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-RESEARCH ARTICLE-

STABLECOINS AND KEY ECONOMIC FACTORS: ANALYSING CORRELATIONS AND SPILLOVERS USING THE DIEBOLD-YILMAZ FRAMEWORK

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─Abstract─

This investigation explores how major stablecoins—Tether (USDT), USD Coin (USDC), Pax Dollar (USDP) and DAI—interact with the comparative crypto asset Bitcoin USD (BITUSD) and a set of core macro-financial indicators comprising the EUR/USD exchange rate, Bitcoin movements, and leading global equity benchmarks such as the NASDAQ 100 and EURO STOXX 50 over the period 2019–2024. The analytical framework applies the Diebold–Yilmaz (DY) spillover approach embedded in a Vector Autoregressive (VAR) specification to evaluate volatility transmission, co-movement patterns, and directional linkages across markets. The study employs statistical procedures including the Augmented Dickey–Fuller (ADF) assessment of stationarity, Forecast Error Variance Decomposition (FEVD), and the Total Connectedness Index (TCI) to quantify stability characteristics, cross-market dependencies, and propagation channels. The empirical analysis reveals a discernible

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though moderate level of interconnectedness between stablecoins and wider macro-financial conditions. Bitcoin and BITUSD emerge as principal pathways through which shocks circulate, whereas USDP and USDC exhibit comparatively stronger insulation and stability. Variations in currency markets and global equity performance exert notable influence on stablecoin volatility, reinforcing their growing alignment with international financial systems. Overall, the evidence confirms that stablecoins remain exposed to macroeconomic forces and may intensify links between digital-asset markets and conventional financial structures. The outcomes highlight an urgent need for more rigorous regulatory clarity, strengthened reserve-reporting standards, and supervision calibrated to risk to sustain monetary resilience. For investors and institutions, stablecoins offer scope for portfolio diversification, although their hedging capacity is highly sensitive to evolving market behaviour and policy environments.

Keywords: Stablecoin Market, Cryptocurrency Volatility, Diebold-Yilmaz Model, Volatility Spillover Effects, Economic Indicators, Cryptocurrency Performance.

INTRODUCTION

The rapid evolution of digital forms of money, most notably stablecoins and CBDCs, has reshaped the global financial landscape and altered established mechanisms for storing, transferring, and exchanging value (Adrian, 2023). These instruments are redefining monetary functions by widening access, enhancing transactional efficiency, and strengthening inclusion within financial systems. Stablecoins have risen in prominence due to their design objective of maintaining price stability through linkage to reserve holdings such as fiat assets or commodities (Jarno & Kołodziejczyk, 2021). This stabilising structure makes them especially appealing relative to highly volatile crypto-assets like Bitcoin or Ethereum, and supports their deployment across a broad array of financial applications, including DeFi, cross-border payments, remittance channels, and as a store of value during periods of macroeconomic uncertainty (Ante et al., 2021a; Wang et al., 2020).

During the period December 2019 to December 2024, stablecoins such as USDP, USDT, USDC, DAI, together with the comparative digital asset BITUSD, exhibited varying patterns of usage, liquidity conditions, and integration across both crypto-asset markets and traditional financial domains (Briola et al., 2023). Their accelerated growth has prompted increasing policy scrutiny regarding their influence on fiat-currency behaviour, monetary-system resilience, and the potential amplification or transmission of shocks between crypto ecosystems and conventional financial institutions (Grobys et al., 2021). This expanding interaction between stablecoins and established markets carries material implications for global financial interconnectedness and cross-jurisdictional policy coordination (Griffin & Shams, 2020; Zhao et al., 2021).

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Against this backdrop, the present study evaluates the interlinkages and volatility spillovers between major stablecoins and key macro-financial benchmarks, focusing on exchange-rate dynamics (EUR/USD), leading global equity indicators (NASDAQ 100, EURO STOXX 50), and cryptocurrency performance (Bitcoin) over 2019–2024. Its core objective is to determine how stablecoins react to market disturbances and to assess whether they mitigate or propagate volatility within the broader financial architecture. This leads to the central research question: To what extent do stablecoins interact with traditional financial markets and crypto-asset domains, and what are the implications of these interactions for financial stability and risk transmission? The study contributes to the body of research on digital-asset stability and cross-market connectedness by applying the DY spillover methodology within a VAR setting to capture evolving market relationships (Diebold & Yilmaz, 2012; Jumde & Cho, 2020). Through analysing total and directional connectedness metrics, the paper provides empirical evidence on the systemic behaviour of stablecoins and their sensitivity to macroeconomic conditions. The findings offer substantive guidance for regulators, market participants, and policymakers by emphasising the importance of transparency, prudent reserve structures, and coordinated regulatory responses aimed at mitigating risks while supporting the development of digital-finance infrastructures.

The remainder of this study is structured as follows: The next section outlines the conceptual foundations of stablecoins and their linkage to CBDCs and mainstream financial systems. Section 2 details the methodological design, including data construction and econometric specification. Section 3 reports the empirical outcomes together with the spillover interpretations. The final section sets out policy considerations and identifies promising directions for subsequent research.

THEORETICAL LENS

Stablecoins constitute digital instruments whose value is anchored to reserve holdings, most commonly a fiat currency such as the USD or, in some cases, a basket of assets, with the objective of maintaining price stability (Fiedler & Ante, 2023; Jarno & Kołodziejczyk, 2021). Their comparatively steady valuation renders them appealing in contrast to highly volatile crypto-assets including Bitcoin and Ethereum (Grobys et al., 2021). Owing to this stability, stablecoins are well suited to a range of financial uses, such as cross-border settlements, remittance flows, DeFi operations, and as a value-preserving mechanism during episodes of economic stress (Akyildirim et al., 2021). Stability in these assets derives from three principal mechanisms: algorithmic designs, fiat-collateral structures, and crypto-collateral frameworks (Fiedler & Ante, 2023; Zhao et al., 2021). Algorithmic variants regulate supply through pre-defined rules that expand or contract circulation in response to market conditions to maintain a target price. Fiat-collateralised models—typified by USDT and USDC—are supported by reserves held in fiat instruments, typically on a one-to-one basis. Crypto-collateralised structures,

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such as DAI, rely on overcollateralization using volatile crypto-assets like Ether to preserve their peg (Nguyen et al., 2022).

A growing body of empirical research has examined the stability properties, spillover channels, and cross-market links of stablecoins. Wang et al. (2020) used correlation and regression analyses to assess whether stablecoins act as safe-haven assets or diversifiers relative to conventional cryptocurrencies, noting that their performance depends on prevailing market regimes. Grobys et al. (2021) applied a VAR specification to evaluate systemic vulnerabilities in stablecoins and identified transparency in collateral backing as a key determinant of stability. Grobys et al. (2021) utilised event-study techniques and transaction-volume indicators to explore the effect of stablecoin issuance on Bitcoin outcomes, demonstrating that expansions in Tether supply amplify short-term volatility within crypto markets. Jumde and Cho (2020) employed the DY connectedness method to analyse volatility transmission between cryptocurrencies and fiat currencies, uncovering a moderate degree of cross-market integration. These findings align with Thanh et al. (2023), who adopted the same framework to assess co-movement patterns among stablecoins and observed heightened systemic spillovers during turbulent market phases. The present study builds on these insights by integrating the DY spillover model and a VAR structure to estimate volatility interactions between stablecoins and macro-financial indicators.

Despite the growing literature on stablecoin design and market behaviour, several gaps remain inadequately addressed. First, much of the existing work concentrates on short-run volatility or isolates specific markets, thereby overlooking broader macro-financial conditions. Second, only a limited number of studies provide systematic evidence on directional connectedness, particularly regarding the transmission of shocks across stablecoins, fiat-currency markets, and global equity indices over extended periods. This research addresses these shortcomings by drawing on a longitudinal dataset spanning 2019–2024 and applying comprehensive econometric tools—including the ADF test, FEVD, and TCI—to characterise the dynamic interplay between stablecoins and both crypto-asset and traditional financial markets. By synthesising methodological approaches from earlier contributions (Diebold & Yilmaz, 2012; Pesaran & Shin, 1998) and applying them to contemporary datasets, this analysis offers updated evidence on the interdependencies linking stablecoins with macroeconomic and financial variables. The findings contribute to a deeper empirical understanding of cross-market connectedness and highlight important implications for monetary stability, regulatory oversight, and risk-management practices within emerging digital-asset ecosystems.

