Volatility Spillover between Equity and Cryptocurrency: An Empirical Study on the Colombo Stock Exchange

Riyath M.I.M.[a]* and Shiraj M.M.[b]

[a] Department of Accountancy and Finance, South Eastern University of Sri Lanka, Sri Lanka.
[b]Department of Management, South Eastern University of Sri Lanka, Sri Lanka.

Abstract

Cryptocurrency markets have spillover effects on different financial markets. However, no studies have empirically investigated their spillover impact on the equity market of Sri Lanka. This study investigates the volatility transmission of spillover volatility between the Colombo Stock Exchange (CSE) and cryptocurrency markets considering the daily returns of the All Share Price Index (ASPI) and the Bitcoin (BTC). The analysis employs univariate Generalized Autoregressive Conditional Heteroskedasticity (GARCH) (1,1) models to capture volatility dynamics and a multivariate Dynamic Conditional Correlation (DCC)-GARCH model to examine the time-varying correlations between ASPI and BTC returns. The results reveal significant volatility clustering and high persistence in ASPI and BTC, with immediate shocks to volatility being more pronounced in BTC. Notably, past volatility has a more substantial impact on current volatility in ASPI compared to BTC. The DCC-GARCH model indicates a negligible negative correlation between ASPI and BTC returns, suggesting minimal spillover effects and potential diversification benefits. The understanding developed in this paper can help investors devise an appropriate strategy, policymakers design suitable regulations, and, lastly, guide market participants into designing innovative new financial products that will take care of the changing needs of the investors within the digital economy. Future research should investigate spillover effects in other emerging equity markets and consider additional factors such as regulatory changes and macroeconomic variables.

Keywords: CSE, Cryptocurrency, DCC-GARCH, Spillover, Volatility

*riyath@seu.ac.lk

01. Introduction

Today, the interplay between traditional financial markets and the rapidly expanding world of cryptocurrencies has captured the world's attention. These developments significantly affect asset pricing, portfolio diversification, and risk management strategies. The Colombo Stock Exchange (CSE) plays a pivotal role in the Sri Lankan financial landscape, with a market capitalization of approximately 16.464 billion USD as of April 2024 (CEIC, 2024). Given the development of the Sri Lankan equity market and the fact that cryptocurrencies have seriously entered the financial sector in recent years, the study of possible spillover effects among these two somewhat different asset classes becomes simply indispensable. It is essential that an economy like Sri Lanka, significantly reliant on remittances and hence vulnerable to external shocks, finds ways in which external classes of assets, such as cryptocurrencies, interface with or impact the CSE (Riyath et al., 2024).

Cryptocurrencies, facilitated by blockchain technology, have emerged as a distinct asset class, with a collective market capitalization exceeding $1 trillion as of August 2023 (CoinGecko, 2023). It has increased investor participation in cryptocurrencies, integration in finance through blockchain technology, and the perception of being some hedge against economic uncertainty and devaluation of the currency in the financial markets (Balcilar & Ozdemir, 2019; Dutta & Bouri, 2022). Existing literature has explored the potential spillover effects between equity markets and cryptocurrencies in various contexts. In this line, it was seen by Dai et al. (2023) that there were interdependence and possible diversification benefits between cryptocurrency and more standard equities in 2018. Furthermore, the study by Dutta and Bouri (2022) demonstrates how Bitcoin potentially comes with diversification characteristics through the turbulence of markets. Studies have been conducted further into the effect of respective regulatory announcements and macroeconomic events regarding such interrelation links between the two markets, namely cryptocurrencies and equity markets. However, the Sri Lankan equity market's specific example and potential ties with cryptocurrencies remain relatively unexplored. Therefore, this study examines the possibility of spillover effects between the Sri Lankan equity market asset classes, represented by the CSE, and the cryptocurrency market.

This research could significantly contribute to academic literature and be of the utmost practical importance. Academically, it would fill a gap in the existing literature by providing empirical evidence on the spillover effects between the equity market of an emerging economy and the cryptocurrency market, enhancing our understanding of how digital assets interact with traditional financial markets in different economic contexts. More practically, the findings would further contribute to shaping how investors develop their strategies, particularly, the choice of a diversified portfolio and how actively they should be in financial markets to minimize and hedge against the risks involved. Additionally, the insights gained could inform investor strategies, particularly in portfolio diversification and risk management, and aid policymakers in developing regulatory frameworks that address the interconnectedness of these markets and mitigate systemic risks. Furthermore, market participants could leverage these insights to design innovative financial products that cater to the evolving needs of investors in a digital economy.

