International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 02, 2020
ISSN: 1475-7192

Observation of Bitcoin Trade for the Purpose of Hedge Trade in Global Stock Market

Valliappan Raju and Siew Poh Phung

Abstract--- *This paper explores whether Bitcoin can support and differentiate chance against the Euro STOXX, Nikkei, Shanghai A-Share, S&P 500, and the TSX Index, and looks at the elements of these capacities over various information frequencies. Pairwise GARCH models and consistent restrictive connection models are utilized for day by day, week by week, and month to month comes back from October 2010 to October 2017. We find that Bitcoin is a compelling solid fence for all these files under month to month information recurrence. In any case, day by day and week by week returns don't exhibit solid support properties. Further recurrence reliance demonstrates tests uncover that Bitcoin returns are solid supporting against S&P and Euro records over medium information recurrence, and furthermore against the Shanghai A-Share over low information recurrence.*

Keywords--- *Bitcoin Trade, Global Stock Exchange.*

I. INTRODUCTION

Bitcoin has developed in both cost and prominence since its introduction duction in 2009. On some random day, changes in Bitcoin can feature both money and innovation news. From its initiation as far as possible of 2016, Bitcoin costs have stayed under $1500.00 USD. How-ever, the purchasing craze of 2017 lead Bitcoin costs to ascend to over $18,000.00 USD, showing real instability on its way up (Fig. 1). Multi week after the Chicago Board of Exchange propelled its Bit-coin future contract, CME, the world's biggest prospects trade, propelled its own Bitcoin fates contract. William Dudley, the Pres-ident and CEO of Federal Reserve Bank of New York is investigating making the bank's own computerized cash (Dr Valliappan Raju, 2019).. While the real purposes behind this value blast is easy to refute, one regular clarification known as the "Satoshi Cycle" proposes that there is a high relationship between Google looks for "Bitcoin" and the real costs of Bitcoin (Fig. 2).

Fig. 3 gives understanding on the positive connection between Bitcoin's cost and the quantity of exchanges happening that implies developing business sector intrigue. With Bitcoin's expanding prominence, seeing how its costs are corresponded with other monetary resources is important to financial specialists, controllers and strategy producers. Is Bitcoin an important advantage for add to the portfolio? We examine how Bitcoin can be utilized in hazard the board against certain value markets. In particular, we pursue Baur and Lucey's (2010) explore that characterizes a benefit as displaying solid supporting highlights when it is contrarily corresponded to another advantage, and showing differentiating highlights when it is emphatically associated with another advantage. Dyhrberg (2016b) demonstrates that Bitcoin can be utilized as a fence against stocks in the Financial Times Stock Exchange (FTSE) Index, just as the dollar-euro and dollar-sterling trade rates.

Valliappan Raju, Post Graduate Centre, Limkokwing University, Malaysia.
Siew Poh Phung, Post Graduate Centre, Limkokwing University, Malaysia.

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

Bouri, Molnár, Azzi, Roubaud, and Hagfors (2017) report that Bitcoin's every day returns are contrarily related to the Japanese and Asia Pacific stocks lists, yet the connections blur for week after week information. Both of these investigations depend on 2010– 2015 information. No examination, as far as anyone is concerned, has researched how the sensational cost increments in 2017 effect the supporting capacities of Bitcoin. We fill this hole by giving a cutting-edge investigation of Bitcoin's supporting capacity against a few noteworthy value markets.

In extra to examinations utilizing different GARCH models, we likewise master vide the primary observational proof on the dynamic supporting capacities of Bitcoin by deteriorating the developments of the everyday returns into high, medium, and low recurrence developments utilizing the recurrence subordinate model proposed by Ashley and Verbrugge (2009) and Tan and Ashley (1999).

Fig. 1: Daily Bitcoin price series from 2010 to 2017.

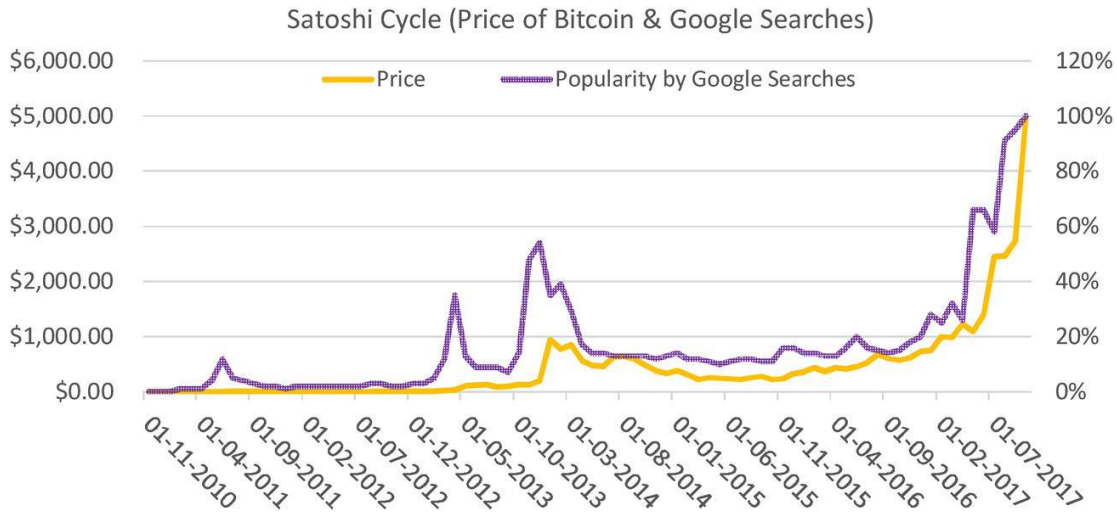

Fig. 2: Bitcoin price and Google searches from 2010 to 2017.

