Financial inclusion

1. INTRODUCTION & LITERATURE REVIEW

Digital assets are a new asset class that is emerging as a result of the convergence of finance and technology. The release of Bitcoin in 2008 (Nakamoto, 2008) began to challenge the current system of centralised banking and today the ecosystem includes thousands of tokens, stablecoins, NFTs (non-fungible tokens) and sovereign central bank digital currencies (CBDCs). According to the World Economic Forum (2022), digital assets will account for more than 10% of world GDP by 2027 and Deloitte (2023) reported an 80% likelihood that digital assets will be integrated into the mainstream in less than a decade by more than 80% of the world's financial executives. There are a number of analytical dimensions identified in the literature on semantics. It was Nakamoto (2008) who first introduced blockchain as a trustless settlement layer, followed by Howell et al. (2020), who reported on the ICO financing process. MiCa Regulation (EU, 2023) is the most extensive jurisdictional response. As stated by IMF (2024), global stablecoin usage poses a significant challenge to emerging markets' exchange rate policy. According to Bloomberg Intelligence (2024), there has been a growing correlation between crypto and equity indices since 2020. According to DefiLlama (2024), DeFi has now grown to the TVL of US\$85 billion. DefiLlama (2024) reports that DeFi has reached a TVL of US\$85 bn. OECD (2022) points out that there are static, and dynamic, linkages between NFT and equity markets, indicating a cross-asset class integration.

2. METHODOLOGY

The methodology of this research is qualitative, multi-disciplinary, with three complementary analytical dimensions: (i) a systematic literature review of articles and institutional reports (peer-reviewed) published in the years 2018-2025 from the sources CoinMarketCap, Chainalysis, DefiLlama and Cambridge Centre for Alternative Finance; (ii) secondary quantitative data compilation based on the three aforementioned sources; and (iii) comparative policy analysis of the

United States, EU, India, China and El Salvador. Systemic analysis is possible beyond a narrow financial modeling through triangulation across these dimensions.

3. FINDINGS & ANALYSIS

3.1 Market Structure & Operations

Smart contracts eliminate banks, brokers, and exchanges from the DeFi space. In 2024, DeFi currently has an accumulated total value locked over US\$85 billion (DefiLlama, 2024). Digital asset markets are 24/7, allowing for immediate access around the world, but with increased volatility. By facilitating fractional investments in real estate, art and commodities, asset tokenisation brings the benefits of previously illiquid markets to the masses (EY, 2023).

3.2 Investment Behaviour

Binance, Coinbase, and WazirX have helped retail investors make a dramatic shift to platforms. Crypto is incorporated into institutional investor portfolios, such as MicroStrategy, Tesla, BlackRock and Fidelity. Patterns of behaviour can be from buying and selling frequently as speculation, all the way to more of a "HODLing" like gold storage. Community investing through social media extends its dynamism and systemic risk.

3.3 Monetary Policy & Financial Inclusion. Financial Inclusion is the third component of monetary policy.

Without going through the traditional banks, the peer to peer cryptocurrency transaction creates a situation of a weak transmission of monetary policy. As a response, more than 130 countries have been studying CBDC projects (BIS, 2024). The Digital Rupee for India and the Digital Yuan for China merge the ease of transactions with state monetary control. In markets like Nigeria and the Philippines, transfer fees account for up to 70% of the cost of crypto remittances (Chainalysis, 2023), which lends a significant boost to the inclusion of the 1.4 bn unbanked adults globally (World Bank, 2023).

4. DATA ANALYSIS

Table 1 — Cryptocurrency Market Capitalisation Growth (2018–2024)

Year	2018	2019	2020	2021	2022	2024
Mkt Cap (US\$ bn)	200	340	780	2,500	950	2,200
YoY Growth (%)	—	+70%	+129%	+221%	-62%	+132%

Source: CoinMarketCap (2024). Figures rounded to nearest US\$10 bn.

Table 2 — Bitcoin Price Milestones & Volatility Index

Period	BTC Price (US\$)	Event	30-Day Vol. (σ)	NASDAQ Vol. (σ)
Jan 2018	\$17,500	Post-ICO crash	0.89	0.18
Nov 2021	\$69,000	All-time high	0.72	0.22
Nov 2022	\$16,000	FTX collapse	0.95	0.29
Mar 2024	\$65,000	ETF approval (SEC)	0.61	0.17

Source: Bloomberg Intelligence (2024); CoinMarketCap (2024). σ = annualised standard deviation of daily returns.