02. Literature Review

2.1. Financial Contagion Theory

The theory of financial contagion is designed to explain the transition of economic shocks across markets and countries. It postulates that some financial disturbance in one market can be transmitted into other markets when there are no significant apparent true links with the economy. The concept of contagion becomes especially relevant in a setting featuring globalized, integrated financial markets, which allow for the shock to propagate with increased speed. The financial contagion theory has two definitions: fundamentals-based contagion from real economic linkages and pure contagion from investor behavior or market sentiment (Saiti et al., 2016). The theory explains the nature of both equity and cryptocurrency markets, providing insights into spillover effects and interdependencies within the said markets. It is postulated that the volatility/crises in one market—for instance, one of the cryptocurrencies—may have a contagious effect on seemingly unrelated markets, sometimes like traditional equity exchanges. This theory applies particularly well in emerging markets, which are more susceptible to external shocks due to their relatively smaller size and possibly less developed regulatory framework settings.

2.2. Spillovers Across Markets

The hypothesis of financial market spillovers arises when information or shocks in one financial market interlink with others, thus creating networks and interdependence of different asset classes. Consequently, the potential implications on equities, policymakers, and investors tend to be very high because spillovers can amplify volatility and disrupt pricing dynamics. Kanas (2000) analyzed stock returns and exchange rate changes and observed spillovers, indicating a high level of integration among financial markets. This kind of integration can result in a falling of dominoes during systemic risk, where a particular financial market gets affected and, in turn, affects other financial markets with a broader implication for global economic stability. Understanding financial market spillovers is crucial as it impacts market behavior and stability. This would recognize the consequences of the spillover effect in devising optimal strategies regarding diversification and risk management. Then, the view that there is spillover helps an investor to be forewarned and forearmed and to configure one's portfolio as prophylactically as possible. This is particularly true in financial crises or economic downturns when spillover effects will be expected to make matters worse for market turmoil.

2.3. Evolution of Cryptocurrencies

Cryptocurrencies developed much after the birth of Bitcoin, which was unique in that it was developed based on decentralized proper cryptographic security and operated based on blockchain technology. Compared to other traditional classes of assets, these distinct features result in benefits like increased transparency, security, and a reduction in the costs of transactions (Zakarneh et al., 2022). Research findings indicate that incorporating cryptocurrencies into investment portfolios can enhance overall portfolio performance, providing new investment opportunities (Inci & Lagasse, 2019). Volatility is a crucial characteristic of cryptocurrencies, and studies have highlighted the presence of outliers and time-varying jumps in cryptocurrency markets (Dutta & Bouri, 2022). With this intuitive character of the volatility in their prices, cryptocurrencies have been widely adopted and have become one of the preferred payment methods and an asset today quite indispensable to e-commerce (Stevanović et al., 2023). In this regard, the market capitalization of cryptocurrencies is increasing at the speed of light, which means that the acceptance and adoption of cryptocurrencies worldwide are growing. In such a growing, dynamic environment, the importance of the global cryptocurrency market has been growing within the overall construct of finance.

The relationship between cryptocurrencies and traditional financial markets is significant. Generally, cryptocurrencies can run independently without the need for any third-party transactions. Cryptocurrencies employ hash algorithms and blockchain technology to secure transactions and maintain their integrity (Shi, 2023). Being independent of centralized regulation has added to the attraction of currencies as an alternative medium of exchange. The distinct characteristics of cryptocurrencies have led to their recognition as a unique asset class, supported by the development of investment products and services within the financial industry (Ankenbrand & Bieri, 2018). Spillover effects have recently attracted significant attention in financial research on equity markets and cryptocurrencies.

Moreover, the issue of the interdependence of both asset classes has been addressed in several studies, treating them as prime candidates for the transmission of risks and volatilities between markets and sectors, respectively, providing informative insight into the relationship of the two asset classes concerning risk and return. Dai et al. (2023) employed the DCC-GARCH Connectedness approach to measure the spillover effects of crash risk between cryptocurrency and equity markets. In their research particular importance was attached to how vital the transmission of crash risk will be to investors and policymakers in coming up with measures that can reduce financial disruption in the system. Similarly, Joshi et al. (2022) addressed the spillover effect of volatility between the US stock market and the cryptocurrency market. Their results also highlighted the strong influence of external shocks on market dynamics, laying the basis for solid risk management strategies during uncertain times.