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

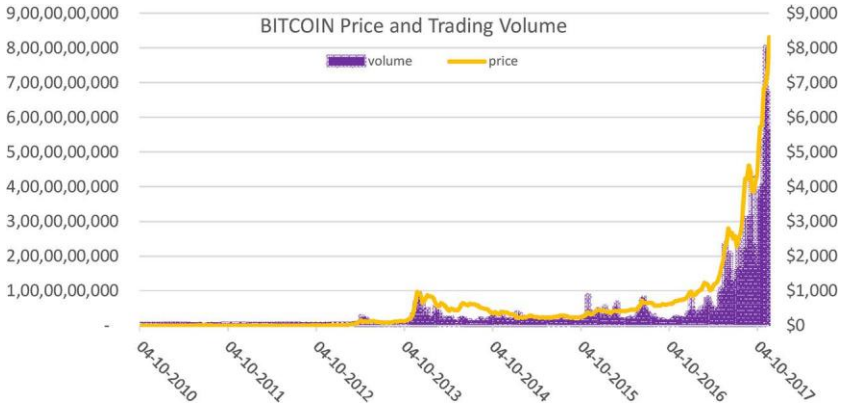

Fig. 3: Bitcoin price and volume from 2010 to 2017

Bitcoin daily price data from October 2010 (the most punctual information accessible) to October 2017 was utilized to research how Bitcoin can fence or differentiate hazard against the Euro STOXX, Nikkei, Shanghai A-Share, S&P 500, and TSX Indices restrictive on day by day, week by week, and month to month information frequencies. We utilize different models including GARCH and Constant Conditional Correlation (CCC) models. Right off the bat, we find that the connections amongst Bitcoin and the list returns are unimportant over the day by day and week after week skylines. This absence of connection makes a plausibility for financial specialists to fence a portion of the market hazard, however it is just a frail support (Dr Valliappan Raju, 2019).

Besides, we discover the supporting capacities of Bitcoin improve altogether for month to month frequencies. It is a solid support against the Euro STOXX, S&P 500, Shanghai A-Share, Nikkei, and TSX Indices for month to month returns through critical negative connections. These discoveries recommend that Bitcoin is progressively viable at supporting against value markets for month to month recurrence than for day by day and week by week frequencies. To additionally explore the relationship varieties crosswise over various information frequencies, we direct extra examinations by decaying developments of different record every day returns into high, medium and low recurrence parts following Ashley and Verbrugge (2009). We find that Bitcoin exhibits distinctive supporting capacities under these recurrence reliance models; the low recurrence supporting capacity, longer than a month, winds up flimsier. Bitcoin is just a solid fence against Shanghai A-Share, and a feeble support against different lists. We add to the surviving writing by demonstrating that Bitcoin gives viable hazard the board capacities under month to month information frequencies. This is the main investigation dissecting Bitcoin's supporting capacity utilizing month to month information and the principal examination on Bitcoin's supporting capacity against TSX and Euro records. Besides, our example covers 2010– 2017, which empowers us to find that Bitcoin's hazard the executives' capacities are more noteworthy than the past writing shows.

Thirdly, we give the principal experimental proof utilizing a recurrence reliance approach and find that Bitcoin's supporting capacities are delicate to display details. The remainder of the paper is sorted out as pursues: Section 2 surveys the writing and creates speculations; Section 3 depicts information; Section 4 clarifies the strategy; Section 5 presents outcomes; and Section 6 finishes up.

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

II. LITERATURE REVIEW AND HYPOTHESES

Bitcoin, the primary digital currency, was made by a mysterious web aggregate working under the nom de plume Nakamoto and was at first acquainted as an option with customary monetary standards. It held a 89% offer of all virtual cash showcase capitalization as of December 2016 (Bariviera, Basgall, Hasperué, and Naiouf, 2017) and is viewed as the most critical digital money. Bitcoin costs after some time are considerably more unstable than traditional money. Blau (2017) finds that the instability of Bitcoin costs copies the normal unpredictability of 51 customary monetary standards from July 2010 to June 2014.

There are blended discoveries on what drives the Bitcoin costs: Blau (2017) infers that Bitcoin returns were disconnected to theoretical exchanging, while Cheah and Fry (2015) demonstrate that Bitcoin's value shows theoretical rises with the basic esteem being zero. Bitcoin shares some basic highlights with conventional monetary standards. Yermack (2013) assesses the legitimacy of Bitcoin as a cash against the three required elements of a money. He expresses that despite the fact that Bitcoin fulfills the capacity as a mode of trade, it can't be a store of significant worth or a unit of record, which are two of the three properties required for being viewed as a money. Dyhrberg (2016a) examines whether Bitcoin more takes after a product or a money, and infers that Bitcoin returns have a noteworthy positive response to the US Federal Funds rate, like the US dollar. Bitcoin is likewise found to give chance administration capacities against dollar-pound and dollar-euro trade rates, like those characteristics Tully and Lucey (2007) found in gold. Thusly, Dyhrberg presumes that Bitcoin can be delegated something in the middle of the US dollar and gold, and can be a valuable instrument for port-folio the executives. Luther and Salter (2017) investigate the expansion in Bitcoin application downloads after the Cyprus bailout declaration. While Bitcoin application downloads expanded in both the US and Cyprus after the bailout declaration, increments were more noteworthy in the US, recommending that Bitcoin isn't supplanting the monetary standards of nations with grieved banks. The other line of research examines