Methodology

This paper employs the DY framework (Diebold & Yilmaz, 2012) to analyse the degree to which volatility originating in one financial instrument propagates to others, thereby offering an evidence-based assessment of cross-market spillovers. By tracing how

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disturbances from assets such as stablecoins, fiat-currency pairs, or cryptocurrencies permeate across markets, the DY methodology enables a comprehensive evaluation of inter-asset dependencies. This approach clarifies how stress or economic dislocations in one segment of the financial system can generate secondary effects elsewhere (Jumde & Cho, 2020). The analysis focuses on the interactions and spillover patterns linking major stablecoins—USDT, USDC, BUSD, TUSD, and USDP—with key macro-financial benchmarks over the 2019–2024 period. The selected indicators include EUR/USD movements, Bitcoin returns and their influence on stablecoin behaviour, together with the performance of the NASDAQ 100 and EURO STOXX 50 indices, representing shifts in US and European technology- and growth-oriented equities.

A multi-step empirical strategy is applied to quantify overall and directional spillovers among these variables. Annual returns for each stablecoin, fiat-currency series, and cryptocurrency index are computed for 2019–2024 to provide a profile of yearly performance. Average annual returns are subsequently derived to summarise broader trends across the sample. Standard deviations of returns are calculated to capture volatility characteristics and risk exposure for each asset. Linear dependencies between stablecoins and the selected macro-financial indicators are examined using the Pearson correlation coefficient. This produces a correlation matrix that illustrates the degree of comovement between all variables in the system. To deepen the analysis, pairwise correlations are also computed to capture specific bilateral relationships between individual stablecoins and each economic indicator.

Forecast-error attribution is evaluated through FEVD, which quantifies the proportion of volatility in stablecoin returns attributable to innovations in other variables. Overall system interdependence is assessed by computing the TCI, where higher values denote more pronounced cross-market spillovers and lower values reflect weaker linkages. Directional spillover measures are obtained through the connectedness matrix, which identifies the extent to which shocks in stock indices, fiat-currency pairs, cryptocurrencies, and stablecoins influence one another. To ensure methodological reproducibility and transparency, the DY model parameters are explicitly defined. The connectedness framework is estimated using a VAR structure with lag length $p = 2$, determined using the AIC. The FEVD forecast horizon is set at $H = 10$ periods, consistent with established practice in financial spillover research. Dynamic connectedness is captured via a 200-day rolling window with a 1-day step size, providing a balance between responsiveness and estimation precision. Stationarity of all return series is verified using the ADF test. System coherence is confirmed by ensuring that all eigenvalues of the VAR companion matrix lie within the unit circle. A series of robustness checks confirm the reliability of the main findings:

- Window sizes of 150 and 250 days produced comparable spillover structures.
- Forecast horizons of 5 and 15 periods yielded consistent patterns of short- and long-run spillovers.
- VAR lag orders ranging from 1 to 3 did not materially alter the connectedness

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outcomes.

- Generalised variance decomposition (Pesaran & Shin, 1998) was used to avoid dependence on ordering assumptions.

All computations were performed in R (version 4.3.1) using the Connectedness Approach package, which provides replicable implementations of the full set of dynamic connectedness metrics. Through these methods and the examination of data covering 2019–2024, the study identifies the extent and nature of linkages between stablecoins and major economic indicators. The results advance understanding of how stablecoins respond to fluctuations in the global financial environment. By combining a clearly defined DY modelling approach with robustness validation, the study delivers reproducible insights into the role of stablecoins within the broader financial system and their sensitivity to macro-financial conditions.

DATA

The empirical analysis draws on secondary data obtained from multiple established sources, principally CoinMarketCap, Trading Economics, Macrotrends, Curvo, and the Federal Reserve Economic Data repository (FRED). All datasets cover the period from December 2019 to December 2024 and provide daily observations for asset prices and index values. Daily return series were derived using the logarithmic transformation $R_t = \ln(P_t / P_{t-1})$, enabling comparability among assets with differing nominal price magnitudes. To maintain data reliability, a structured cleaning procedure was applied. Observations containing missing entries, duplicates, or extreme anomalies—defined as deviations exceeding five standard deviations from the sample mean—were removed. In cases where missing values accounted for less than one percent of the time series, linear interpolation was implemented to preserve continuity without distorting underlying patterns. Following the cleaning phase, all series were aligned chronologically to ensure consistent date matching across variables before applying the DY framework. Drawing on multiple data providers allowed for cross-checking and validation of values across platforms, strengthening the integrity and coherence of the final dataset used in the spillover analysis.

Stablecoins

Figure 1 illustrates that USDT has maintained a remarkably stable trajectory since 2019, with its market price consistently anchored around the 1.00 benchmark. During late 2019, fluctuations were minimal, ranging from approximately 0.9996 to 1.0017 (CoinMarketCap, 2024). Stability persisted throughout 2020, although brief upward movements—such as the rise to 1.0063 in March—coincided with market uncertainty triggered by the onset of COVID-19. Across 2021 and 2022, USDT continued to hover near its intended peg, experiencing only marginal deviations. Temporary dips such as 0.9988 in June or small upward adjustments including 1.0021 in February were rapidly

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corrected by market forces. In 2023, the asset demonstrated even tighter price control, with limited variance reflected in values such as 1.0004 in February and 0.9984 in October. Entering 2024, USDT remains effectively anchored at the 1.00 level, reinforcing its role as a central instrument within the digital-asset landscape (Jeger et al., 2020). Given its peg to the US dollar, USDT's average closing prices between 2019 and 2024 remain clustered tightly around the 1.00 level. The yearly averages demonstrate this stability: 1.0007 in 2019, 0.9952 in 2020, 1.0005 in 2021, 0.9999 in 2022, 1.0000 in 2023, and 0.9995 in 2024. Collectively, these figures underscore the instrument's effectiveness in sustaining its targeted dollar parity, reflecting a capacity to preserve nominal value while adjusting marginally to broader market conditions.

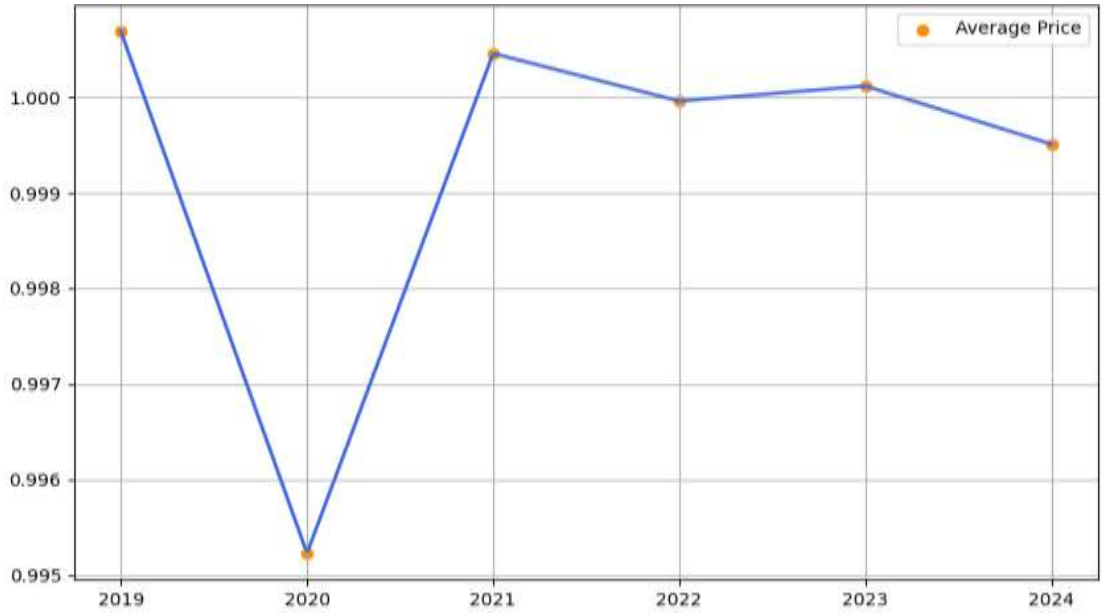

Figure 1: Average Closing Price of USDT by Year (2019-2024)

Figure 2 presents USDC's price evolution and trading dynamics from December 2019 to December 2024. Initially, in December 2019, USDC traded slightly above parity at 1.0315 (CoinMarketCap, 2024). Early 2020 saw elevated volatility, driven by increased demand for secure assets amid the COVID-19 crisis, with a peak of 1.0791 in March before returning to approximately 1.0013 in April. Throughout 2021 and 2022, USDC remained closely aligned with its 1.00 peg, experiencing only minor deviations amidst episodic market disturbances. Stability persisted into 2023, accompanied by consistent trading volumes. By December 2024, USDC continues to function as a key stablecoin within the digital-asset ecosystem, providing a reliable medium of exchange and store of value (Uhlig, 2022).