2.4. Empirical Findings

Studies investigate the spillovers in tail volatilities of gold, oil, and equity markets between the cryptocurrencies, and it was established that this connected world needs sound policies since spillovers can be profound and touch on the stability of markets and investors' behavior. However, Elgammal et al. (2021) noted the price and volatility spillovers among global equity, gold, and energy markets, focusing on the return price spillover effects from Bitcoin on various markets under different conditions. This study has brought out the significance of Bitcoin in influencing other classes of assets, and thus, the possibility of cryptocurrencies acting as a conduit in transmitting risks within a financial system makes them essential globally. Aydoğan et al. (2024) also worked on the return and volatility spillovers among the cryptocurrencies with the stock markets. They revealed unidirectional effects between Bitcoin, Ethereum, and stock market indices, indicating that movements in major cryptocurrencies can significantly impact equity markets. Such literature findings also find the implication of cryptocurrencies on systemic risk. Li and Huang (2020) discuss that the volatility of cryptocurrencies can create systemic risk in the world financial market. They stressed the importance of understanding and managing these risks to safeguard financial stability. Harb et al. (2022) researched the contagion of the US equity and bond markets with the volatility of digital currencies; more specifically, the researchers studied the possible impact that the outbreak of COVID-19 had on the return-volatility dynamics. According to the researchers, the contagion had been enhanced by the pandemic, and an adequate solution for managing risks during crises was requested. This shows the two classes' most complex and significant spillover effects: equities and cryptocurrencies.

2.4.1. Empirical Findings in the Sri Lankan Context

Empirical studies on the volatility spillover effect in Sri Lankan equities have been done, evidencing significant interdependencies with other regional and global markets. Withanage and Jayasinghe (2017) established that there is an intraday volatility spillover from India to Sri Lanka, thus suggesting regional market integration. Jebran and Iqbal (2016) supported these findings by providing evidence of volatility transmission from the Sri Lankan and Pakistani stock markets to other selected equity markets. Research on volatility spillover effects has extended into the commodity markets. For example, Aziz (2023) demonstrated that there were significant spillovers from the oil markets to equity markets in selected SAARC countries, including Sri Lanka. Habiba et al. (2020) considered the USA, India, Pakistan, and Sri Lanka, investigating their volatility spillover dynamics before, during, and after the 2007 US subprime financial crisis, explaining the global nature of market interdependencies in the wake of financial turmoil. Kumar and Dhankar (2017) further emphasized the regional integration of stock returns and volatility for the Indian, Pakistani, and Sri Lankan markets. Kuruppuarachchi (2016) and Riyath et al. (2024) discussed how the Sri Lankan stock market interacts with other Asian markets through cointegration, correlation linkages, information spillovers, and impulse responses, still underscoring the many linkages within the region.

The existing literature shows a significant spillover in the volatility of Sri Lankan equities with regional markets like that of India and Pakistan. However, Withanage and Jayasinghe (2017) and Jebran and Iqbal (2016) have focused their studies on traditional financial markets, leaving a gap in understanding the impact of cryptocurrencies on the Sri Lankan equity market. While research on commodity market spillovers (Aziz, 2023) and global financial crises (Habiba et al., 2020) provides broader insights these studies do not address the unique volatility dynamics characteristic of cryptocurrencies. The current study will fill these gaps through an investigation of cryptocurrency spillover effects on the Colombo Stock Exchange.

03. Methodology

The dataset comprises daily returns of the All Share Price Index (ASPI) and Bitcoin (BTC) from January 1, 2012, to March 22, 2024, resulting in 2915 observations for each series. This period captures a wide range of economic conditions and significant market events, providing a solid foundation for analyzing volatility and correlation dynamics. Both series were obtained from Investing.com, chosen for its reliability and extensive coverage. Handling missing data involved identifying and addressing missing values using imputation techniques to ensure dataset completeness. Outlier detection was conducted through statistical methods and visual inspection, where extreme values were examined and appropriately treated to prevent skewing the analysis.