Bitcoin's supporting capacity as an advantage. Dyhrberg (2016b) utilizes day by day information to test Bitcoin's supporting capacity against some UK-related resources including dollar-euro and dollar-pound trade rates, just as the FTSE file (Dr Valliappan Raju, 2019).. The paper demonstrates that Bitcoin's arrival is uncorrelated to the FTSE Index in both slacked and contemporaneous returns, while the trade rates emphatically lead the arrival on Bitcoin. These discoveries demonstrate that Bitcoin could be a frail support against UK resources. Utilizing every day and week after week value file information, Bouri et al. (2017) demonstrate that Bitcoin can fence against the Nikkei, the MSCI Pacific and the item file. Notwithstanding, the supporting capacity is absent in the week after week information. Bouri et al. (2017) alert that the broadening capacity of Bitcoin isn't steady after some time and future examinations on the time-fluctuating nature of these hazard the board capacities are fundamental. Based on the findings from Bouri et al. (2017) and Dyhrberg (2016b), we formulate our hypotheses as follows:

Hypothesis 1: Bitcoin can hedge and diversify against certain assets among S&P 500, Nikkei, Shanghai A-Share, TSX, and Euro Index.

Hypothesis 2: The hedging and diversification abilities of Bitcoin differ under different data frequencies.

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

III. DATA

Bitcoin (BTC) daily price data from October 2010 to October 2017 was recovered from the Coindesk Price Index (2017). Five files including S&P 500 (GSPC), Nikkei (N225), Shanghai A-Share (SSE Composite), TSX (GSPTSE), and Euro Index (STOXX) are picked to speak to various districts whose monetary standards top the offer of Bit-coin exchange. Bitcoin exchanging against the Chinese Yuan represented the vast majority of Bitcoin's exchanging volume until China begun to cinch down on advanced cash trades in mid-2017, in the long run restricting the exchanging of Bitcoin in September of 2017. Japan's Yen at that point took over as the biggest exchanging volume with the Japanese controllers embraced computerized money cordial standards. The US Dollar and Euro are likewise among the main five most dynamic Bitcoin exchanging monetary standards (Russo and Migliozzi, 2017). Day by day, week by week, and month to month costs are sourced from Yahoo. Our sample comprises of 1828 observations for day by day recurrence, 366 observations for week by week recurrence, and 85 perceptions for month to month recurrence for all advantages under examination. Increased Dickey Fuller tests propose that the day by day, week after week, and month to month costs for all advantages under investigation show a unit-root. Logarithmic distinction in the costs is accustomed to bring all advantages' value arrangement into the arrival arrangement. Fig. 4 plots the month to month return of Bitcoin and picked lists.

Table 1 traces the rundown measurements for the every day, week after week and month to month information for all advantages. Bitcoin's mean returns are 0.805% for day by day information, 4.049% for week by week returns, and 23.6% for month to month returns. The contrast among least and most extreme returns for Bitcoin is 100.7% for every day recurrence, 183.1% for week by week, and 415.7% for month to month (Dr Valliappan Raju, 2019).. Not surprisingly, Bitcoin returns show a lot higher unpredictability than the stock files. The Ljung Box Q measurements for Bitcoin returns are for the most part noteworthy, appearing there is auto-relationship in Bitcoin's arrival for each of the three frequencies. The Ljung Box Q2 measurements testing autocorrelation on squared return arrangement are noteworthy for day by day and week by week Bitcoin returns, yet unimportant for Bitcoin month to month returns. These suggest that GARCH impacts exist in day by day and week by week returns, however not in the month to month returns. To additionally check whether GARCH impacts are required in the investigation, we performed ARCH tests on the first and third slack of the residuals of the relating OLS relapses and report the test results in Table 2. The p-estimations of ARCH (1) and ARCH (3) are noteworthy for day by day and week after week list returns, yet irrelevant for month to month returns. These are predictable with the Ljung Box measurements of Table 1 demonstrating that the GARCH show is required for day by day and week by week returns, however not for month to month returns.

Table 3 reports the connection framework for Bitcoin and value files returns. For day by day information, the main negative relationship is between the Bitcoin return and the Nikkei record return. For week after week information, Bitcoin returns are contrarily connected with the profits of Shanghai A-Share, TSX and Euro files. For month to month information, the Bit-coin returns are adversely corresponded with all the value lists, and the span of the relationship is a lot greater than that of the everyday and week after week returns.

