

REGRESSION ANALYZES OF CRYPTOCURRENCIES UNDER COVID-19

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Abstract: *The global COVID pandemic is changing the way we understand the world in all spheres of public, social, economic, financial and political life. Digital and digital technologies are displacing human capital by changing the hitherto dominant world order. This change, which is linked to the international pandemic imposed by the WHO / World Health Organization /, has an impact on the financial well-being of economic agents in both positive and negative aspects. Digital cryptocurrencies manage to fit into this digital-remote living environment, which raises many questions for research circles.*

Key words: *cryptocurrency, COVID, innovation, Bitcoin, Ethereum, Cardano*

JEL CLASSIFICATION: A10, F01, F15, F19, F30, G23, M21, 016

1. Introduction

The unexpected spread of COVID-19 accelerated the smooth technological revolution in all spheres of social, public, political and economic life. In the context of a global pandemic, the remote-digital way of life is becoming an alternative to our current acquaintance, changing the worldview of economic agents. It has both positive and negative effects on the financial well-being of economic agents, and in some sectors it even replaces human capital with a mechanized/robotic system. In this regard, the subject of this research is cryptocurrencies as an alternative digital means of payment, and the subject is focused on regression analysis of price values of selected cryptocurrencies in the COVID pandemic and forecasting their future price trends.

2. Global pandemic & price value of selected cryptocurrencies

The world of cryptocurrencies is dynamic, autonomous, volatile and rapidly changing. With its advent more than a decade ago, digital money has posed a challenge to the modern financial and monetary system to clarify their status. Although they are a decentralized, anonymous and independent state and central bank alternative means of payment and trade between economic agents, this innovative digital money is rapidly gaining a solid set of investment followers. There are many cryptocurrencies, but not all of them manage to establish themselves and maintain their values in the cryptocurrency virtual exchange markets. In these cases, there are significant losses on the part of crypto-investors, because risk is a key feature of digital currencies.

The global pandemic in 2019, which continues and so far changes and redistributes the financial well-being of economic entities, as well as affects the prices of leading fiat currencies and cryptocurrencies. In fact, the price of digital money is influenced by their supply and demand, but at the same time the intervention of speculators is possible.

In order to study the price values of cryptocurrencies for the period from 01/2020 to 07/2021 inclusive, the author selects cryptocurrencies based on market capitalization (Bitcoin, Ethereum and Cardano) and forecasts their future values for the period to m. 12/2021 incl. Market capitalization is an indicator that represents the total market value of a financial instrument and is a product between the number of issued instruments and their market price. (Кръстев, 2013)

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Among the cryptocurrencies with the highest market capitalization is the digital currency Bitcoin, for which a regression chronological analysis for the period from 01/2020 to 07/2021 is presented (Figure 1)

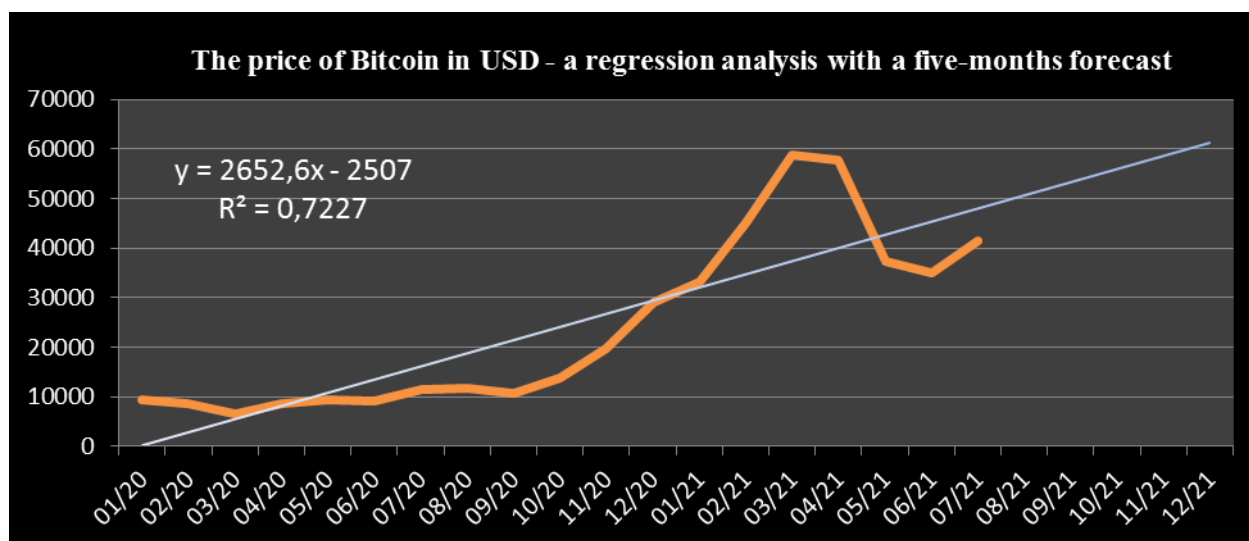


Figure 1. Regression analysis of the cryptocurrency Bitcoin for the period 01.2020 - 07.2021 and trends for the period until 31.12.2021

