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CAN BITCOINS' PRICES BE PREDICTED BY GOOGLE TRENDS DATA? AN EXAMPLE OF TURKEY WITH COMPARISION OF USA

BITCOIN Fiyatları Google Trend Verileri ile Tahmin Edilebilir Mi? Türkiye ve Amerika Birleşik Devletleri'nin Karşılaştırılması Üzerine Bir Örnek

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ABSTRACT

Bitcoin is a very popular crypto currency primarily due to its ease of use, ability to remove intermediaries and also for many other reasons. Merchants, investors and academics are interested in bitcoin in various respects. But there aren't so many researches about the investigation of bitcoin prices in the literature. In this study, we aimed at finding if "bitcoin" searches on Google in Turkey and USA can help to predict current bitcoin price or not. Besides that, we desired to examine the effects of prior bitcoin prices on current bitcoin prices. We run weekly historical data of bitcoin prices and also weekly data of "bitcoin" queries on Google which are searched for in Turkey and in USA separately between 2011-2016 years. We benefited from eviews program for our analysis. ARIMA method is used for model selection and least squares methods are used for evaluating the overall significance or separated significance of every variable. Our findings imply that when USA Google "bitcoin" searches increase, bitcoin prices drops. However, when Turkey Google "bitcoin" searches drop or increase bitcoin prices don't affected by these movements.

ÖZ

Bitcoin; kullanım kolaylığı, değişimler için aracıları ortadan kaldırması ve daha pek çok sebepten ötürü bir hayli popüler bir para birimidir. Bitcoin konusu çoğu açıdan tüccarlar, yatırımcılar ve akademisyenlerin ilgisini çekse de literatürde bitcoin fiyatlarına dair çalışmalar oldukça kısıtlıdır. Bu çalışmanın amacı Google bitcoin aramalarına bakılarak bitcoin fiyatlarının tahmin edilebilirliğinin incelenmesidir. Ayrıca geçmiş bitcoin fiyatlarının günümüz bitcoin fiyatları üzerindeki etkisi de araştırılmıştır. Bu amaçla 2011-2016 yılları arasında haftalık bitcoin fiyatları ve Türkiye ve Amerika'daki Google "bitcoin" aramalarına ait veriler değerlendirilmiştir. Eviews programında uygulanan ARIMA yönteminden model seçiminde ve en küçük kareler metodundan ise tüm değişkenlerin anlamlılığını yordamak amacıyla faydalanılmıştır. Bulgulara göre Türkiye'de geçmişteki bitcoin fiyatları değerlendirilerek bugünün bitcoin fiyatları tahmin edilememektedir. Ayrıca; Amerika'daki bitcoin aramaları arttığı zaman bitcoin fiyatları düşüş gösterirken, Türkiye'deki bitcoin aramalarının artış veya azalış göstermesi ile bitcoin fiyatları herhangi bir değişikliğe uğramamaktadır.

1. INTRODUCTION

Bitcoin is one of the most adopted currencies which have over 6.9 million users and it continues to grow increasingly. Bitcoin is gained a huge public attraction due to its sharp price volatility and transaction volumes per a day. For instance, the bitcoin price is $11 in 2011 and

it increased up to $400 in 2016. One of the sharp fluctuations was at the year of 2013 which is the most popular time period of bitcoin. The return of bitcoin was approximately 2900% from the beginning of the year (Puri, 2016). The returns are fairly big that the all investors want to catch the opportunity of gaining huge profits. So that if prices' dynamics and variables that effects on prices are understood, huge returns can be obtained by people in a short time period. In that case, having knowledge about bitcoin prices by its explanatory variables also becomes very essential. Evaluating factors which influence the bitcoin prices with some degree either positively or negatively is also important both for investors and academics.

In this study, our target is to understand the relationship between bitcoin prices and the Google "bitcoin" search queries and to understand if Google "bitcoin" searches have explanatory power on bitcoin prices. We used Google Trends Tool to extract the "bitcoin" queries results for both Turkey and USA. According to results, while the "bitcoin" searches on Google for Turkey don't have any explanatory power on bitcoin prices, on the contrary the "bitcoin" searches on Google for USA is found as negatively related with bitcoin prices.