The returns are calculated as the first difference of the natural logarithm of daily closing prices presented in Equation 1, a common transformation in financial time series to stabilize variance and achieve stationarity.

$$R_t = Ln\left(\frac{P_t}{P_{t-1}}\right)\text{--------------------------------Equation 1}$$

Where R_t is the return at time tt, Pt is the closing price at time t, and ln denotes the natural logarithm. To ensure the stationarity of the return series, we perform unit root tests, specifically the Augmented Dickey-Fuller (ADF) test. Stationarity is a crucial assumption for GARCH modeling as it ensures that the statistical properties of the series do not change over time.

3.1. Model Specification

This study employs univariate and multivariate GARCH models to capture the volatility dynamics and correlations of the ASPI index and Bitcoin returns. It applies a univariate ARMA (1,1)-GARCH(1,1) model to each return series. The GARCH(1,1) model mean equation is specified in Equation 2.

$$R_t = \mu + \phi R_{t-1} + \theta \epsilon_{t-1} + \epsilon_t \text{------------------Equation 2}$$

Where R_t is the return at time t, μ is the mean return, ϕ is the autoregressive (AR) coefficient, θ is the moving average (MA) coefficient, and ϵt is the error term at time t. The GARCH (1,1) variance equation is specified in Equation 3.

$$\sigma_t^2 = \omega + \alpha \epsilon_{t-1}^2 + \beta \sigma_{t-1}^2 \text{----------------------Equation 3}$$

where σ_t^2 is the conditional variance at time t, ω is a constant, α is the coefficient for the lagged squared residual (ARCH term), and β is the coefficient for the lagged conditional variance (GARCH term).

3.2. Multivariate GARCH Model (DCC-GARCH)

It employs the Dynamic Conditional Correlation (DCC) GARCH model to capture the dynamic correlations between ASPI and Bitcoin returns. This approach allows us to model the time-varying correlations between the return series. Univariate GARCH(1,1) for each series is given in equation 4, while Conditional Correlation Structure is given in equation 5.

$$\sigma_{it}^2 = \omega_i + \alpha_i \epsilon_{it-1}^2 + \beta_i \sigma_{it-1}^2 \text{ for } i = 1,2 \text{ ---------Equation 4}$$

$$Q_t = (1 - \alpha - \beta)\bar{Q} + \alpha(\epsilon_{t-1}\epsilon_{t-1}^{\top}) + \beta Q_{t-1} \text{-----Equation 5}$$

$$R_t = \text{diag } (Q_t)^{-1/2} Q_t \text{diag } (Q_t)^{-1/2} \text{ ---------------Equation 6}$$

$$H_t = D_t R_t D_t \text{ ---Equation 7}$$

Where σ_{it}^2 is the conditional variance for series i at time t, Qt is the conditional covariance matrix of standardized residuals, $\bar{Q}$ is the unconditional covariance matrix, α and β are the DCC parameters, Rt is the conditional correlation matrix, Dt is a diagonal matrix of conditional standard deviations, and Ht is the conditional covariance matrix.

The DCC-ARMA(1,1)-GARCH(1,1) model was chosen because the return series generally have the property of volatility clustering and persistence statistically described as significant changes in returns tend to follow significant changes, and small changes tend to follow small changes. A

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version of the GARCH(1,1) model was, thus, widely used to capture these properties in this application. The ARMA(1,1) part of the mean equation, can pick up the effects of both autocorrelation and the moving average found in the return series. It can further improve the accuracy of volatility estimates. We use the DCC model further to better capture the correlations between the series of financial returns. In the given situation of complex volatility structures, which had been the usual pattern in financial markets, the DCC-GARCH model is considered flexible and robust for the estimation of dynamic correlations while taking into account the heteroscedasticity in both return series.

The Ljung-Box Q-test for residual autocorrelation and ARCH-LM test for remaining ARCH effects checked the fit of the univariate GARCH models, both producing insignificant values, hence, a good fit. For the comparison of fit among different models, Akaike Information Criterion and Bayesian Information Criterion with lower values indicating a better fit were used. In the case of the multivariate DCC-GARCH model, a higher log-likelihood value indicated a better fit. The significant and stable DCC parameters confirmed the model's effectiveness in capturing dynamic correlations, with conditional correlations fluctuating as expected around zero.