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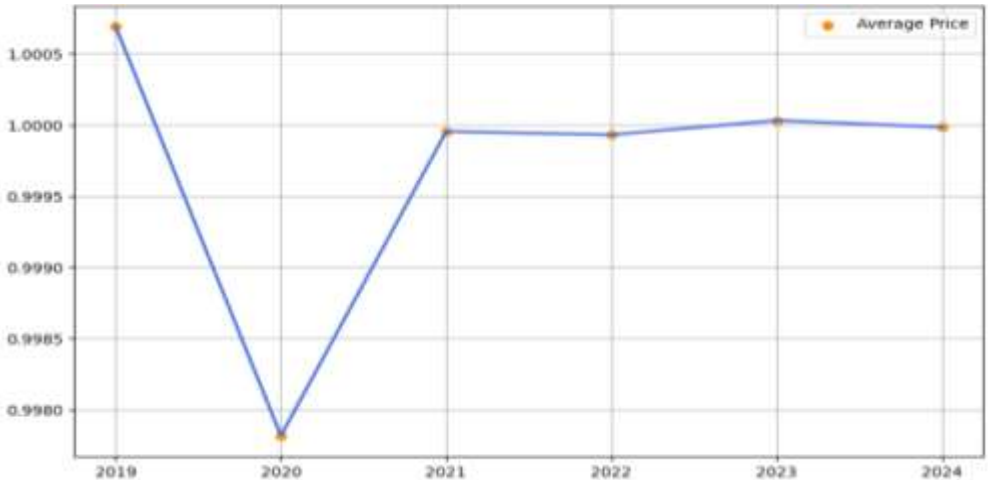

Figure 2: Average Closing Price of USDC by Year (2019-2024)

Figure 3 depicts the stability of USDP over the same period. In December 2019, USDP was marginally above 1.00 at 1.0057. During the COVID-19-related market turbulence of March 2020, it reached a short-term high of 1.0865, subsequently stabilising near 1.0056 in April. Throughout 2021, USDP remained close to its intended peg, with increasing trading volumes reflecting broader adoption. From mid-2021 to early 2022, the stablecoin exhibited only sporadic fluctuations associated with market volatility. In 2023, USDP maintained its 1.00 parity, affirming its reliability and role as a foundational stablecoin in cryptocurrency markets (Fiedler & Ante, 2023).

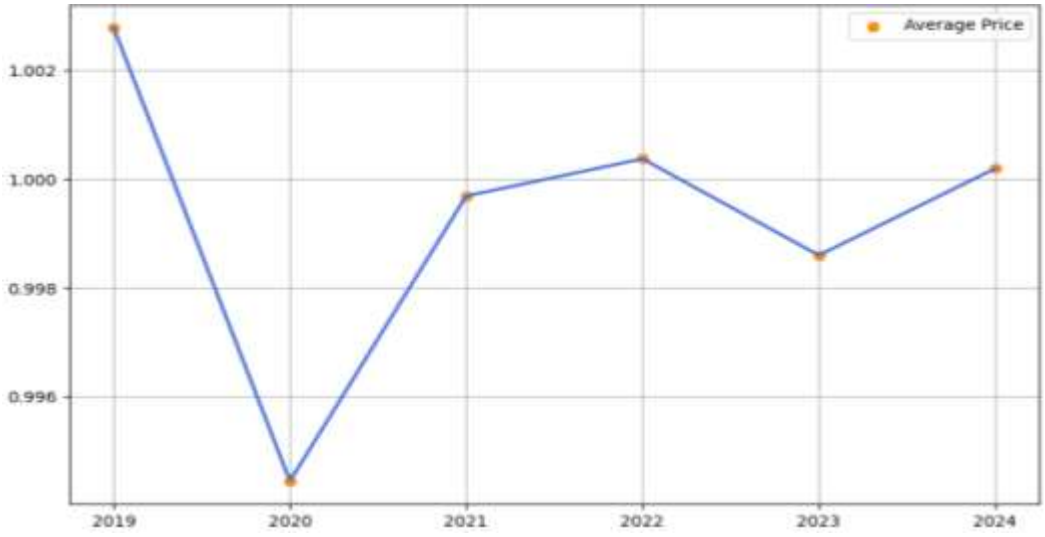

Figure 3: Average Closing Price of USDP by Year (2019-2024)

Analysis of USDP's average closing prices from 2019 to 2024 indicates a consistently stable pattern closely tracking the USD. In 2019, the average closing value was 1.0028, reflecting a slight premium over the USD. The series declined modestly to 0.9945 in

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2020, reflecting minor market adjustments. By 2021, the average recovered to 0.9997, reaffirming its alignment with the dollar peg. Stability continued in 2022, with an average of 1.0004, signalling a period of steady performance amid market fluctuations. In 2023, the average was 0.9986 and increased slightly to 1.0002 in 2024. Across the full period, USDP maintained a close correlation with the USD, demonstrating its resilience and reliability as a stablecoin. Figure 4 highlights DAI's sustained adherence to its USD peg, evidenced by a largely steady trajectory with minimal deviations from 2019 to 2024. The average closing price in 2019 was approximately 1.0005, indicating a marginal premium. In 2020, the average declined slightly to 0.9997, reflecting minor market responses. Stability persisted in 2021, with an average of 0.9991, followed by a marginal increase to 1.0001 in 2022, maintaining fidelity to the USD peg. In 2023, the average stood at 0.9998, and by 2024, it remained stable at 0.9997, confirming DAI's consistent performance as a reliable stablecoin. Over the entire analysis period, DAI exhibited notable stability, remaining closely aligned with the USD and thereby confirming its role as a reliable stablecoin within fluctuating market conditions.

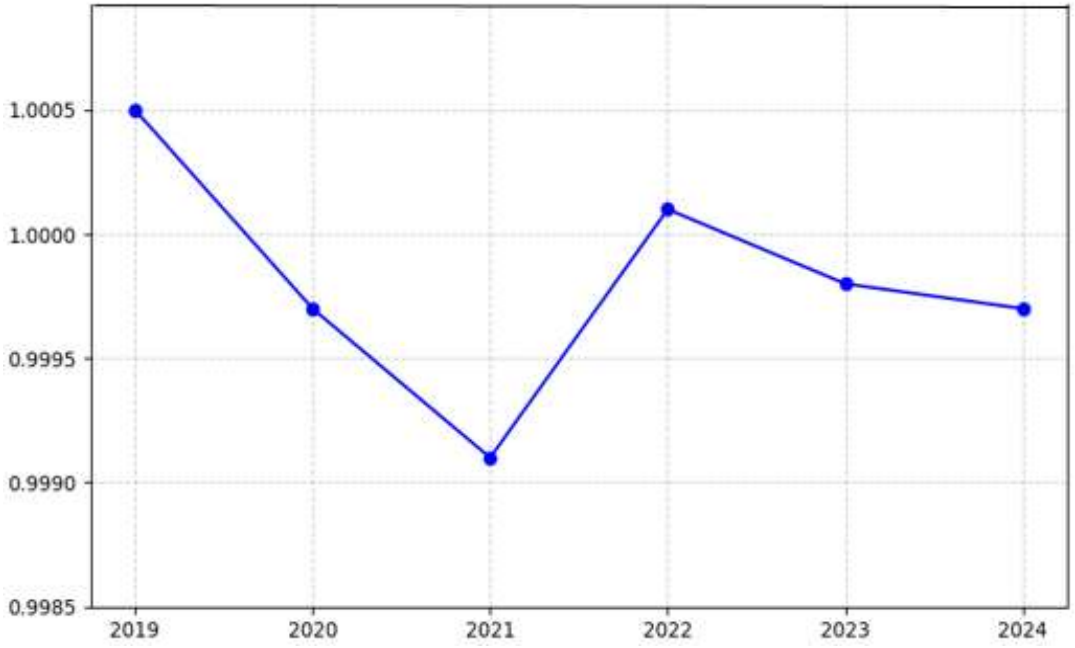

Figure 4: Average Closing Price of DAI by Year (2019-2024)

Figure 5 illustrates that BITUSD experienced pronounced price volatility throughout the 2019–2024 period, in marked contrast to the relative stability of fiat-backed stablecoins, and is therefore treated here as a comparative crypto asset. During 2019, BITUSD displayed modest initial stability, with an average closing price near 0.0028. By 2020, the series had increased slightly to 0.0038, reflecting early growth potential. In 2021, heightened market attention drove the average closing price to 0.0092, signalling stronger adoption and activity. The upward trend continued in 2022, with the

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average price reaching 0.0135, indicative of a maturing market presence. BITUSD's volatility intensified in 2023, averaging 0.0157, and by 2024, the average closing price achieved its highest annual performance at 0.0367. The asset's speculative character is evident in the substantial range observed over the period, spanning a low of 0.00134 to a high of 0.06023. This trajectory underscores BITUSD's dual nature: significant growth potential coupled with elevated risk, reflecting sensitivity to market dynamics and adoption patterns.