Source: investing.com and own calculations

Based on the above graphical regression analysis, it can be systematized that in January 2020 1 Bitcoin was traded for USD 9 349.1, and the unit price increased at a constant rate throughout the reporting period. The lowest fixed value was in February 2020, when it was traded for USD 8 543.7, and the highest was in March 2021 - USD 58 763.7 per unit of cryptocurrency. In order to predict its future value, the author relies in the regression analysis of scientific development and trend line to describe the future value of 1 Bitcoin for the period up to December 2021. Based on the information in Figure 1 it can be summarized that the price of Bitcoin is expected to increase for the forecast period. Moreover, the data presented in the forecast can be expected that by December 2021 the value of one Bitcoin will reach 60 000 dollars. A logical question arises related to the cause and the factors that affect the market rate of the analyzed cryptocurrency. The market rate at the beginning of the analyzed period is a little over 9 000 dollars per unit of the analyzed currency, and by the end of the forecast period it is expected to reach a price of 60 000 dollars. In other words, the unit price is expected to jump nearly 6 times compared to the beginning of the analyzed period or this is a period of two years. The presented regression analysis analyzes the influence of the temporal factor on the market rate of the cryptocurrency Bitcoin. Definitely the time factor, which can be seen from the coefficient of determination calculated below, has a great weight. For a relatively short period of time (two years) the unit price of the analyzed currency is expected to increase about 6 times. At the same time, the answer to the question of what and what are the market factors that affect the price of a Bitcoin should be sought. In fact, this is the result of the natural forces of supply and demand, and there may be action or intervention of other factors.

Regarding the regression coefficient of determination (R^2) is nearly 72%, which shows the great weight of the temporal factor in relation to the price of the analyzed currency. The remaining 28% are part of factors not included in the model, and the author does not rule out that they are a consequence of the pandemic and COVID crisis among economic agents.

The research also examines the price value of the cryptocurrency Ethereum, which is among the cryptocurrencies with the highest market share in the cryptocurrency markets. It, similarly to Bitcoin, analyzes the same period (01/2020 - 07/2021) and analyzes the trends for the period up to 12/2021 (Figure 2)

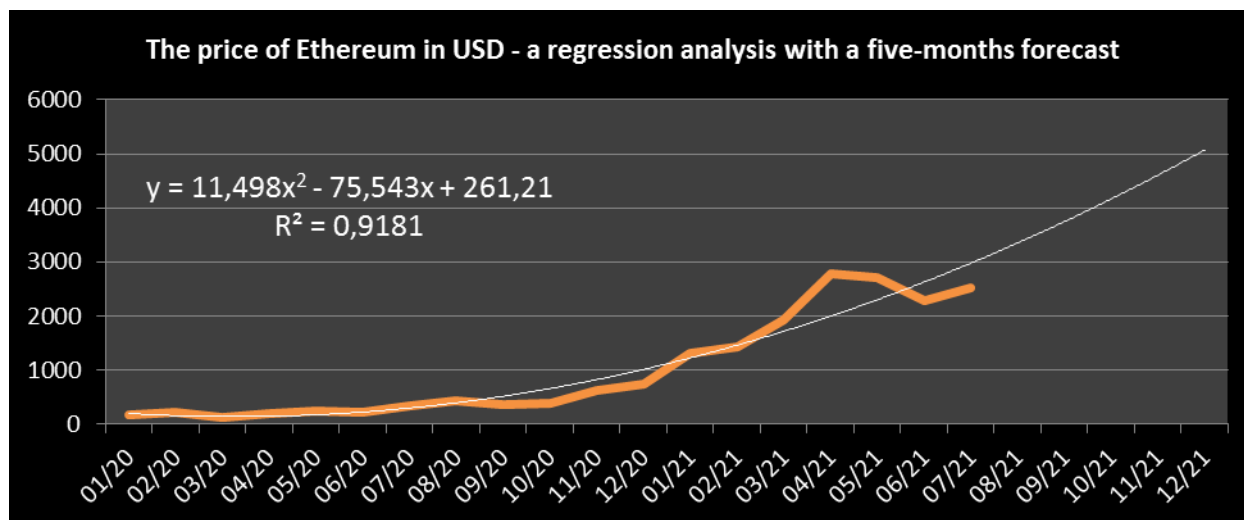


Figure 2. Regression analysis of the cryptocurrency Ethereum for the period 01.2020 - 07.2021 and trends for the period until 31.12.2021