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

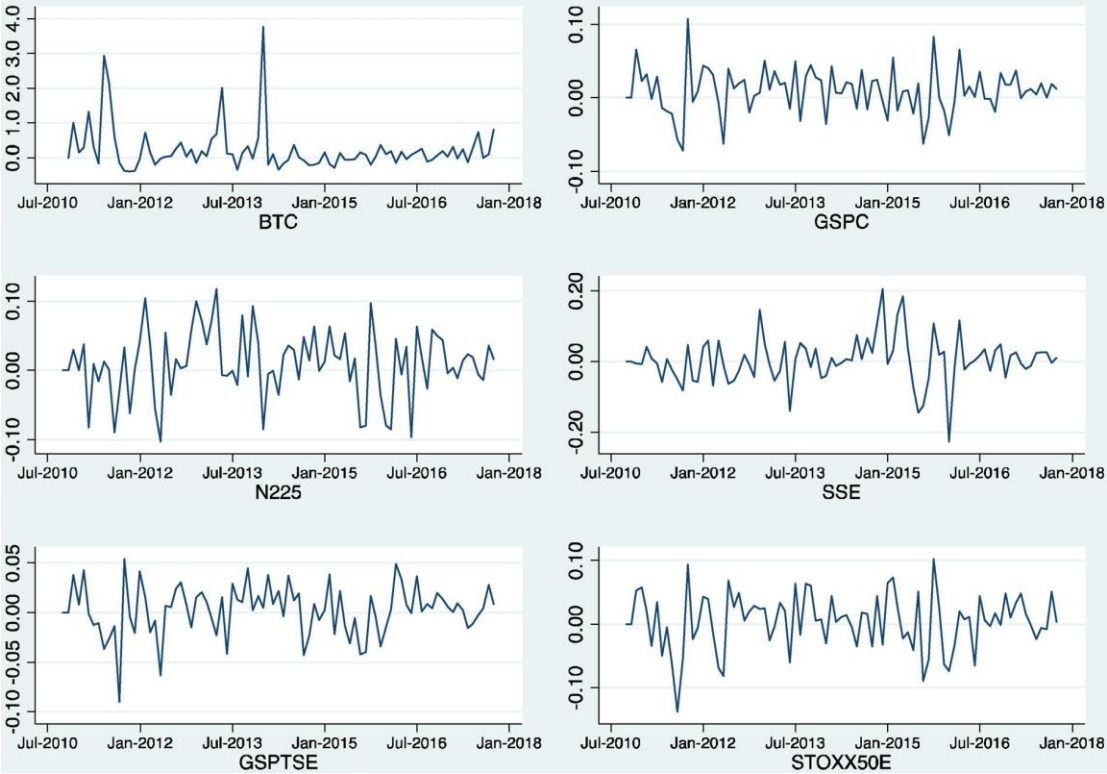

Fig. 4: Monthly return for all assets under study from October 2010 to October 2017.

Table 1: Summary statistics for daily, weekly, and monthly data

	Mean	S.D.	Minimum	Maximum	Count	Q Stat	p-value	Q^2 Stat	p-value
Daily Returns			−35.840						
BTC	0.805	6.573		64.817	1828	6.690	0.010	48.441	0.000
GSPC	0.047	0.885	−6.663	4.741	1828	7.376	0.007	135.054	0.000
N225	0.054	1.325	−10.554	7.709	1828	5.204	0.023	92.758	0.000
SSE	0.021	1.361	−8.491	5.764	1828	0.003	0.954	71.921	0.000
GSPTSE	0.014	0.778	−4.039	4.020	1828	5.081	0.024	40.186	0.000
STOXX	0.021	1.258	−8.617	6.075	1828	1.628	0.202	17.397	0.000
Weekly Returns			−42.830						
BTC	4.049	16.173		140.269	366	44.932	0.000	14.229	0.000
GSPC	0.228	1.829	−7.189	7.389	366	3.917	0.048	11.603	0.001
N225	0.252	2.745	−11.100	9.207	366	0.510	0.475	10.786	0.001
SSE	0.098	2.954	−14.667	9.537	366	4.726	0.030	24.381	0.000
GSPTSE	0.076	1.719	−6.530	5.369	366	3.789	0.052	13.371	0.000
STOXX	0.101	2.671	−11.055	10.953	366	2.174	0.140	6.895	0.009
Monthly Returns			−38.733						
BTC	23.579	65.508		377.014	85	4.215	0.040	0.910	0.340
GSPC	0.958	3.114	−7.176	10.772	85	1.263	0.261	1.002	0.317
N225	0.983	4.847	−10.274	11.800	85	0.874	0.350	0.992	0.319
SSE	0.426	6.526	−22.649	20.566	85	3.659	0.056	0.501	0.479
GSPTSE	0.264	2.531	−8.966	5.405	85	0.362	0.547	0.336	0.562
STOXX	0.460	4.390	−13.792	10.242	85	0.530	0.467	3.349	0.067

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

BTC, GSPC, N225, SSE, GSPTSE and STOXX are returns for Bitcoin, S&P 500, Nikkei, Shanghai A-Share, TSX, and Euro STOXX indices respectively, calculated as the logarithmic differences of price. Q and Q^2 stats refer to Ljung Box tests on return and squared return series for autocorrelation.

Table 2: Arch test statistics for daily, weekly, and monthly data

	ARCH(1)	p-value	ARCH(3)	p-value	Q stat	p-value	Q^2 stat	p-value
Daily Returns								
GSPC	80.095	0.000	68.050	0.000	0.579	0.447	49.047	0.000
N225	78.815	0.000	68.070	0.000	0.573	0.449	47.956	0.000
SSE	78.919	0.000	67.789	0.000	0.576	0.448	48.053	0.000
GSPTSE	78.877	0.000	68.270	0.000	0.631	0.427	48.173	0.000
STOXX	78.920	0.000	67.223	0.000	0.679	0.410	48.648	0.000
Weekly Returns								
GSPC	42.019	0.000	45.919	0.000	0.597	0.440	42.471	0.000
N225	38.707	0.000	42.322	0.000	0.566	0.452	39.123	0.000
SSE	41.673	0.000	45.786	0.000	0.633	0.426	42.121	0.000
GSPTSE	41.218	0.000	45.388	0.000	0.644	0.422	41.661	0.000
STOXX	41.976	0.000	46.044	0.000	0.629	0.428	42.428	0.000
Monthly Returns								
GSPC	0.769	0.380	1.142	0.767	0.035	0.852	0.806	0.369
N225	0.628	0.428	0.927	0.819	0.014	0.907	0.659	0.417
SSE	1.029	0.310	1.404	0.705	0.038	0.845	1.079	0.299
GSPTSE	0.883	0.347	1.190	0.755	0.034	0.853	0.925	0.336
STOXX	0.742	0.389	1.037	0.792	0.037	0.847	0.778	0.378

BTC, GSPC, N225, SSE, GSPTSE, and STOXX are returns for Bitcoin, S&P 500, Nikkei, Shanghai A-Share, TSX, and Euro STOXX index respectively, calculated as the logarithmic differences of price. ARCH(1) and ARCH (3) refer to the ARCH tests on OLS residuals from the baseline model for 1st and 3rd lag. Q and Q^2 stats refer to Ljung Box tests on raw and squared residuals for autocorrelation.