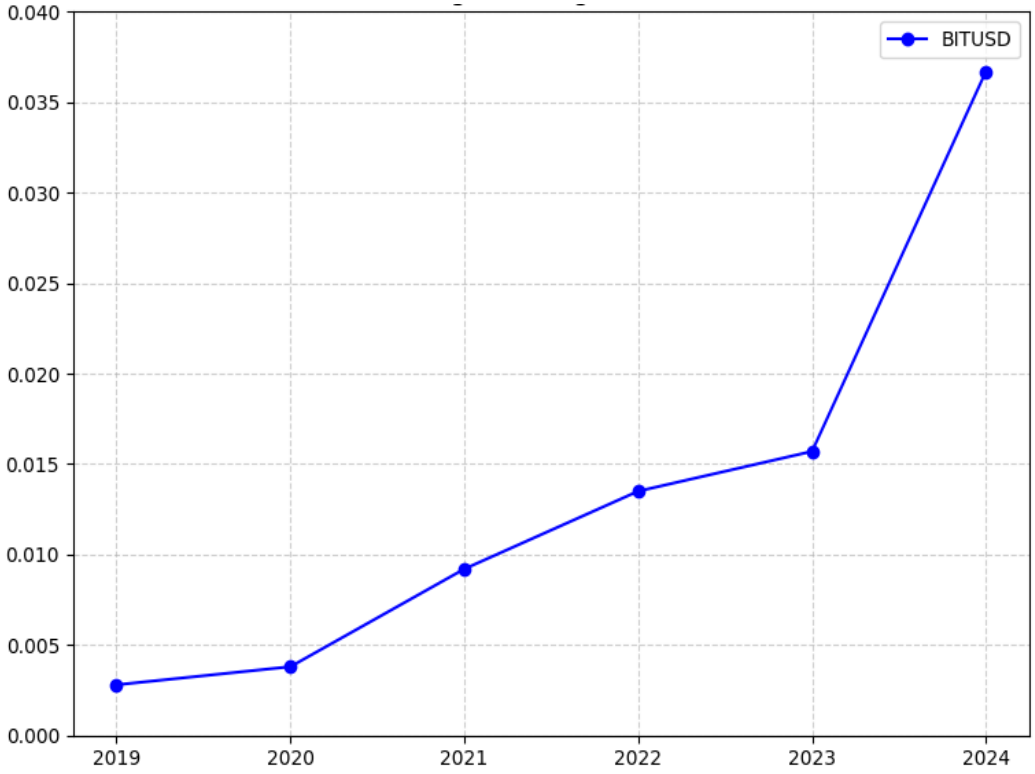

Figure 5: Average Closing Price of BITUSD by Year (2019-2024)

Fiat Currency Data

Figure 6 presents data reflecting broader economic conditions from December 2019 to December 2024, highlighting distinct annual trends and notable fluctuations (Curvo, 2024). In December 2019, the series commenced at 0.9075 and gradually declined during 2020, closing the year at 0.8381, representing an approximate 7.7% reduction. This downward movement was influenced by multiple macroeconomic factors, with mid-2020 lows likely linked to heightened global uncertainty. Despite minor increases in March and September, the overall trajectory for 2020 remained negative. In 2021, the series recorded a 5.2% rise, reaching a mid-year peak of 0.8433 and closing at 0.8819 in December. By the end of 2022, the value had increased by 8.9% to 0.9607, indicating recovery. However, 2023 was more volatile, culminating in a 4.4% decrease

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to 0.9184 by December, reflecting ongoing global economic unpredictability. As of December 2024, the value stands at 0.9181, a marginal decline of 0.08%, with limited variation throughout the year, suggesting that the market has stabilised following prior turbulence (Pernice, 2021). In summary, the data spanning December 2019 to December 2024 depict a market trajectory characterised initially by decline, followed by a substantial recovery, heightened volatility, and eventual stabilisation. This pattern reflects broader economic recovery trends, fluctuations in investor sentiment, and the market's progressive adaptation to ongoing shifts in macroeconomic conditions.

Figure 6: USD/EUR Historical Data

Figure 7 illustrates the EURO STOXX 50 index, capturing the broader European market trends between 2019 and 2024, characterised by alternating phases of recovery and decline. Economic uncertainty and mid-year troughs in 2020 resulted in a 7.67% decline, with the index falling from 0.9075 in December 2019 to 0.8381 by December 2020. By December 2021, the index had rebounded to 0.8819, representing a 5.21% increase, and continued its upward trajectory to 0.9607 by December 2022, a gain of 8.93%. In 2023, the index experienced a 4.41% decline, reaching 0.9184, reflecting ongoing volatility in the global economy. By December 2024, the index had marginally decreased to 0.9181, a 0.08% fall, signalling that the market had largely stabilised after several years of fluctuation.

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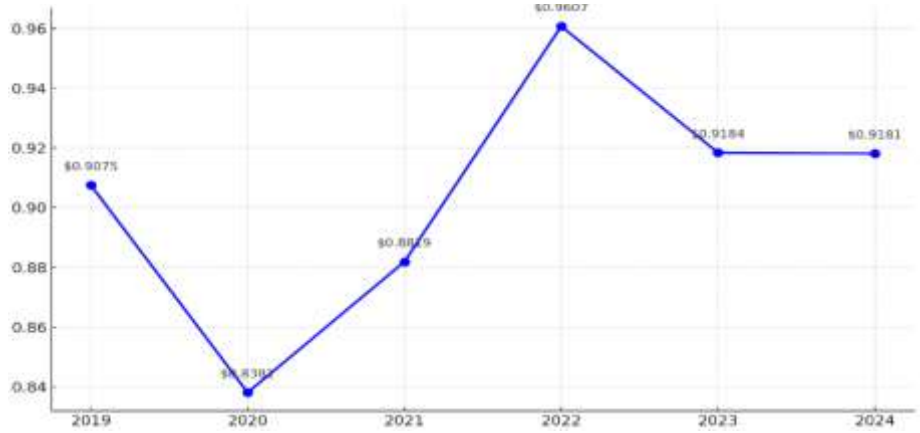

Figure 7: EURO Stoxx 50 (2019-2024) Historical Data

Cryptocurrencies Data

Figure 8 presents Bitcoin's (BTC) monthly closing prices from December 2019 to December 2024, revealing pronounced volatility influenced by macroeconomic developments, regulatory interventions, and shifts in investor sentiment. Between late 2019 and early 2021, BTC experienced substantial appreciation, driven by institutional adoption, increased retail participation, and pandemic-related fiscal stimulus. By mid-2021, however, the cryptocurrency underwent a sharp correction due to intensified regulatory scrutiny—particularly from Chinese authorities—and the Fed's monetary tightening in response to rising inflation (Thanh et al., 2023). The downward trend extended into 2022, reflecting broader market adjustments amid challenging macroeconomic conditions. Elevated inflation, geopolitical tensions, and rapid central bank interest rate hikes contributed to an adverse environment for digital assets. Investor preference shifted towards safer instruments, exacerbating negative sentiment towards riskier assets and pushing BTC to multi-year lows (Gunay et al., 2021).

Early 2023 witnessed a recovery in BTC prices as market conditions stabilised. The narrative positioning BTC as "digital gold," coupled with banking-sector turbulence and optimism regarding potential delays in central bank rate increases, bolstered demand. Institutional investment, growing market acceptance, and perceptions of BTC as a stabilising influence supported the rally, culminating in record highs in early 2024. Nevertheless, by mid-2024, BTC values began to retreat, reflecting profit-taking behaviour and continued sensitivity to macroeconomic shifts, emphasising its classification as a high-risk, high-reward asset (Data, 2024). Overall, the data demonstrate that BTC remains highly responsive to regulatory developments and global economic conditions, with price movements reflecting both investor enthusiasm and caution. This analysis further highlights BTC's dual character as an asset offering substantial return potential while simultaneously requiring careful oversight due to its inherent volatility and sensitivity to macroeconomic and regulatory factors.