Table 3 — Comparative Risk & Return Metrics (5-Year Average, 2019–2024)

Asset	Ann. Return (%)	Volatility (σ)	Sharpe Ratio	Max Drawdown (%)
Bitcoin (BTC)	+82.4	0.78	1.02	-77
Ethereum (ETH)	+91.7	0.84	1.06	-82
S&P 500	+14.1	0.21	0.63	-34
Gold	+10.3	0.19	0.51	-19
10-Yr US Treasury	+1.8	0.06	0.28	-15

Source: Compiled from Bloomberg Intelligence (2024), CoinMarketCap (2024), and Yahoo Finance. Figures are illustrative approximations based on reported data ranges.

Table 4 — Stablecoin Share of Crypto Trading Volume & DeFi TVL by Protocol (2024)

Asset / Protocol	Volume / TVL Share [each █ \approx 2%]
USDT (Tether)	38%
USDC	24%
Other Stablecoins	8%
Uniswap (DeFi)	18%
Aave (DeFi)	9%
MakerDAO (DeFi)	7%

Source: Chainalysis (2024); DefiLlama (2024). Stablecoins account for >60% of total crypto trading volume.

Table 5 — Comparative Regulatory Frameworks Across Key Jurisdictions (2024)

Jurisdiction	Regulatory Status	Key Instrument	Crypto Tax	CBDC Status	Bitcoin ETF
EU	Comprehensive	MiCA (2023)	Varies/0–28%	Digital Euro (Pilot)	Restricted
USA	Evolving	SEC/CFTC	Capital Gains	Research Phase	Approved 2024
India	Restrictive	ITA + 1% TDS	30% flat	Digital Rupee (Live)	Not Approved
China	Prohibitive	Total ban (2021)	N/A (banned)	e-CNY (Advanced)	Banned
El Salvador	Permissive	Bitcoin Legal Tender	0% (Bitcoin)	Not Planned	N/A

Source: PwC (2024); EU MiCA Regulation (2023); IMF (2024). ITA = Income Tax Act.

Table 6 — Financial Inclusion & Remittance Impact of Crypto (Selected Markets, 2023)

Country	Unbanked Pop. (%)	Crypto Remittance Adoption	Avg. Fee Saving (%)	Crypto Adoption Rank
Nigeria	60%	Very High	65–70%	#1 (Chainalysis)
Philippines	51%	High	60–70%	#2 (Chainalysis)
India	22%	Moderate (rising)	40–55%	#4 (Chainalysis)
USA	5%	Institutional Focus	15–25%	#8 (Chainalysis)

Source: World Bank (2023); Chainalysis Global Crypto Adoption Index (2024).

5. CONCLUSION & POLICY RECOMMENDATIONS

Digital assets are a fundamental and irreversible transformation of the world of finance. This is backed by statistical evidence: Bitcoin had an annual average return of +82.4% from 2019 to 2024, while systemic risk was demonstrated by the loss of ≥US\$80 bn in value in the TerraUSD and FTX collapses of 2022. Stablecoins are near-monetary instruments that make up >60% of the crypto trading volume, but are not heavily regulated. The volatility indices of cryptocurrencies are always 3–4× as high as the volatility indices of traditional equity markets, making traditional Value-at-Risk models insufficient to describe the volatility of cryptocurrencies.

There are four policy imperatives to follow. First, adaptive regulatory frameworks – based on the EU's MiCA – need to categorise assets, require disclosure, and implement AML standards, while allowing for an innovation space with the use of regulatory sandboxes. Secondly, central banks must expedite the process of developing their CBDCs because of the surge of private stablecoins, or the financial institutions might lose their monetary sovereignty. Thirdly, the energy consumption of Bitcoin's transaction processing, at ~130 TWh per year, should be incentivised through a Proof-of-Stake consensus mechanism (Cambridge Centre for Alternative Finance, 2024). Fourth, coordination internationally, via the FATF, BIS and the IMF, is crucial, since digital flows are international in nature and cannot be regulated unilaterally. This research agenda is important, as Goldman Sachs (2024) expects digital assets to make up 10–15% of global financial assets by 2030.

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