Table 3: Correlation matrix

	BTC	GSPC	N225	SSE	GSPTSE	STOXX
Daily						
BTC	1.00					
GSPC	0.04	1.00				
N225	−0.01	0.14	1.00			
SSE	0.02	0.13	0.23	1.00		
GSPTSE	0.03	0.75	0.17	0.16	1.00	
STOXX	0.03	0.63	0.23	0.13	0.55	1.00
Weekly						
BTC	1.00					
GSPC	0.02	1.00				
N225	0.00	0.53	1.00			
SSE	−0.01	0.22	0.21	1.00		
GSPTSE	−0.07	0.75	0.46	0.19	1.00	
STOXX	−0.01	0.77	0.58	0.18	0.67	1.00
Monthly						
BTC	1.00					
GSPC	−0.15	1.00				
N225	−0.14	0.59	1.00			
SSE	−0.09	0.33	0.38	1.00		
GSPTSE	−0.07	0.71	0.33	0.34	1.00	
STOXX	−0.14	0.74	0.65	0.26	0.60	1.00

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

BTC, GSPC, N225, SSE, GSPTSE and STOXX are returns for Bitcoin, S&P 500, Nikkei, Shanghai A-Share, TSX, and Euro STOXX indices respectively, calculated as the log-arithmancy differences of price.

The sign and noteworthiness of coefficients ˇ2 reveal Bitcoin's supporting and expansion highlights. As examined in Baur and Lucey (2010), a huge negative connection suggests a solid supporting relationship; a critical positive relationship can be translated as a diversifier, and inconsequential relationship infers a feeble fence relationship. The solid supporting element is most wanted as it is the least entangled to apply in true application to relieve chance.

Table 4: GARCH (1, 1) results for Bitcoin daily, weekly and monthly returns

VARIABLES	GSPC	N225	SSE	GSPTSE	STOXX
	Panel A: daily returns				
BTC_{t-1}	0.017	0.018	0.015	0.016	0.013
	(0.023)	(0.022)	(0.023)	(0.023)	(0.023)
Index $Return_t$	−0.052	−0.052	0.019	0.043	0.093
	(0.087)	(0.070)	(0.043)	(0.103)	(0.067)
Index $Return_{t-1}$	0.119	0.064	−0.100*	−0.043	0.082
	(0.124)	(0.076)	(0.057)	(0.125)	(0.075)
Constant	0.003***	0.003***	0.003***	0.000	0.000***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
log likelihood	2847	2847	2848	2847	2848
	Panel B: weekly returns				
BTC_{t-1}	0.228***	0.228***	0.232***	0.246***	0.235***
	(0.057)	(0.056)	(0.056)	(0.055)	(0.056)
Index $Return_t$	0.167	0.054	0.067	−0.318	−0.028
	(0.283)	(0.164)	(0.136)	(0.273)	(0.200)
Index $Return_{t-1}$	0.385	0.173	−0.069	0.103	0.133
	(0.258)	(0.170)	(0.120)	(0.288)	(0.175)
Constant	0.010**	0.001	0.011**	0.010**	0.011**
	(0.000)	(0.005)	(0.000)	(0.005)	(0.000)
log likelihood	282.4	281.8	281.3	282.1	281.3
	Panel C: Monthly returns				
BTCt-1	0.573***	0.411**	0.343***	0.434***	0.348**
	(0.136)	(0.169)	(0.126)	(0.138)	(0.172)
Index $Return_t$	−2.024*	−0.890**	−0.547*	−2.278*	−1.427**
	(1.045)	(0.449)	(0.327)	(1.193)	(0.578)
Index $Return_{t-1}$	0.523	−0.142	−0.109	2.420***	1.427**
	(0.595)	(0.629)	(0.473)	(1.086)	(0.725)
Constant	0.003	−0.001	−0.003	0.055	−0.002
	(0.008)	(0.035)	(0.028)	(0.034)	(0.016)
log likelihood	−57.90	−59.31	−60.48	−58.28	−56.69

IV. METHODOLOGY AND RESULTS

The month to month results exhibit different noteworthy coefficients. The connection amongst Bitcoin and picked records are largely contrarily noteworthy. With a one percent month to month return development in these records, Bitcoin returns move the other way by −2.024, −0.89, −0.547, −2.278 and −1.427 percent individually, proposing that Bitcoin is a solid support against these lists over month to month skyline (Dr Valliappan Raju, 2019).. Financial specialists could hold Bitcoin to deliberately balance negative return developments in these

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

benefits. Be that as it may, just financial specialists who hold Bitcoins for longer periods can profit by these supporting advantages. We evaluated both steady contingent connection (CCC) and dynamic restrictive relationship (DCC) models. The DCC demonstrate does not join, particularly for month to month recurrence information, and the log probability does not improve over the CCC models. This non-union is likely brought about by lacking information to appraise the dynamic relationship between leftover terms. The Bitcoin return information probably won't have a standard structure to help the elements of connection. In this way, we gauge the CCC (1,1) show for every one of the three frequencies and report the outcomes in Table 5. The ARCH and GARCH terms of these relapses are on the whole noteworthy, which are not announced for preserving space. The connection coefficients (12) are critical for the vast majority of the CCC relapses, which proposes that it is important to display the association among Bitcoin and market records unequivocally as opposed to assessing a solitary condition. The CCC coefficients will be more productive than the single condition GARCH show. Like the GARCH results, the connections between Bitcoin day by day (and week by week) returns and list restores all stay immaterial, showing that Bitcoin is a feeble fence against all picked files.