This paper contains eight sections. The second section presents bitcoin concept to the readers, on the third section negatives and positives of bitcoin is introduced, at fourth section dynamics of bitcoin prices are explored, on the fifth section the brief literature about the relationship between Google queries and bitcoin prices are investigated, on the sixth section materials and methods are introduced to the readers, on the seventh section our analyses' results are summed up and on the eight section the analysis results are evaluated and the little suggestions for the next studies are presented.

2. WHAT IS BITCOIN?

Bitcoin is the most adopted and successful virtual currency around the world on these days. It was developed by Satoshi Nakatomo in 2009 and with the support of many media instrument it gained an important recognition by people. The bitcoin currency, all other currencies can easily be converted to, is a huge international system which facilitates people to purchase virtual and real products or services and, therefore, it can challenge to conventional currencies in any ways (Ennis and Gurdgiev, 2013). On that sense bitcoin virtual currency can substitute for modern day real money (Parthemer and Klein, 2014).

Bitcoin is virtual money that doesn't have any physical form. All transaction processes in system are open access to public which implies an open source structure. Further it is a peer to peer operation where any third-party mediator is not needed (Elwell, Murphy and Seitzinger, 2015: 1). The need of constructing peerless currency as bitcoin was emerged to be able to money exchange between two people without third parties as banks or companies. Considering that bitcoin relies on cryptographic techniques, an individual could feel confident about status of sent money if it is genuine or not (Buterin, 2014). However, the transaction process is anonymous, an individual bitcoin user has low possibility to defend his right in legal system when he faced with an undesirable event as false payments (Segendorf, 2014: 81). Decentralized structure of bitcoin states that currency' value can't be obtained and predicted from traditional ways (from supply, demand or governments' pressure) just like real money does. Its value relies on its finite nature where are limited numbers of bitcoins takes a part, approximately 21 million, and perceptions of users about its legacy and permanency (Parthemer and Klein, 2014).

Bitcoin users must upload the online software of it to make transactions with. In the system users have two different key. One is private for an individual itself and the other one is public which is provided to the people to make money transactions between each other. Predicting an individuals' private key code from their shared public key seems impossible. In a money transaction process, software applies a mathematical operation assembling receivers' public key, senders' private key and the amount of sending money together. The process and

outcome of a money transaction between two individuals are spread across bitcoin network. By this way, money transaction can be verified by the bitcoin network clients that don't take any part in the transaction. Complex mathematical structure of the system enables clients to verify transaction quite easily but hard to operate fake transactions and impractical to spend others' bitcoins. Every transaction in the network is recorded with public log and it surely implies a trustworthy environment of the bitcoin currency. This safe atmosphere enables bitcoin system to be very powerful compared to other online currencies Buterin, 2014).

3. PROS AND CONS ABOUT BITCOIN

When it is first introduced, bitcoin had a unique technology compare to the other virtual currencies. Bitcoin currency system has no protocol and it is open source. Moreover all the process has been embraced by the bitcoin community with no charge. Bitcoins' easy and well-designed structure enables to transactions and various operations be done on any devices with the internet connection. It just benefits from network's resources to validate transactions and needs memory to store the block chain, namely to maintain whole process with verified transactions. Other special feature of the bitcoin is not requiring a central bank to manage demand and supply (Mas, 2014: 7). In most of economies over-supplied money in circulation cause to illicit money shows up. However, bitcoin offers limited money to the network. In a sense, "Supply& Demand" doesn't work for it. So, bitcoin is perceived as safe and strong by its clients (Saito, 2014).

The two core prosperity of the bitcoin are easy transactions and low operation costs (Huhtinen, 2014). There is no limitation about transaction times. It could happen in any moment in a day. Unlike present day banks, one isn't forced to pay an extra charge when he sent his bitcoins to a foreign account. Furthermore, if any unfavorable behavior of individual occurs in payment process, contrary to credit cards, it does no effect on his credit/user score (Yu, 2015: 4). However, velocity of bitcoin could be said to be slow. A user should be on hold at least ten minutes to be verified his transaction by the system. That leaves bitcoin fairly behind compare to its counterparts which happen in seconds (Velde, 2013: 3) When an error occurred, Bitcoin doesn't offer undo function or any protocol to correct the mistakes. Both merchants and buyers must be volunteers by themselves to fix errors. There is no specific mechanism to take their lost money back by extrinsic pressure when a fund sent to a one account mistakenly (Böhme, Christin, Edelman, and Moore, 2015).