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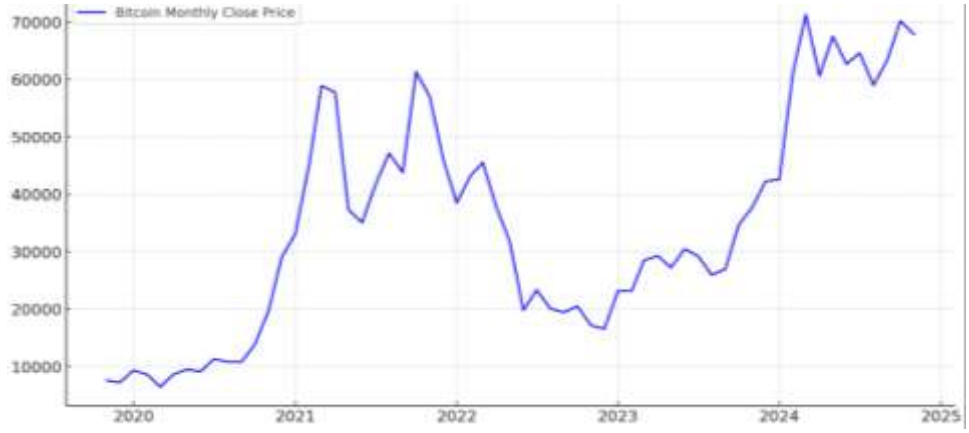

Figure 8: Bitcoin Monthly Closing Prices (2019-2024)

Figure 9 presents BTC's average closing prices from 2019 to 2024, illustrating a market characterised by pronounced volatility and periods of substantial growth. In 2019, the average price stood at 7,381, increasing to 12,247 in 2020, reflecting heightened market interest. A peak of 47,042 was observed in 2021, driven largely by institutional adoption. In 2022, the average declined to 27,795 due to market corrections and regulatory pressures. By 2023, the average price stabilised at 29,875, demonstrating resilience, while in 2024, BTC experienced a surge to 62,808, underlining its sustained attractiveness. Collectively, these trends highlight BTC's sensitivity to regulatory and macroeconomic shifts, reinforcing its classification as a high reward yet inherently risky asset.

Figure 9: Bitcoin Closing Price and Daily Returns Over Time

NASDAQ 100 Index Data

Figure 10 depicts the NASDAQ 100 index from December 2019 to December 2024, highlighting substantial market movements over this period. Between 2019 and 2021, the index rose from 8,403.68 to 16,320.08, driven by surges in technology stocks during

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the COVID-19 pandemic. Early 2022 saw heightened volatility due to inflationary pressures, interest rate hikes, and market corrections, resulting in a mid-year decline to 11,503.72 by June. A gradual recovery commenced in mid-2022 and continued into 2023, with the index reaching 12,030.06 by December. By December 2024, the NASDAQ 100 had rebounded to approximately 19,890.42, supported by improved economic conditions and technological advancements, particularly in artificial intelligence. Inflationary trends and geopolitical events also influenced market performance during this period (Grobys et al., 2021). Between 2019 and 2024, the NASDAQ 100 achieved a total return of 159.2%, corresponding to an annualised gain of approximately 21.0%. This robust performance reflects sustained investor confidence and underscores the growth of technology- and innovation-driven sectors that dominate the index. The upward trajectory of the NASDAQ 100 over this period can be largely attributed to accelerated digital transformation, advancements in IT industries, and a supportive monetary environment, reinforcing its status as one of the most high-performing financial markets. Despite the inherent volatility associated with rapidly evolving sectors, this timeframe demonstrates the index's capacity for substantial returns.

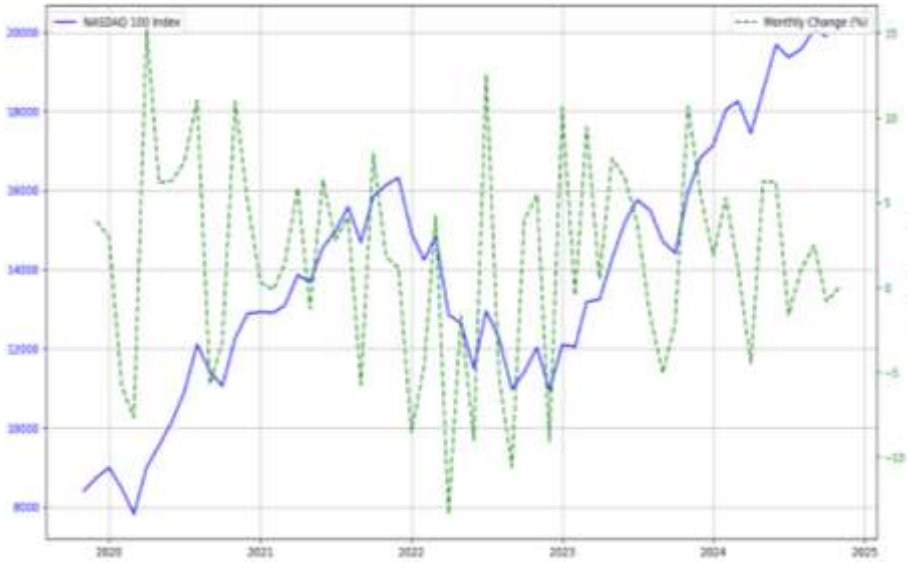

Figure 10: NASDAQ 100 Index Trend and Monthly Changes (2019-2024)

CALCULATIONS

Diebold-Yilmaz Framework

The DY framework was employed to assess the interconnections and spillover effects across multiple asset classes. This approach typically requires transforming price series into return series, enhancing comparability by standardising assets with differing nominal values and providing a measure of percentage change.

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Calculating Annual Returns

The following expression is applied to calculate the return (R_t) for each asset class at a given time t:

$$\text{Annual Return} = \frac{Ending\ Value\ of\ Investment - Beginning\ Value\ of\ Investment}{Beginning\ Value\ of\ Investment}$$

The return series for each asset class over the 2019–2024 period were calculated using the specified formula and are presented in Table 1. The table demonstrates that stablecoins maintain near-zero returns consistent with their design for price stability, whereas BTC and equity indices exhibit considerably higher annual fluctuations, emphasising the inherent risk–return divergence between stable and more volatile assets.

Table 1: Returns for Each Asset Class Throughout the 2019–2024

Assets	2019	2020	2021	2022	2023	2024
USDP	0.013011	-0.00499	0.002004	0.0011	-0.0004	0.0005
USDC	-0.00565	-0.00508	0.002507	0.0006	-0.0003	0.0001
Bitcoin	0.889116	3.020862	0.574239	-0.65358	1.543717	1.397507
DAI	0.019774	0.006022	-0.0019	0.0001	0	0.0002
USDT	-0.00149	-0.01146	-0.0018	-0.0003	0.0003	-0.0004
NASDAQ 100	0.373441	0.468202	0.266844	-0.28616	0.539951	0.31582
EURO to USD	-0.02199	0.089474	-0.06911	-0.05242	0.035078	-0.048352
BITUSD	0	0	0	-0.41102	1.38982	0.586525
EURO Stoxx 50	0.251228	-0.06343	0.205931	-0.12424	0.1726	0.095759

Calculating Annual Average Returns

The average annual return is obtained by calculating the mean of the yearly returns for each asset.

$$R_i = \left(\frac{Ending\ Value\ of\ an\ Asset}{Beginning\ Value\ of\ an\ Asset} - 1\right)^{\frac{1}{n}}$$

Where: R_i represents the return on day i, n denotes the number of days (calculated on a daily basis, such that n = 1).

Table 2 demonstrates that stablecoins consistently yield low average daily returns, whereas BTC and the NASDAQ 100 exhibit substantial positive averages during bullish periods, underscoring their speculative nature.

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Table 2: Annual Average Returns for Each Asset Class Throughout the 2019–2024 Based on Daily Return Calculations

Assets	2019	2020	2021	2022	2023	2024
USDP	0.000040398	-0.000016360	0.000007000	0.000004613	-0.000001926	0.000001208
USDC	0.000136925	-0.000013903	0.000004000	0.000001444	0.000002198	-0.000001064
Bitcoin	0.002394129	0.004646896	0.002177000	-0.002245336	0.002835341	0.003005718
DAI	0.000102887	0.000026731	-0.000006000	0.000000802	0.000001723	0.000000727
USDT	0.000000302	-0.000010958	-0.000001000	-0.000000235	0.000000628	-0.000000213
NASDAQ 100	0.001255532	0.001703769	0.000932000	-0.000949024	0.001547091	0.001124276
EURO to USD	-0.000080691	0.000338000	-0.000268000	-0.000213000	0.000129052	-0.000187238
BITUSD	0	0	0	0.000901795	0.005213411	0.008935525
EURO Stoxx 50	0.000912403	-0.000000119	0.000783000	-0.000378415	0.000727421	0.000396364

Standard Deviation of Returns (Volatility)

The standard deviation of returns, which serves as a measure of volatility, is calculated using the following formula:

$$\sigma = \sqrt{\frac{1}{n-1}\sum(Return_i - Average\ Return)^2}$$

Where, σ is the standard deviation; $Return_i$ is the return in day i; Average Return is the mean of daily returns; n is the number of days.