04. Data Analysis, Results and Discussion

As shown in Figure 1, from 2012 to 2016, its increase was at a medium pace compared to some fluctuations, and from 2017 to 2019, ASPI underwent relative stability, oscillating in the range of 6000 and 7000 points. Vast fluctuations of the ASPI occurred in 2020–2024. It increased rapidly to over 12,000 points in 2022 and fell quickly. After the sharp decline, ASPI subsequently recovered, reflecting market uncertainty. The trend of Bitcoin is quite contrary. Prices stayed relatively low and stable in the period 2012 to 2016. 2017-2019 were some of the wildest volatile price swings in the price of Bitcoin, shooting up to nearly $20,000 in late 2017, and then the price crashed in 2018, settling around $5,000-$10,000 during the 2019 period. 2020-2024 witnessed unprecedented Bitcoin growth, with prices peaking above $70,000 in 2020-2021, driven by increasing adoption, economic uncertainty, and speculative interest, followed by major volatility. ASPI mainly reflects the underlying economic factors, while Bitcoin shows speculative extreme volatility under the influence of global market sentiment, news, and regulations. The ASPI shows a more traditional example of behavior within the stock market. Still, Bitcoin demonstrates an entirely new market under dramatic change, dependent primarily on speculations and global economic forces. The reversed dynamics, therefore, perfectly exemplify the uniqueness of cryptocurrencies compared to regular equity markets.

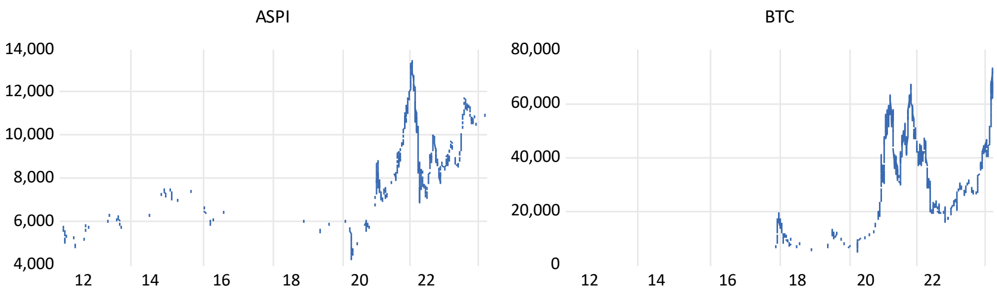

Figure 1: Daily Prices

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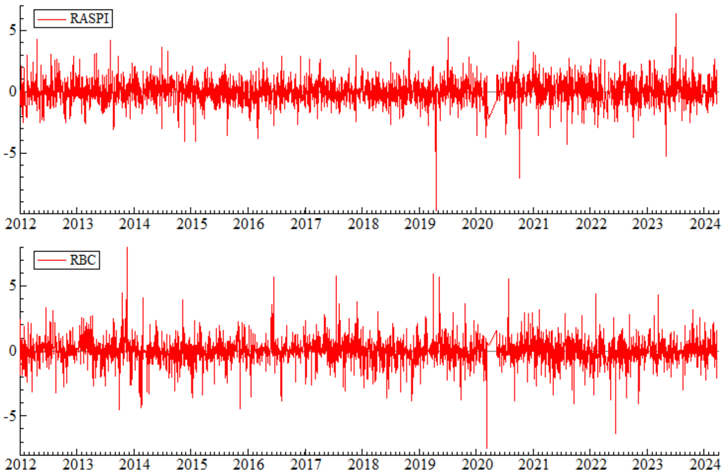

Figure 2: Daily Returns

Figure 2 plots the daily returns of the All Share Price Index of the Colombo Stock Exchange (RASPI) and Bitcoin (RBC) for 2012-2024. The RASPI series shows relatively stable returns with occasional spikes until 2018. However, since 2018, more significant fluctuations have often been apparent, reflecting possible economic uncertainty and external shocks. Overall, the period of 2021-2022 features much more volatility than before, encountering the COVID-19 pandemic and the changing economic conditions locally. Lastly, the RBC series exhibited high volatility with extreme spikes during 2012–2014, underlining significant market events that were causing strong effects on Bitcoin valuations. It goes down substantially after 2014, following the more general adoption of Bitcoin. Still, significant spikes reappear up to 2020-2021, probably linked to the pandemic and rising institutional interest. Both series generally exhibit some growth, though most of the time, the pattern of volatility changes is different. The volatility for RASPI gradually increases over time, with persistent periods of heightened fluctuations, suggesting long-lasting impacts from economic and political events in Sri Lanka.