Bitcoin currency system isn't regulated by government and that brings a some degree of anonymity to the users and sometimes it may be considered as an advantage (Babaioff et al., 2011) However, with the lack of regulation of government and legislative power in this area, tax evasion gets fairly easy by mean spirited people.

Bitcoin must be adopted by wide scales of the population, both by sellers and users. As whole virtual currencies, bitcoin suffers from the small amount of transactions in a day compared to real money in use. It needs to be well-known and used by people, banks and financial instruments (Mariani, 2014). When main brunches of retail market as banks and other financial structures, which are essential parts of the system since they give payment services to households and organizations, embrace and hold much of bitcoin currencies' on the circulation and if something goes wrong, this can create a big wreck that is hard to compose (Segendorf, 2014). Some speculative attacks can give rise to excessive an unfavorable and negative effect in the system easily. Neither legal nor universal systems as IMF can interfere to this currency structure and behavior, due to no legal interfering is not defined by the domain (Rogojanu and Badea, 2014).

4. EXPLORING DYNAMICS OF THE BITCOIN PRICES

In bitcoin currency system, on the contrary to conventional currencies, there is no interest rate that is provided neither from banks nor from stock markets. Bitcoins' value should be determined by its active users with searching deeply on internet about bitcoins' news, sources and general trends. The price of bitcoin is based on exchanges price rate that is appraised by people who desire to sell and buy their bitcoins. Merchants can increase the price of their bitcoins in their hand freely if they find buyers who are willing to pay more than its' real value (Rzepczynski et al., 2004). The bitcoin currency is formed according to investors' strong expectancies about continuous growth. Investors' feelings about the currency are the key factors which determine the price of it. There is not an objective value of price (Kristoufek, 2013). But, according to a newly published paper some relations with the prices may be revealed. It may be said that bitcoin prices are negatively affected by the exchange rate between dollar and euro currencies. On the contrary, it is positively affected by the amount of bitcoins in circulation (Georgoula et al., 2015).

Bitcoin traders have substantially strong power in the growing bitcoin economy. As long as the number of people that hold bitcoins increase, traders' effect on bitcoin prices is going to be reduce gradually. Although a powerful consumer can specify the effect of price currently, in the long term this affection will decrease (Offshore et al., 2015). If bitcoin holders see bitcoins as a valuable investment tool for themselves and keep most of it, its' price will rise or drop abruptly due to unreal speculations. This proximity also prevents bitcoin using as a medium of exchange. Therefore, by many, it continues not to seen as a serious monetary system which is an alternative or a supplement to current currency and thus sharp fluctuations in prices occur (Neslund, 2014).

Bitcoins have volatile behavior 26 times more than the S&P500 index. It is perceived and also treated as a speculative vehicle by its users (sellers and users). However, it should be foreseen that its' volatile is going to be lessen when currency has been adopted by majority of the population. Besides, any exterior economic factors don't influence the returns of the bitcoin market. It is now only affected by internal factors such as difference between daily high prices and low prices. Bitcoin may gain a widespread attention when powerful external variables initiate to effect bitcoin in the future (Baek and Elbeck, 2015). Volatility of bitcoin prices don't cause to preserve bitcoins' instant values for a long time and it may lead to drop purchasing power of bitcoin. When value of the currency may decrease in a fairly short period, the people can be feel aggrieved if they couldn't exchange their bitcoins in worth (Segendorf, 2014). Because of the fact that bitcoin is the newly emerged currency short-term volatile could be ignored before 2013. However, continuous changes after the year 2013 can concern users that aim to benefit from bitcoin both as a currency or an asset. In Figure1, US dollar-bitcoin exchange rate between dollar and bitcoin currencies is displayed (Böhme et al., 2015: 14).