Table 3 indicates minimal volatility for fiat-backed stablecoins (USDT, USDC, USDP) in contrast to BITUSD and BTC, thereby confirming the stabilising effect of reserve-backed mechanisms.

Table 3: Standard Deviation for Each Asset Class Throughout the 2019–2024

Assets	Standard Deviation
USDP	0.000001742
USDC	0.000024924
Bitcoin	0.000591958
DAI	0.00001242
USDT	0.000000919
NASDAQ 100	0.00015695
EURO to USD	0.000009841
BITUSD	0.0072324
EURO Stoxx 50	0.000077297

Pearson Correlation Coefficient

Correlation coefficients were calculated between the annual returns of each stablecoin

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and the corresponding returns of principal economic variables to assess the interconnections among the five stablecoins (USDC, USDT, BUSD, DAI, BITUSD) and major economic indicators (EUR/USD exchange rate, NASDAQ 100, EURO STOXX 50, and BTC). The resulting coefficients, summarised in Table 4, provide empirical insight into the magnitude and direction of the relationships between stablecoin performance and broader macro-financial conditions. The correlation coefficient between two variables, X and Y, is determined using the following formula:

$$r = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{(\sum(X - \bar{X})^2 \sum(Y - \bar{Y})^2)}}$$

The returns of the two variables under consideration are represented by X and Y, with $\bar{X}$ and $\bar{Y}$ denoting their respective mean returns. The correlation coefficient, r, ranges from -1 to 1, where r = 1 indicates a perfect positive correlation, r = -1 denotes a perfect negative correlation, and r = 0 signifies no correlation.

Table 4: Pearson Correlation Coefficients

Asset	USDP	USDC	Bitcoin	DAI	USDT	NASDAQ 100	EURO to USD	BITUSD	EURO Stoxx 50
USDP	1	-0.28	-0.43	0.73	0.47	-0.05	-0.46	-0.43	0.62
USDC	-0.28	1	-0.54	-0.86	0.57	-0.4	-0.63	-0.71	0
Bitcoin	-0.43	-0.54	1	0.15	-0.73	0.82	0.83	-0.5	0.03
DAI	0.73	-0.86	0.15	1	-0.19	0.25	0.2	0.91	0.33
USDT	0.47	0.57	-0.73	-0.19	1	-0.31	-0.73	0.74	0.41
NASDAQ 100	-0.05	-0.4	0.82	0.25	-0.31	1	0.58	-0.61	0.57
EURO to USD	-0.46	-0.63	0.83	0.2	-0.73	0.58	1	0.21	-0.25
BITUSD	-0.43	-0.71	-0.5	0.91	0.74	-0.61	0.21	1	-0.88
EURO Stoxx 50	0.62	0	0.03	0.33	0.41	0.57	-0.25	-0.88	1

Correlation Matrix

Figure 11 presents the correlation matrix analysing relationships between four stablecoins (USDP, USDC, DAI, USDT) and the comparative crypto asset BITUSD with four external variables (BTC, NASDAQ 100, EURO STOXX 50, and EUR/USD). Correlation coefficients range from -1 (perfect negative correlation) to +1 (perfect positive correlation), with 0 indicating no linear relationship. USDP demonstrates a degree of sensitivity to equity markets, exhibiting a moderate positive correlation of 0.62 with the EURO STOXX 50. Conversely, it moves inversely relative to cryptocurrency and FX markets, as reflected by negative correlations with BTC (-0.43) and EUR/USD (-0.46). USDC behaves countercyclically, showing negative correlations

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with NASDAQ 100 (-0.4), EUR/USD (-0.63), and BTC (-0.54), while its association with EURO STOXX 50 is negligible (0.00).

DAI exhibits a modest positive association with NASDAQ 100 (0.25) and EUR/USD (0.2), and a strong positive correlation with BITUSD (0.91). Its correlation with USDT is weakly negative (-0.19). USDT, in turn, displays negative correlations with BTC (-0.73) and EUR/USD (-0.73), indicating inverse movements relative to FX and cryptocurrency markets, while showing moderate positive correlations with EURO STOXX 50 (0.41) and BITUSD (0.74), suggesting partial alignment with these markets. BITUSD demonstrates strong negative correlations with NASDAQ 100 (-0.61) and EURO STOXX 50 (-0.88), moving counter to global equity trends. In contrast, it aligns closely with stablecoin behaviour, as evidenced by strong positive correlations with USDT (0.74) and DAI (0.91).

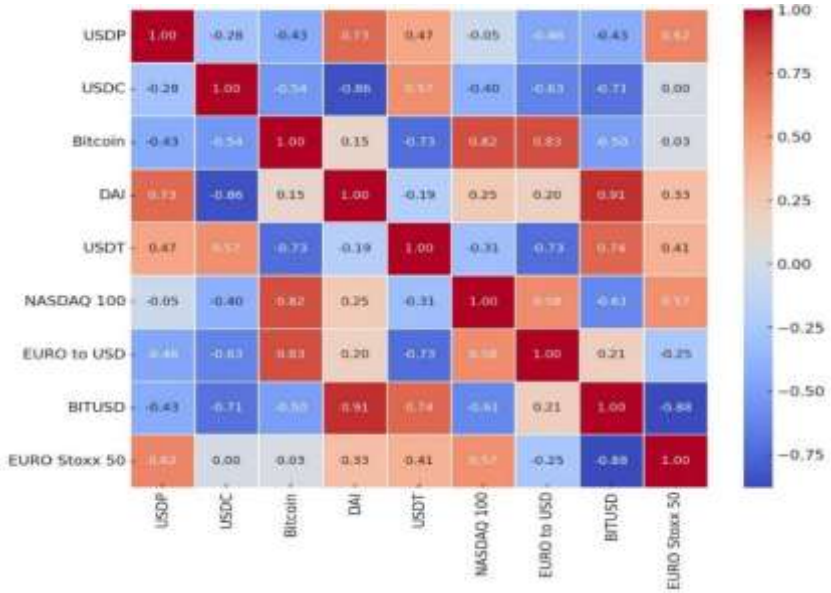

Figure 11: Correlation Matrix of Stablecoins and Economic Factors

BTC's interaction with global equity and FX markets is evident from its strong positive correlations with NASDAQ 100 (0.82) and EUR/USD (0.83). Its association with EURO STOXX 50 is weakly positive (0.03). NASDAQ 100 exhibits moderate positive correlations with EUR/USD (0.58) and EURO STOXX 50 (0.57), while maintaining a pronounced negative correlation with BITUSD (-0.61). The EUR/USD pair displays a slight negative correlation with EURO STOXX 50 (-0.25) and strong positive correlations with NASDAQ 100 (0.58) and BTC (0.83). EURO STOXX 50 presents a strong negative correlation with BITUSD (-0.88) but aligns positively with NASDAQ 100 (0.57) and USDP (0.62), reflecting its greater concordance with other market segments. Overall, the correlation matrix offers insights into stablecoins'

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responsiveness to global market dynamics, highlighting the intricate interdependencies between these digital assets and external financial variables.

Forecast Error Variance Decomposition

Figure 12 presents the FEVD matrix, which summarises the extent to which external factors—NASDAQ 100, BTC, EUR/USD, and EURO STOXX 50—explain the variations in stablecoin returns. The FEVD values indicate the proportion of each stablecoin's return variance attributable to shocks or innovations in these external variables. Higher values correspond to greater influence, allowing identification of the factors exerting the most substantial impact on each asset's variance. For USDP, DAI (0.73) and EURO STOXX 50 (0.62) emerge as the largest contributors, reflecting a pronounced influence from international equity and stablecoin markets. In contrast, USDC's variance is most strongly affected by DAI (-0.86) and BITUSD (-0.71), indicating significant negative contributions from these assets.

BTC is notably influenced by global market dynamics, with NASDAQ 100 (0.82) and EUR/USD (0.83) providing substantial positive contributions, aligning BTC with both currency and equity markets, whereas USDT exerts a negative impact (-0.73). DAI receives its principal contributions from USDP (0.73) and BITUSD (0.91), demonstrating close interconnections with other stablecoins. USDT is negatively impacted by BTC (-0.73) and EUR/USD (-0.73), while BITUSD (0.74) and USDC (0.57) provide meaningful positive contributions. NASDAQ 100 is positively influenced by BTC (0.82) and EUR/USD (0.58), reinforcing its alignment with cryptocurrencies and FX markets, though BITUSD exerts a negative effect (-0.61). For EUR/USD, the largest positive contributions come from NASDAQ 100 (0.58) and BTC (0.83), while BITUSD has a minor positive influence (0.21) and USDC (-0.63) along with USDT (-0.73) contribute negatively.