In contrast, for RBC, the changes in the extreme volatilities are dramatic, and later, there are hardly any changes, showing that Bitcoin seems to be very sensitive to significant changes in the market where sentiment changes to speculative trading. It is, therefore, relatively small in the size of the daily returns relative to the more extreme nature of RBC, particularly in the short term, which underlines the vulnerability of the Bitcoin market to large market shocks. Therefore, the difference in risk profiles is most likely indicated by distinct volatility dynamics: the persistence of characteristic volatility in RASPI would call for great risk mitigation strategies, while the volatility bursts regarding RBC call for an effective response to seldom but very impactful market events.

The univariate GARCH (1,1) output summarized in Table 1 illustrates high volatility clustering and persistence for the two series. For the RASPI series, the GARCH(1,1) model with an ARMA(1,1) mean equation shows a significant constant term, ARCH, and GARCH coefficients in the variance equation (Table 1). The ARCH coefficient is equal to 0.195209, and the GARCH coefficient is equal to 0.801978, which implies a vital feature of volatility clustering—that is, old features of the realized volatility give the current variability. The sum of these coefficients, 0.99719, suggests high persistence, meaning volatility shocks have long-lasting impacts on RASPI returns. The GARCH

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(1,1) model developed for RBC in Table 2 indicates that it is robust because it has significant coefficients for ARCH and GARCH (0.210404, 0.770926, respectively), meaning robust volatility clustering. The slightly higher ARCH coefficient compared to RASPI implies that sudden shocks have a more pronounced effect on RBC volatility. The sum of 0.98133 indicates high, though slightly lower, volatility persistence than RASPI.

Table 1: Univariate GARCH Model for RASPI and BTC

Parameter	ASPI		BTC	
	Coefficient	p-value	Coefficient	p-value
Cst(M)	0.000062	0.688	0.002303	0.003
AR(1)	0.511134	<.001	0.229993	0.761
MA(1)	-0.280091	0.028	-0.20632	0.781
Cst(V) x 10^6	1.434377	<.001	1.274263	<.001
ARCH(Alpha1)	0.195209	<.001	0.210404	<.001
GARCH(Beta1)	0.801978	<.001	0.770926	<.001
Diagnostic Test				
Statistic				
Mean (Y)	0.00021		0.00329	
Variance (Y)	0.00009		0.00388	
Alpha[1]+Beta[1]	0.99719		0.98133	
Unconditional Variance	0.000509859		0.00682524	

Source: Survey Data

Both series exhibit highly clustering properties, but the levels are quite different. RBC is higher in ARCH coefficient and somewhat more responsive to sudden shocks, while the higher GARCH coefficient signals a higher link to past volatility for RASPI. The slightly higher combined ARCH and GARCH coefficients for RASPI amount to 0.99719 compared to 0.98133 for RBC, indicating that the volatility shocks in RASPI prevail longer. These strongly suggest that cluster behavior in volatility is very much expected for both equity (RASPI) and cryptocurrency (RBC) markets. However, in both cases, the nature and length of the serial abnormality differ. RBC is more susceptible to sudden market shocks, potentially due to its speculative nature and sensitivity to market sentiment. On the other hand, the persistence of the serial anomaly for the RASPI depends on historical patterns reflecting longer-term economic factors in the dynamics of stock markets.

Table 2: Multivariate GARCH (DCC-GARCH) Model

Parameter	Coefficient	Std. Error	t-value	p-value
Alpha	0	0.025673	0	1
Beta	0	29.233	0	1
Degrees of Freedom (df)	4.117349	0.15354	26.82	<.001
Model Diagnostics				
Statistic	Value			
No. Observations	2915			
No. Parameters	16			
No. Series	2			
Log Likelihood	15800.365			
Correlation (rho_21)	-0.004663			