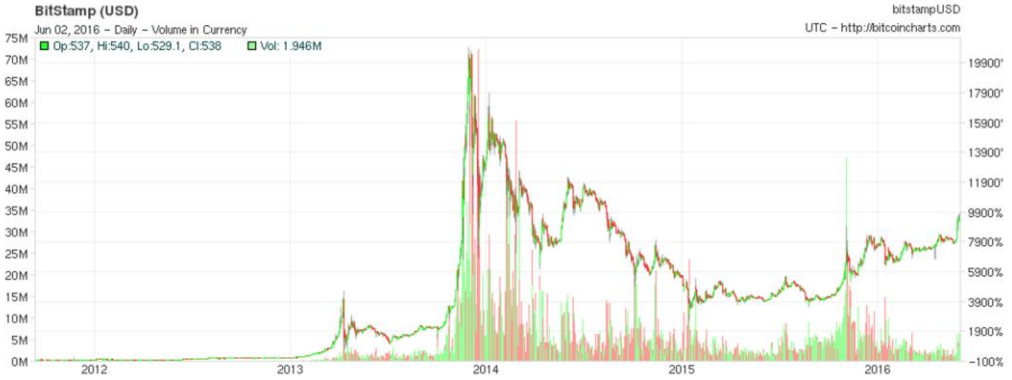


Figure1: US dollar-bitcoin exchange rate
(*http://bitcoincharts.com/charts/bitstampUSD#tgSzm1g10zm2g25zvzcvzp)*

The price volatile may be traced cautiously from the year 2013 to 2016 over the figure. High price volatility can belong to consumer trust issues against big thefts and similar events or directly to the currency's itself. What is must be considered that price turns back to its common value just in some days or even a few hours after the theft (Mariani, 2014). When thefts or hacks are occurred, it doesn't cause to serious change on bitcoin prices. Users maintain their positive beliefs regarding to bitcoin. But it should be noted that, this analysis had been worked for the year 2012 where are the mostly high exchange rates are observed (Christian, 2014: 12)

5. GOOGLE TRENDS IN SOCIAL SCIENCE AND ITS' RELATIONSHIP WITH BITCOINS' PRICE

5.1. Google Trends Tool in Social Science

Google where 60% of online queries are performed is the leader of search engines according to Nielsen reports which are consistently done. People feel quite comfortable with Google so that they express themselves without hesitation even about socially taboo ideas. Google trends compile Google Search queries and by this way, hidden or specific interests of people can easily be revealed compared to other survey methods where maybe researchers don't have such possibilities to reach similar or same results. Consequently, Google Trends can be stated as a new way of research vehicle due to its trustworthiness and leadership in the domain (Kreuter, Presser and Tourangeau, 2008).

Google Trends was introduced in 2006 by Google. However, it contains the data beginning from 2004 till the current time. It is open-access and free to all people (Evangelos, 2015). Google accumulates the number of search queries for each term which are looked for by people all around the world. This raw collection constitutes monthly or weekly query of every search which can also be presented in terms of a specific country, category or year period. The related results could be tracked from online or downloaded into spreadsheet. Stated ratios on the results page are not the actual numbers but normalized and scaled values (Judge and Hand, 2010). Increasing searching numbers of a term cause to get high values of %100.

5.2. Relationship of Google Trends' and Some Social Media Tools with Bitcoin Prices

The relationship between the search queries of "bitcoin" on Google and current bitcoin prices are desired to be investigated benefiting from daily prices of bitcoin and "Google Trends" Tool. It is found that Google searches effects bitcoin prices and most important, relationship is found to be bidirectional. That situation may depend on bitcoins' speculative structure and trend chasing behavior of people. With detailed speaking, increasing "bitcoin" searches cause the bitcoin prices drop deeper than before if prices are below their' usual trend (Kristoufek, 2013). (Puri, 2016) states that prices are not affected by contemporary variables except for the inflation and they are positively affected by the Google searches.

While bitcoin gain growing attention in world-wide, it ends up with increasing social media sharing rate and this event leads to serious increase in the daily purchase amount of bitcoin by users. Furthermore, as a result of high searching volumes, price continues to increase. In this way, media has a mediator role between high search volumes and prices by leading to curiosity. Additionally; once negative event happened, people want to get all details of it by searching on internet. So that, sudden search risings may be a clue of price drops either (Garcia et al., 2014). (Georgoula et al., 2015) is also stated that; Wikipedia queries, one of the significant search tools, positively affect the bitcoin prices. According to (Matta, Lunesu and Marchesi, 2015) bitcoin prices is also affected by the number of tweets, the number of positive tweets and Google queries.

6. MATERIALS AND METHODS

In this study we run weekly historical data of bitcoin prices and weekly data of "bitcoin" searches on Google which are looked for in Turkey and in USA separately between 2011-2016

years. We benefit from eviews program for our analysis. In this study ARIMA method is used for model selection and least squares methods are used for evaluating the overall significance or separated significance of every variable.