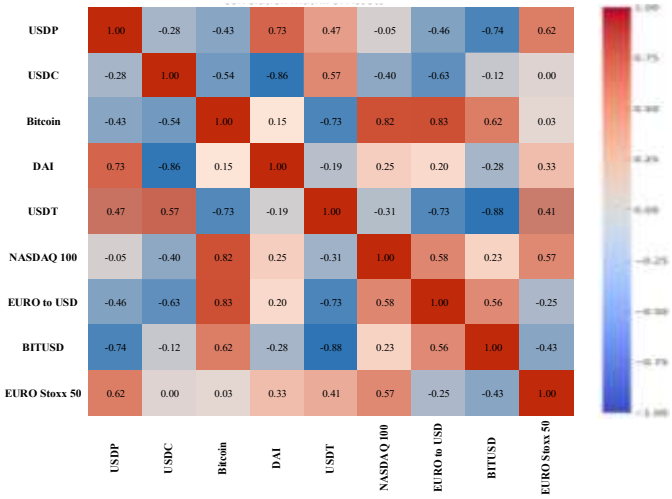

Figure 12: Forecast Error Variance Decomposition

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DAI (0.91) and USDT (0.74) exert the largest influence on BITUSD, emphasising its strong connections with other stablecoins. In contrast, NASDAQ 100 (-0.61) and EURO STOXX 50 (-0.88) display substantial negative contributions, indicating an inverse relationship with global equity markets. For EURO STOXX 50, the principal positive contributors are USDP (0.62) and NASDAQ 100 (0.57), while BITUSD (-0.88) represents a notable negative influence, demonstrating the differential impact of stablecoins and cryptocurrencies on equity variance. Overall, the FEVD analysis highlights the complex interdependencies among stablecoins, cryptocurrencies, global equity indices, and FX rates, with BITUSD, DAI, NASDAQ 100, and EUR/USD emerging as particularly influential determinants of market variance.

Directional Connectedness Matrix

The Directional Connectedness Matrix in Figure 13 highlights each asset's relative influence on others (TO) and its susceptibility to influence (FROM). The matrix demonstrates that, while certain assets such as USDP remain relatively insulated, BITUSD and BTC are key actors, both exerting and receiving substantial influence. Moreover, FX rates (EUR/USD) and equity markets (NASDAQ 100 and EURO STOXX 50) continue to play pivotal roles in shaping the dynamics of stablecoins and cryptocurrencies.

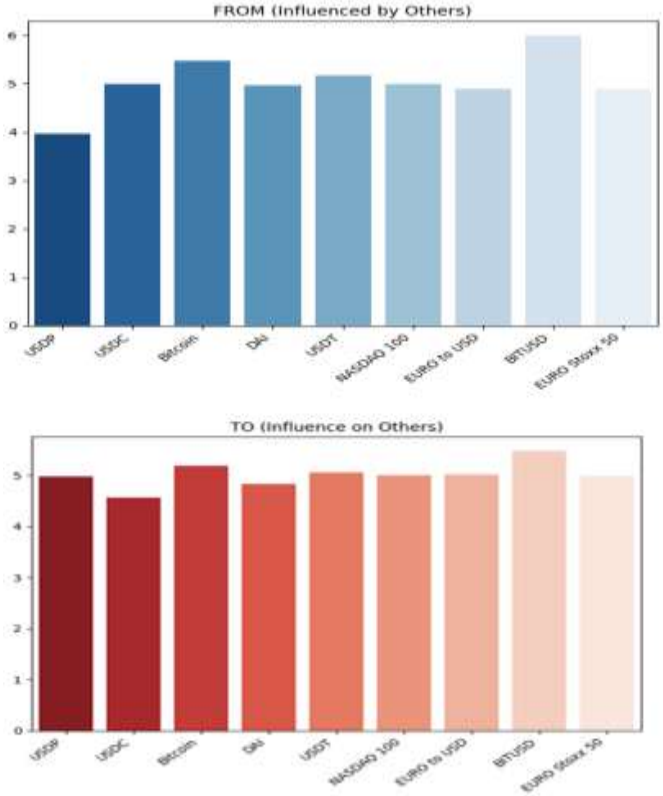

Figure 13: Directional Connectedness Matrix

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As shown in Table 5, BITUSD exhibits the highest FROM value of 5.99, indicating that it is the asset most affected by changes in other markets. It's TO value of 5.48 demonstrates a substantial capacity to transmit shocks, highlighting its dual role as both a receiver and a propagator of market disturbances. BTC, with a FROM value of 5.47 and a TO value of 5.19, similarly demonstrates a significant bidirectional influence, reinforcing its status as a key conduit for systemic shocks within the financial ecosystem. USDT shows balanced connectivity, with a FROM value of 5.17 and a TO value of 5.06, suggesting it is moderately affected by external shocks while exerting a comparable influence on other assets. NASDAQ 100, with nearly equivalent FROM (4.99) and TO (5.00) values, displays a similar pattern, underscoring its pivotal role, particularly in influencing the more equity-sensitive assets such as BITUSD and USDT.

Table 5: Directional Connectedness Coefficients

Asset	FROM (Influenced by Others)	TO (Influence on Others)
USDP	3.97	4.98
USDC	4.99	4.57
Bitcoin	5.47	5.19
DAI	4.97	4.83
USDT	5.17	5.06
NASDAQ 100	4.99	5
EURO to USD	4.89	5.02
BITUSD	5.99	5.48
EURO Stoxx 50	4.89	4.99

The EUR/USD exhibits a TO value of 5.02, reflecting substantial directional influence on other assets, while its moderate FROM value of 4.89 indicates a relative susceptibility to external shocks. USDC and DAI display TO values of 4.57 and 4.83, respectively, suggesting a smaller role in transmitting shocks; however, there FROM values of 4.99 (USDC) and 4.97 (DAI) confirm that they remain considerably affected by other assets. This highlights their limited influence in propagating volatility. EURO STOXX 50 demonstrates moderate connectivity, with a FROM value of 4.89 and a TO value of 4.99, whereas USDP, with a TO value of 4.98 and a FROM value of 3.97, emerges as the least impacted asset, indicating higher stability while still contributing to the network of interactions. Overall, the directional connectedness matrix emphasises that, although assets such as USDP remain relatively isolated, BITUSD and BTC are central participants, both influencing and being influenced by others. Additionally, FX rates (EUR/USD) and equity markets (NASDAQ 100 and EURO STOXX 50) continue to play pivotal roles in shaping the dynamics of stablecoins and cryptocurrencies.

Total Connectedness Index

The TCI in Table 6 summarises the overall interdependence between stablecoins and external variables, including NASDAQ 100, BTC, EUR/USD, and EURO STOXX 50. The system-wide connectedness is reflected by a TCI value of 5.02, indicating the

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extent to which shocks or changes in one asset propagate across others. The Total TO Connectedness of 45.12 measures the degree to which each asset transmits shocks to the system, while the Total FROM Connectedness of 45.33 captures the extent to which each asset is influenced by external factors. The near equivalence of FROM and TO values illustrates a reciprocal dynamic, wherein assets both exert influence on and contribute to the overall interconnectedness of the financial network. The TCI indicates a moderate level of system-wide interdependence, with FX rates (EUR/USD) and global equity markets (NASDAQ 100, EURO STOXX 50) exerting substantial influence on variations among stablecoins. This interconnectedness underscores the susceptibility of stablecoins to macro-financial shocks from external sources, while also highlighting their role in transmitting disturbances throughout the broader financial ecosystem.

Table 6: Total Connectedness Index

Metric	Value
Total FROM Connectedness	45.33
Total TO Connectedness	45.12
Total Connectedness Index (TCI)	5.02

RESULTS

The analysis underscores the intricate interconnections among the cryptocurrency market (BTC), global equity indices (NASDAQ 100, EURO STOXX 50), stablecoins (USDT, USDC, DAI, USDP), the comparative crypto asset (BITUSD), and FX rates (EUR/USD). Evidence from the correlation matrix (Figure 11) reveals heterogeneous positive and negative associations between stablecoins and external variables. BITUSD's behaviour contrasts with traditional equity markets, exhibiting strong inverse correlations with indices such as NASDAQ 100 and EURO STOXX 50, while BTC demonstrates substantial positive linkages with EUR/USD and NASDAQ 100, confirming its alignment with both FX and equity markets. The FEVD results (Figure 12) further identify the primary drivers of stablecoin volatility. BITUSD and DAI emerge as central actors, significantly contributing to each other's return variation. BTC's strong connections to global markets, particularly EUR/USD and NASDAQ 100, are also evident. Conversely, USDP remains relatively isolated, with EURO STOXX 50 exerting the largest influence on its return variance.