The outcomes uncover that recurrence subordinate connection amongst Bitcoin and different market files are not actually equivalent to the ones from the GARCH and CCC models. One conceivable clarification is that the recurrence reliance demonstrate catches the nonlinear connection among Bitcoin and market records (Dr Valliappan Raju, 2019).. Moreover, the recurrence segments are not quite the same as the every day, week after week, and month to month information in different models, so these outcomes mirror the distinctions in time area. Another conceivable clarification is that the supporting outcomes are touchy to demonstrate determinations and suspicions about model parameters. In spite of contrasts in results, the discoveries that Bitcoin could be utilized to fence S&P, TSX, Euro, Shanghai A-Share, and Nikkei lists are upheld by the recurrence reliance demonstrate also.

V. CONCLUSION

We utilize three diverse time arrangement models, GARCH, CCC and the recurrence reliance model to dissect whether Bitcoin can support chance against various value advertises, and decide if these capacities change under various venture skylines. The GARCH (1, 1) show gives convincing proof that Bitcoin can be utilized as a solid support against the Euro-Index, Shanghai A-Share, S&P 500, Nikkei, and the TSX Index for month to month returns. Progressively finished, Bitcoin week by week and every day returns additionally show chance alleviating capacities by being a powerless fence against these records. Permitting relationship among Bitcoin and the market record, the CCC model affirms comparative powerless supporting capacities for Bitcoin's day by day and week after week returns. Bitcoin's solid supporting capacities in month to month recurrence remain strong under the CCC model. So also, the recurrence reliance demonstrate demonstrates that the high recurrence returns could just feeble support the market files (Dr Valliappan Raju, 2019). The day by day Bitcoin return could be a solid fence against medium recurrence returns of the S&P and Euro list, and a frail support against Nikkei, Shanghai, and TSX record. The low recurrence return demonstrates a solid support against Shanghai A-Share and a powerless fence against the other four files. These discoveries propose that holding Bitcoin could give supporting advantages to financial specialists. Additionally, the more drawn out term returns have more grounded supporting capacities than the

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

momentary returns. Hence, holding Bitcoin longer may profit financial specialists by giving danger the executives capacities to their value portfolios.

REFERENCES

[1] Ashley, R., & Verbrugge, R. (2009). Frequency dependence in regression model coefficients: An alternative approach for modeling Nonlinear dynamic relationships in time series. Econometric Reviews, 28, 4–20.

[2] Assoc. Prof. Dr. Valliappan Raju, Prof Dr. Md Rom Bin Tamjis, Descriptive Study on Effects of Organizational Communication towards Organizational Citizenship Behaviour, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28384

[3] Bariviera, A. F., Basgall, M. J., Hasperué, W., & Naiouf, M. (2017). Some stylized facts of the Bitcoin market. Physica A, 484, 82–90.

[4] Baur, D. G., & Lucey, B. M. (2010). Is gold a hedge or a safe haven? An analysis of stocks, bonds and gold. The Financial Review, 45, 217–229.

[5] Bhanu Prakash, D., Divya, Bhattacharyya, D. (2019). Early Stage Detection of Cardiomegaly: An Extensive Review. International Journal of Advanced Science and Technology,125.

[6] Bhattacharjee, S., Chakkaravarthy, M., & Chakkaravarthy, D. M. (2019). GPU-Based Integrated Security System for Minimizing Data Loss in Big Data Transmission. In Data Management, Analytics and Innovation (pp. 421-435). Springer, Singapore.

[7] Blau, B. M. (2017). Price dynamics and speculative trading in Bitcoin. Research in International Business and Finance, 41, 493–499.

[8] Bollerslev, T. (1990). Modelling the coherence in short-run nominal exchange rates: A multivariate generalized ARCH model. Review of Economics and Statistics, 72, 498–505.

[9] Bouri, E., Molnár, P., Azzi, G., Roubaud, D., & Hagfors, L. I. (2017). On the hedge and safe haven properties of Bitcoin: Is it really more than a diversifier? Finance Research Letters, 20, 192–198.

[10] Cheah, E., & Fry, J. (2015). Speculative bubbles in Bitcoin markets? An empirical investigation into the fundamental value of Bitcoin. Economics Letters, 130, 32–36.

[11] Chetty, Dr. Valliappan Raju Karuppan, and Dr. Siew Poh Phung. "Economics Behind Education: Elements of Development Outcomes through Political Involvement". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emSJAC181129.

[12] Chetty, Dr. Valliappan Raju Karuppan, and Dr. Siew Poh Phung. "Economics Behind Education: Elements of Development Outcomes through Political Involvement". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emSJAC181129.

[13] Coindesk. (2017). Bitcoin closing price from. https://www.coindesk.com/price/ Dyhrberg, A. H. (2016a). Bitcoin, gold and the dollar – A GARCH volatility analysis.

[14] Deloitte, 2018. Breaking blockchain open. Deloitte's 2018 global blockchain survey. Available at: <https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/financial-services/cz-2018-deloitte global-blockchain-survey.pdf> [Accessed Sept. 2018].