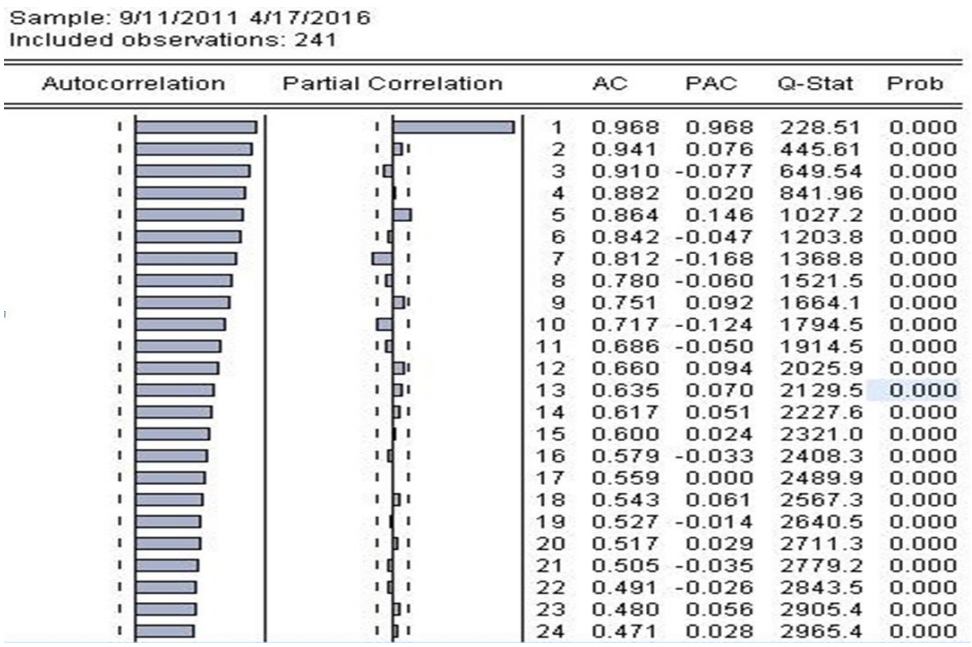
Time series are the set of observation values of an event which are arranged according to their sequences. As a result, for specific time periods, time series analysis is a powerful method which forecasts future with the help of observation values which are belong to historical periods and it enables modeling the stochastic process which reveals the structure of an observed serial. Time series employ both past and current values of an observed serial to make predictions about future. There are various methods in the literature for making a prediction on time series analysis. In this study is we utilized from Box-Jenkins methods. Box-Jenkins method can't be applied to non-stationary series. Hence, trends and seasonality features which spoil stationary of series must be removed. (Kaynar and Taştan, 2009) According to Dickey and Fuller (1981) test, the lagged values of dependent variables are used as explanatory variables. If series are non-stationary, that means oto-regressive process has a unit root. If the non-stationary series are converted to stationary series by taking differences, the models which are applied on series are named as "integrated models" or "non-stationary linear stochastic models". Non-stationary linear stochastic models are a combination of AR and MA models where differences are taken a few times (d). If a degree of otoregression parameter φ (B) is p and the moving average parameter φ (B) is q, and if the difference is taken for d times, this model is named as oto-regressive integrated moving average model from (p,d,q) degree and can be express as ARIMA(p,d,q). ARIMA (p,d,q) can be stated as below;

$$Wt = \varphi 1Wt\text{-}1 + \varphi 2Wt\text{-}2 + \ldots\ldots\ldots + et - \Theta 1et\text{-}1 - \Theta 2et\text{-}2 - \ldots\ldots - \Theta qet\text{-}q \qquad (1)$$

When difference is d=0, in other words; the serial is originally is stationary, ARIMA (p,d,q) transforms to one of the AR, MA or ARMA models. For this reason, ARIMA (p,d,q) can be stated as a flexible model. In this model, also p and q values may have zero values. If p is zero, model is changed to IMA(d,q) or if q is zero, model is transformed to ARI(p,d). The decision of what observed model's otoregression parameter's value is going to be and decision of the how many lagged values of moving average parameter will be contained are named as model identification process (Box and Jenkins, 1976).

7. RESULTS

Identification process requires looking at the chart of the sample autocorrelation function(AC) and sample partial autocorrelation function(PAC) to understand if the series are stationary or not. Afterwards, the decision process where is tried to have an idea about the best fitting model shows up. However, in the real world examples using AC and PAC can make model identification more difficult and make contain more error because the AC and PAC variables are random and they don't constitute a structure like theoretical functions. The graph of AC and PAC are stated at Figure2 (Yusof, Rashid and Mohamed, 2010).