The Directional Connectedness Matrix (Figure 13) highlights the dual role of BTC and BITUSD as both transmitters and receivers of shocks. BITUSD, with the highest FROM value of 5.99, is the most sensitive asset, reflecting its critical position within the network while simultaneously exerting notable influence on other assets. NASDAQ 100, EURO STOXX 50, BTC, and USDT collectively drive systemic dynamics, whereas USDP's limited susceptibility underscores its relative stability. The system's moderate overall interconnectedness is captured by the TCI of 5.02, with Total FROM

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Connectedness (45.33) and Total TO Connectedness (45.12) indicating a reciprocal balance in shock transmission. Stablecoin behaviour is predominantly shaped by global equity and FX markets, although individual stablecoins exhibit varying levels of sensitivity and influence.

These results suggest that stablecoins are not autonomous financial instruments but are closely linked to broader macro-financial developments. External markets, particularly equities and FX, act as conduits for volatility, while BTC and BITUSD serve as principal channels for shock propagation. Fiat-backed stablecoins, such as USDT and USDC, maintain relative price stability yet remain susceptible to macro-financial shocks. Understanding these interdependencies is essential for assessing stablecoin stability, systemic risk, and responsiveness within the global financial system. The findings align with Grobys et al. (2021), who identified moderate stability and systemic connectedness among major stablecoins. In contrast to Wang et al. (2020), which suggested stablecoins often act as safe havens during cryptocurrency downturns, the current analysis indicates that USDT and USDC are materially affected by macro-financial fluctuations. This divergence highlights the dynamic nature of stablecoin markets and underscores the imperative for regulatory transparency, collateral disclosure, and robust governance frameworks to safeguard long-term stability and mitigate systemic risk.

CONCLUSION

This study examined interactions and volatility spillovers among major stablecoins (USDT, USDC, DAI, USDP), the BITUSD, and key macro-financial indicators (EUR/USD, NASDAQ 100, EURO STOXX 50, BTC) from 2019–2024 using the DY framework. Results indicate that stablecoins, while relatively stable, remain sensitive to macroeconomic fluctuations. BTC and BITUSD act as primary channels of volatility, whereas fiat-collateralized stablecoins like USDT and USDC show higher resilience but still respond to global market and FX changes. USDT and BITUSD align closely with equity and crypto markets, making them suitable during growth phases, while USDC and DAI function as stabilisers during financial turbulence. USDT's inverse correlation with BTC and EUR/USD highlights its hedging role, and DAI's alignment with traditional and digital assets reinforces risk mitigation. USDP offers diversification in European markets due to its moderate correlation with EURO STOXX 50. These findings underline stablecoins' potential to enhance portfolio stability, emphasising the need for regulatory transparency, independent reserve verification, and coordinated international oversight. Limitations include a five-year sample and focus on selected stablecoins; future research should cover algorithmic and commodity-backed stablecoins, high-frequency data, and nonlinear network effects. In summary, stablecoins bridge crypto and conventional finance, offering diversification opportunities while posing systemic risks. Robust governance and international regulation are crucial to leverage their benefits and maintain global financial stability.

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REFERENCES

Adrian, T., & Mancini-Griffoli, T. (2023). The rise of payment and contracting platforms. *Fintech Note No. 2023/005*. https://doi.org/10.5089/9798400245749.063

Akyildirim, E., Aysan, A. F., Cepni, O., & Darendeli, S. P. C. (2021). Do investor sentiments drive cryptocurrency prices? *Economics Letters*, *206*, 109980. https://doi.org/10.1016/j.econlet.2021.109980

Ante, L., Fiedler, I., & Strehle, E. (2021a). The impact of transparent money flows: Effects of stablecoin transfers on the returns and trading volume of Bitcoin. *Technological Forecasting and Social Change*, *170*, 120851. https://doi.org/10.1016/j.techfore.2021.120851

Briola, A., Vidal-Tomás, D., Wang, Y., & Aste, T. (2023). Anatomy of a Stablecoin's failure: The Terra-Luna case. *Finance Research Letters*, *51*, 103358. https://doi.org/10.1016/j.frl.2022.103358

CoinMarketCap. (2024). CoinMarketCap. . https://coinmarketcap.com/

Curvo. (2024). Market index backtest: NASDAQ 100 (EUR). . https://curvo.eu/backtest/en/market-index/nasdaq-100?currency=eur

Data, T. E. (2024). Crypto currencies - Live exchange rate price quote data. . https://tradingeconomics.com/

Diebold, F. X., & Yilmaz, K. (2012). Better to give than to receive: Predictive directional measurement of volatility spillovers. *International Journal of Forecasting*, *28*(1), 57-66. https://doi.org/10.1016/j.ijforecast.2011.02.006

Fiedler, I., & Ante, L. (2023). Stablecoins. In *The emerald handbook on cryptoassets: investment opportunities and challenges* (pp. 93-105). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80455-320-620221007

Griffin, J. M., & Shams, A. (2020). Is Bitcoin really untethered? *The Journal of Finance*, *75*(4), 1913-1964. https://doi.org/10.1111/jofi.12903

Grobys, K., Junttila, J., Kolari, J. W., & Sapkota, N. (2021). On the stability of stablecoins. *Journal of Empirical Finance*, *64*, 207-223. https://doi.org/10.1016/j.jempfin.2021.09.002

Gunay, S., Kaskaloglu, K., & Muhammed, S. (2021). Bitcoin and Fiat Currency Interactions: Surprising Results from Asian Giants. *Mathematics*, *9*(12), 1395. https://doi.org/10.3390/math9121395

Jarno, K., & Kołodziejczyk, H. (2021). Does the Design of Stablecoins Impact Their Volatility? *Journal of Risk and Financial Management*, *14*(2), 42. https://doi.org/10.3390/jrfm14020042

Jeger, C., Rodrigues, B., Scheid, E., & Stiller, B. (2020). Analysis of stablecoins during the global covid-19 pandemic. 2020 Second International Conference on Blockchain Computing and Applications (BCCA), https://doi.org/10.1109/BCCA50787.2020.9274450

Vol: 17 **No:** 03 **Year:** 2025 **ISSN:** 1309-8055 (Online) (**pp.** 244-268) **Doi:** 10.34109/ijefs.202517313

Jumde, A., & Cho, B. Y. (2020). Can cryptocurrencies overtake the fiat money? *International Journal of Business Performance Management*, *21*(1-2), 6-20. https://doi.org/10.1504/IJBPM.2020.106107

Nguyen, T. V. H., Nguyen, T. V. H., Nguyen, T. C., Pham, T. T. A., & Nguyen, Q. M. P. (2022). Stablecoins versus traditional cryptocurrencies in response to interbank rates. *Finance Research Letters*, *47*, 102744. https://doi.org/10.1016/j.frl.2022.102744

Pernice, I. G. A. (2021). On Stablecoin Price Processes and Arbitrage. Financial Cryptography and Data Security. FC 2021 International Workshops, Berlin, Heidelberg. https://doi.org/10.1016/S0165-1765(97)00214-0

Pesaran, H. H., & Shin, Y. (1998). Generalized impulse response analysis in linear multivariate models. *Economics Letters*, *58*(1), 17-29. https://doi.org/10.1016/S0165-1765(97)00214-0

Thanh, B. N., Hong, T. N. V., Pham, H., Cong, T. N., & Anh, T. P. T. (2023). Are the stabilities of stablecoins connected? *Journal of Industrial and Business Economics*, *50*(3), 515-525. https://doi.org/10.1007/s40812-022-00207-3

Uhlig, H. (2022). A Luna-Tic Stablecoin Crash. *Available at SSRN 4165328*. https://ssrn.com/abstract=4165328

Wang, G.-J., Ma, X.-y., & Wu, H.-y. (2020). Are stablecoins truly diversifiers, hedges, or safe havens against traditional cryptocurrencies as their name suggests? *Research in International Business and Finance*, *54*, 101225. https://doi.org/10.1016/j.ribaf.2020.101225

Zhao, W., Li, H., & Yuan, Y. (2021). Understand Volatility of Algorithmic Stablecoin: Modeling, Verification and Empirical Analysis. Financial Cryptography and Data Security. FC 2021 International Workshops, Berlin, Heidelberg. https://doi.org/10.1007/978-3-662-63958-0_8