Source: Survey Data

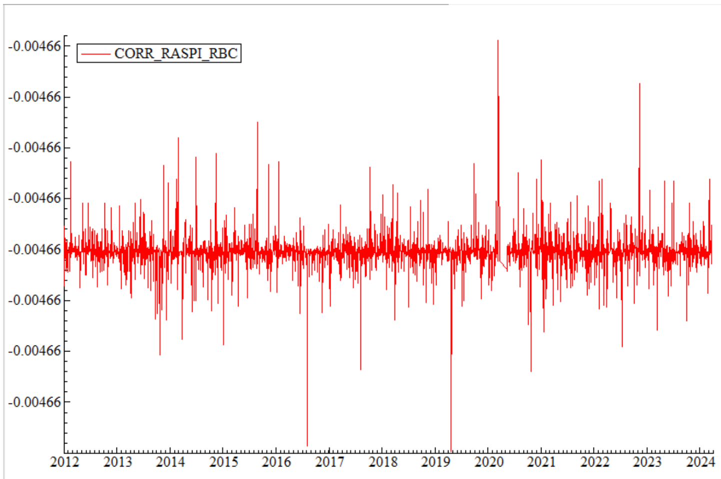

Figure 3: Conditional Correlation

We tested the estimate of the dynamic correlations between RASPI and RBC. According to the results in Table 2, the estimated correlation between the two series is -0.004663. It is such a slight negative correlation that we could say, in essence, that the returns of RASPI and RBC are uncorrelated—changes in one series matter minimal for the other. This is further confirmed by the below conditional correlation graph in Figure 2, the conditional correlation fluctuates around -0.004663, that is, 0, on the whole period in a skinny strip. In other words, in a strong sense, a constant unimportant relationship between the daily returns of the two series is satisfied. Most of these sporadic minor and short-duration deviations occurred during market turbulence, like in 2019-2020. The lack of a meaningful correlation between RASPI and RBC returns has important implications. This holds the potential benefit to the investor in terms of diversifying both assets on board within one portfolio. Since the two are virtually uncorrelated, the risk linked to one asset is unlikely to be compounded by movement in the other. This can help in reducing overall portfolio risk through adequate diversification. The behaviors probably diverge because of different underlying economic drivers for the two markets. RASPI is the benchmark for which the equity market in Sri Lanka is governed, incorporating both local and regional economic determinants. On the other hand, RBC (Bitcoin) is a speculative global asset class driven more by market sentiment, regulatory changes, and adoption trends rather than traditional economic fundamentals.

05. Conclusion

The main objective of this research paper is to test the prospect of spillover effects between the Sri Lankan equity market, the Colombo Stock Exchange (CSE), and the cryptocurrency market, with a focus on Bitcoin. The main findings reveal significant insights into the volatility dynamics and interconnectedness of these two distinct asset classes. First, the univariate GARCH(1,1) models show strong signatures of volatility clustering and persistence phenomena for both the RASPI and the RBC series. Although the degree of volatility clustering is quite pronounced in the series, the persistence of volatility differs, in that RBC was far more responsive to immediate shocks, which speaks of a speculative nature in the returns and vulnerability to market sentiment. In contrast, the volatility in RASPI was far more tied to historical patterns—an indication of long-term economic factors underpinning stock market dynamics. The applied multivariate DCC-

GARCH model showed a weak, negative correlation of -0.004663 between the RASPI and the RBC returns. This means that the two series are uncorrelated. The movements in one market exhibit little, or no reflection at all in the other market. This independence pattern holds throughout the study period, further corroborated by the conditional correlation plot.

Relating these conclusions to existing literature strengthens the validity and relevance of the research findings. Previous studies, such as Dai et al. (2023) and Joshi et al. (2022), have highlighted the interdependence and diversification benefits between cryptocurrencies and traditional equity markets. These studies support the current findings that minimal spillover effects exist between equity and cryptocurrency markets, providing opportunities for diversification. Additionally, research by Dutta and Bouri (2022) underscores the speculative nature and volatility clustering in cryptocurrencies, aligning with the observed higher responsiveness of Bitcoin to immediate shocks.

The main implication of these findings lies in the potential diversification benefits for investors. The negligible correlation between RASPI and RBC returns suggests that combining exposure to these two asset classes could help reduce overall portfolio risk through adequate diversification. Such a blending would, therefore, result in enhanced risk-adjusted returns to the investors, as the risk associated with one asset is unlikely to compound with the movements of the other. A few limitations persist in the present study. Discussions in the current study were restricted to Sri Lanka's equity market and Bitcoin, so findings could not be generalizable for other equity markets and, for that matter, other cryptocurrencies. Besides, the study is based on historical data irrelevant to future market dynamics or structural changes in the relationship between these two asset classes. Future research might also investigate the spillover effects between the CSE and other leading cryptocurrencies and the regulation changes or economic events that could impact the connectedness of these markets. Further, it should delve into majorly applied macroeconomic variables, investor sentiment measures, and other relevant measures to gain further insights into the driving forces of volatility and correlation dynamics. In this light, such research extended to other emerging equity markets and their relationship with cryptocurrencies shall have much importance for comparative understanding and be an expanse of knowledge in complex financial landscapes.

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