	AC	PAC	Q-Stat	Prob
1	0.968	0.968	228.51	0.000
2	0.941	0.076	445.61	0.000
3	0.910	-0.077	649.54	0.000
4	0.882	0.020	841.96	0.000
5	0.864	0.146	1027.2	0.000
6	0.842	-0.047	1203.8	0.000
7	0.812	-0.168	1368.8	0.000
8	0.780	-0.060	1521.5	0.000
9	0.751	0.092	1664.1	0.000
10	0.717	-0.124	1794.5	0.000
11	0.686	-0.050	1914.5	0.000
12	0.660	0.094	2025.9	0.000
13	0.635	0.070	2129.5	0.000
14	0.617	0.051	2227.6	0.000
15	0.600	0.024	2321.0	0.000
16	0.579	-0.033	2408.3	0.000
17	0.559	0.000	2489.9	0.000
18	0.543	0.061	2567.3	0.000
19	0.527	-0.014	2640.5	0.000
20	0.517	0.029	2711.3	0.000
21	0.505	-0.035	2779.2	0.000
22	0.491	-0.026	2843.5	0.000
23	0.480	0.056	2905.4	0.000
24	0.471	0.028	2965.4	0.000

Figure2. AC and PAC values for Evaluating Stationary

The most accepted approach for controlling stationarity is checking out the time plot of the data in detail. When time series data observation is resulted with non-stationary of the data, the differences must be taken by subtracting every value in the data from its prior data to eliminate the variation and to reach stationary in mean.

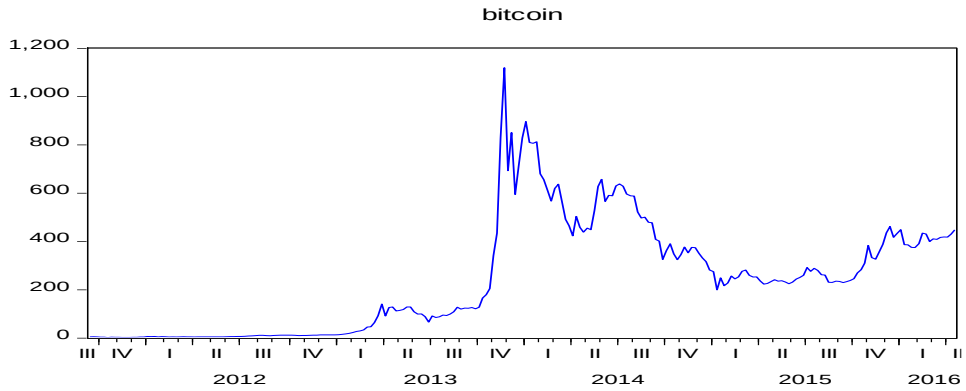


Figure3. Time Plot of the Bitcoin Price Data

According to the Figure3, a positive trend on the bitcoin price data may be found out easily and this implies non-stationary of the data. In that case, the logarithm and differences are taken and by this way non-stationary is converted to stationary. This graphical methods guide researchers very well. However, to be sure about our findings we followed the ADF method which is one of most accepted unit-root tests that helps to understand stationary status of the data and it answers easily a question about which level of difference must be taken.

Table 1. Unit Root Test Results

Unit Root Tests	t-statistic	Probability
ADF test statistics	-16.96425	0.0000
Test critical values:		
1% level	-3.996918	
5% level	-3.428739	
10% level	-3.137804	

As seen on table1; probability<0.05 then the null hypothesis that says the series are non-stationary can be rejected. Also with regard to related analyses, it can be said that non-stationary data was converted to stationary data by taking first level of difference. Now the

data is ready to be analyzed for the model selection with ARIMA (p,d,q) method. "d" implies for level of difference for stationary. Hence d equals to 1.

Table 2. ARIMA Model Selection

	AIC	SIC
ARIMA(1,1,2)	-1.072172	-0.999658
ARIMA(2,1,0)	-1.070333	-1.012322
ARIMA(0,1,2)	-1.078898	-1.020888

The model which has lowest AIC and SIC criteria must be chosen. In that case, ARIMA(0,1,2) is selected for our analysis. Zero (0) for AR means the prior bitcoin prices don't have any impact on current bitcoin prices. Two (2) for MA indicates that current prices can be effected by shocks which occurred one and two periods ago. The values which are belong to ARIMA(0,1,2) are listed on Table3 below.