[15] Divya, S. (2013). A survey on various security threats and classification of malware attacks, vulnerabilities and detection techniques. International Journal of Computer Science & Applications (TIJCSA), 2(04).

[16] Divya, S., & Padmavathi, G. (2014). A novel method for detection of internet worm malcodes using principal component analysis and multiclass support vector machine. International Journal of Security and Its Applications, 8(5), 391-402.

[17] Divya, S., & Padmavathi, G. (2014). Computer Network Worms Propagation and its Defence Mechanisms: A Survey. In Proc. of Int. Conf. on Advances in Communication, Network, and Computing, CNC, Chennai, India (pp. 643-652).

[18] Divya, S., & Padmavathi, G. (2016). Malicious Traffic Detection and Containment based on Connection Attempt Failures using Kernelized ELM with Automated Worm Containment Algorithm. Indian Journal of Science and Technology, 9, 41.

[19] Divya, S., & Padmavathib, G. (2014). Internet Worm Detection based on Traffic Behavior Monitoring with Improved C4. 5. Proceedings of International Conference on Cryptography and Security (pp. 48-56).

[20] Dr. Valliappan Raju Karuppan Chetty , Phung, Dr. Siew Poh, "Conceptualizing the Application for Ethereum Blockchains: Front End Application Development". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emEJAC181124.

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

[21] Dr. Valliappan Raju Karuppan Chetty , Phung, Dr. Siew Poh, "Conceptualizing the Application for Ethereum Blockchains: Front End Application Development". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emEJAC181124.
[22] Dyhrberg, A. H. (2016b). Hedging capabilities of bitcoin. Is it the virtual gold? Finance Research Letters, 16, 139–144.
[23] Farooq, M. & Raju, V. Glob J Flex Syst Manag (2019) 20: 177. https://doi.org/10.1007/s40171-019-00209-6
[24] Finance Research Letters, 16, 85–92.
[25] GSMA, 2018. DLT, Blockchains and Identity 2018 report. Available at: Hackius, N., Petersen, M., 2017. Blockchain in Logistics and Supply Chain: Trick or Treat? DOI: 10.15480/882.1444. Available at: <https://www.researchgate.net/ publication/ 3187246 55_Blockchain_in_Logistics_and_Supply_Chain_Trick_or_Treat> [Accessed Sept. 2018]. Iansiti, M., Lakhani, K.R., 2017. The Truth About Blockchain. Harvard Business Review
[26] IBRD - World Bank, 2017. Distributed Ledger Technology (DLT) and Blockchain. Available at: <http://documents.worldbank.org/curated/en/177911513714062215/pdf/122140-WP-PUBLIC-Distributed Ledger-Technology-and-Blockchain-Fintech-Notes.pdf> [Accessed Sept. 2018].
[27] K. Asish Vardhan1, N.Thirupathi Rao, S. Naga Mallik Raj, G.Sudeepthi, Divya, Debnath Bhattacharyya, Tai-Hoon Kim.(2019). Health Advisory System using IoT Technology. International Journal of Recent Technology and Engineering (IJRTE). 7(6).
[28] Kholiqov, F., Ramzani, S., & Raju, V. (2017). Effect of Comparative Study of Payment System between Malaysia and Republic of Tajikistan. Journal Of Accounting And Finance In Emerging Economies, 3(2), 131-136. doi:10.26710/jafee.v3i2.88
[29] Law Society's Research Unit, 2017. Horizon Scanning: Blockchain-The Legal Implications of Distributed Systems. Available at: <https://www.lawsociety.org.uk/support-services/ documents/blockchain-legal implications-law-society-horizon-report/> [Accessed Sept. 2018].
[30] Luther, W. J., & Salter, A. W. (2017). Bitcoin and the bailout. The Quarterly Review of Economics and Finance, 66, 50–56.
[31] M. Divya. (2016). An Efficient and Secure Detection of Internet Worm Using Propagation Model. International Journal of Innovations In Scientific And Engineering Research 3(1) : 8-15.
[32] Mahdi, H.M., Maaruf, A., 2018. Applications of Blockchain Technology beyond Cryptocurrency. Annals
[33] Midhunchakkaravarthy, D., Bhattacharyya, D., & Kim, T. H. (2018). Evaluation of Product Usability using Improved FP-Growth Frequent Itemset Algorithm and DSLC–FOA Algorithm for Alleviating Feature Fatigue. International Journal of Advanced Science and Technology,117:163-180.
[34] Midhunchakkaravarthy, J., & Brunda, S. S. (2012). An Enchanced Web Mining Approach for Product Usability Evaluation in Feature Fatigue Analysis using LDA Model Association Rule Mining with Fruit Fly Algorithm. Indian Journal of Science & Technology, 9(8)
[35] Midhunchakkaravarthy, J., & Brunda, S. S. A novel approach for feature fatigue analysis using HMM stemming and adaptive invasive weed optimisation with hybrid firework optimisation method. International Journal of Computer Aided Engineering and Technology 11(4).
[36] Midhunchakkaravarthy, J., & SelvaBrunda, S. (2017). Feature fatigue analysis of product usability using Hybrid ant colony optimization with artificial bee colony approach. The Journal of Supercomputing, 1-18.
[37] N. Thirupathi Rao, Debnath Bhattacharyya, Midhunchakkaravarthy and Tai-Hoon Kim. (2019). Steady State Analysis of M/G/1 and M/Er/1 Line Models with MATLAB Environment in Cloud Computing Applications. Journal of Engineering and Applied Sciences, 14: 2016-2021
[38] Nakamoto, S., 2008. Bitcoin: A Peer-to-Peer Electronic Cash System.
[39] National University of Singapore, Lee Kuan Yew School, 2018. Technology brief: Blockchain –
[40] OECD, 2018. Blockchain Technology and Corporate Governance Technology, Markets, Regulation and Corporate Governance. DAF/CA/CG/RD(2018)1/REV1. Risks and Opportunities. Available at: <https://lkyspp.nus.edu.sg> [Accessed Sept. 2018].
[41] of Emerging Technologies in Computing (AETiC), ISSN: 2516-0281, Vol. 2, No. 1, 1st January 2018, pp. 16, (IAER). Available at: <http://aetic.theiaer.org/archive/v2n1/p1.pdf> [Accessed Sept. 2018].
[42] Raju, Dr. Valliappan, and Dr. Amiya Bhaumik. "Relevance of Staff Engagement & Leadership towards Organizational Development: In the Context of Indian Banking Industry". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emEJAC181160.