Table 3. The values of model ARIMA(0,1,2)

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	0.018820	0.011185	1.682643	0.0938
MA(1)	-0.106631	0.047403	-2.249432	0.0254
MA(2)	0.270773	0.045903	5.898814	0.0000
SİGMASQ	0.019240	0.001017	18.91851	0.0000

R-squared	0.077174	Durbin-Watson Test	1.974017
Adjusted R-squared	0.065443	F statistic	6.578696
Log-Likelihood	133.4678	Prob.	0.000274

According to ARIMA(0,1,2) model the results are significant.(p=0.00274<0.05) R-squared value=0.077, independent variable may explain 7% of model which seems a fairly low ratio.

When we add "Google Bitcoin Searches variable" to our analysis, the results are listed at Table4.

Table 4. The model Analysis with a TURKEY Google Search Variable

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	0.011861	0.019303	0.614486	0.5395
Google	0.000435	0.000894	0.486227	0.6273
MA(1)	-0.106222	0.047890	-2.218057	0.0275
MA(2)	0.267665	0.046664	5.736070	0.0000
SİGMASQ	0.019219	0.001033	18.61160	0.0000

R-squared	0.078188	Durbin-Watson Test	1.974516
Adjusted R-squared	0.062498	F statistic	4.983203
Log-Likelihood	133.6016	Prob.	0.000714

When Google variable added to analysis, Turkey Google Search variable doesn't seem significant (p=0.6273>0.05) and Adjusted R-squared value of the model with Turkey Google Search variable (0.062498) is dropped according to its prior value on Table3 (0.065443).

The Google Queries was for Turkey on our analysis. In that moment, we would like to take forward our analysis to the next step analyzing only America's Google Queries about "bitcoin". Afterwards we aim to compare our findings.

Table 5: The model Analysis with a USA Google Search Variable

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	0.022074	0.010682	2.066463	0.0399
Google	-7.11E-05	1.72E-05	-4.128117	0.0001
MA(1)	-0.096279	0.044585	-2.159442	0.0318
MA(2)	0.284919	0.050862	5.601797	0.0000
SİGMASQ	0.018094	0.001062	17.03687	0.0000

R-squared	0.132125	Durbin-Watson Test	1.940379
Adjusted R-squared	0.117353	F statistic	8.944098
Log-Likelihood	140.82726	Prob.	0.000001

According to Table5, USA Google Search variable seems very significant variable (p=0.0001<0.05) But it seems that USA Google Search variable has negative coefficient (-7.11E-05). It increases the adjusted R-squared value (0.117353) compare to its prior value on Table3 (0.065443).

8. DISCUSSION AND IMPLICATIONS

In the light of the analysis, we conclude that historical data ("prior prices") of bitcoins don't predict of bitcoins' current prices. Because of that just relying on past prices to make predictions about bitcoins' current prices seems meaningless. In the next step, we added Turkey Google Search variable to our analysis and we reach that Turkey Google Search of "bitcoin" decreases the percent of bitcoin prices' prediction. According to these results we conclude that Turkey Google Search variable doesn't contribute to the model and so, it doesn't explain bitcoin prices. In Turkey, there is very little knowledge about bitcoin. People don't know much about this virtual currency and they don't Google it. It may be said that findings are not meaningful due to its unfamiliarity in the country. For making a good comparison, we wanted to run our analysis for a country where the familiarity about bitcoins' concept is very high in the world. With reference to that, we evaluated USA Google Searches variable in USA. According to analysis results, USA Google Searches is a significant variable which increases explanatory power of the model. However our findings imply a negative relationship between USA Google Searches and bitcoin prices. That means when USA Google searches increases, bitcoin prices drops. Interest to bitcoin increases when there are illegal issues, thefts or an abrupt events happened. These ruffles people and they search the term on internet many times and these causes with drops in bitcoin prices.

There is a huge literature gap in predicting bitcoins prices because of bitcoins' volatile structure and its' dissimilarity to usual currencies or because of some other reasons. In this scope there should be more researches to validate predictions. In other researches paper may be developed with multi-country level comparisons.

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