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

[43] Raju, Dr. Valliappan, and Dr. Amiya Bhaumik. "Understanding the Role of Indian Banks – In Persective to Staff Engagement & Leadership". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emEJAC181159.
[44] Raju, Dr. Valliappan, and Dr. Amiya Bhaumik. "Understanding the Role of Indian Banks – In Persective to Staff Engagement & Leadership". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emEJAC181159.
[45] Raju, Dr. Valliappan. "Theory of Lim Law: Leadership Style". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emEJAC181127.
[46] Research in International Business and Finance, 21(2), 316–325.
[47] Russo, C., & Migliozzi, B. (2017). This is where people are buying bitcoin all over the world. Bloomberg. https://www.bloomberg.com/graphics/2017-bitcoin-volume/
[48] S Divya, LS Sindhuja, G Padmavathi. (2013). An appraisal of Artificial Immune System. International Journal of Advanced Networking and Applications. 4(4), 35-38.
[49] Selvaraj, D., & Ganapathi, P. (2014). Packet payload monitoring for internet worm content detection using deterministic finite automaton with delayed dictionary compression. Journal of Computer Networks and Communications, 2014.
[50] Tan, H. B., & Ashley, R. (1999). Detection and modeling of regression parameter variation across frequencies: With an application to testing the permanent income hypothesis. Macroeconomic Dynamics, 3(1), 69–83.
[51] Tully, E., & Lucey, B. (2007). A power GARCH examination of the gold market.
[52] Valliappan Raju, Anggoro, Bambang, Burhanuddin Halimi, Siagian P.H., Junaidy Burhan, Tamjis M.R, Abu Bakar M, "Waste Power Generation Analysis Using Landfill Gas". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emEJAC181148.
[53] Valliappan Raju, Anggoro, Bambang, Burhanuddin Halimi, Siagian P.H., Junaidy Burhan, Tamjis M.R, Abu Bakar M, "Waste Power Generation Analysis Using Landfill Gas". Eurasian Journal of Analytical Chemistry 13 no. 6 (2018): emEJAC181148.
[54] Valliappan Raju, Dr. Siew Poh Phung, Dr. Noraini, Exploratory Study on Aviation Sector's Decision-Making Process Pertaining to Marketing Information System, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28395
[55] Valliappan Raju, Dr. Siew Poh Phung, Dr. Sivashankar, Factors Determining Malaysian Smes Performance in Knowledge Management, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28396
[56] Valliappan Raju, Dr. Siew Poh Phung, Insights on Intellectual Property Rights: Determination of Strategic Managment Strategies, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28397
[57] Valliappan Raju, Dr. Siew Poh Phung, Prof. Dr. Ramanathan Kalimuthu, Identifying Elements to Implement E---Governance: Role of Organizational Readiness, Authority Readiness, Customer Readiness, Competency Readiness and Technology Readiness, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28383
[58] Valliappan Raju, Dr. Siew Poh Phung, Prof. Dr. Ramanathan Kalimuthu, Identifying Elements to Implement E---Governance: Role of Organizational Readiness, Authority Readiness, Customer Readiness, Competency Readiness and Technology Readiness, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28383
[59] Valliappan Raju, Prof Dr. Md Rom Bin Tamjis, Descriptive Study on Effects of Organizational Communication towards Organizational Citizenship Behaviour, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28384
[60] Valliappan Raju, Prof Dr. Md Rom Bin Tamjis, Role of Sustainability in Marketing Strategies: In the Context of Digital and Direct Marketing, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28012
[61] Valliappan Raju, Prof Dr. Md Rom Bin Tamjis, Role of Technology Management to Enhance Cognitive and Innovative Strategies in an Organization, International Journal of Engineering and Technology, Vol 8, No 1.10 (2019), DOI: 10.14419/ijet.v8i1.10.28386
[62] Voshmgir, S. 2016. Blockchains, Smart Contracts und das Dezentrale Web. Available at:
[63] Walport, 2016. Distributed Ledger Technology: beyond block chain. Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/492972/gs-16-1-distributed-ledger-technology.pdf> [Accessed Sept. 2018].

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020

[64] Yermack, D. (2013). Is Bitcoin a real currency? An economic appraisal Retrieved from. National Bureau of Economic Research.

[65] Zambrano, 2017. WHITE PAPER Blockchain - Unpacking the disruptive potential of blockchain technology for human development. Available at: <https://idl-bnc idrc.dspacedirect.org/bitstream/handle/10625/56662/IDL-56662.pdf> [Accessed Sept. 2018].

DOI: 10.37200/IJPR/V24I2/PR200308
Received: 14 Dec 2019 | Revised: 02 Jan 2020 | Accepted: 15 Jan 2020