Source: investing.com and own calculations

As can be seen from the regression analysis in January 2020, the Ethereum unit is traded for USD 179.91, as its highest price value for the studied period is in April 2021 - USD 2 772.78, and the lowest value is in March 2020 - USD 132.86. An analysis of the trend line until 12/2021 leads to the conclusion that an increase in the price per unit of Ethereum is expected. Here, the regression dependence shows an even more pronounced tendency to increase the market rate of the analyzed currency. At a price of nearly USD 180 per unit, the price is expected to reach USD 5 000 by the end of the forecast period. Again, the coefficient of determination shows the great weight of the temporal factor. At the same time, the question of whether a sharp change in the market rate takes into account the action of market forces or whether there is an intervention of other factors that influence the behavior of investors must be answered.

The regression determination (R^2) is about 92% of the total variance related to time, and the remaining 8% are unanalyzed and unpredictable factors, which does not exclude the hypothesis that they are a consequence of changes in the financial well-being of economic entities and / or a result of the COVID pandemic.

Similar to Figure 1 and Figure 2, the research presents an analysis of the cryptocurrency Cardano in the period 01/2020 - 07/2021 as well as a forecast analysis of the future price value of the digital currency. (Figure 3)

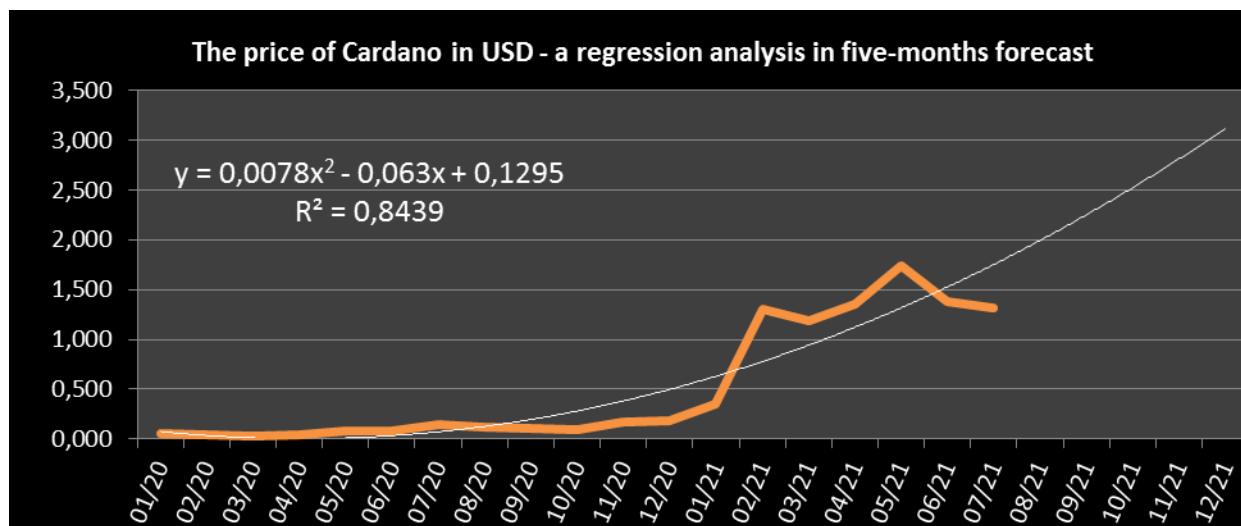


Figure 3. Regression analysis of the cryptocurrency Cardano for the period 01.2020 - 07.2021 and trends for the period until 31.12.2021

Source: investing.com and own calculations

The price value of the Cardano cryptocurrency in chronological terms is USD 0.0539 per unit in January 2020, and its lowest value was reported in March 2020, when it was traded for USD 0.0305. The highest value is in May 2021 - USD 1.740. (Investing, 2021) The forecast of its future price value is based on a trend line set in advance in the regression analysis, which gives the author reason to forecast an increase in its price value at a constant and stable pace. Similar to the currencies analyzed above, there is a clear growth trend, with the market value of the analyzed currency expected to exceed USD 3 by the end of the forecast period.

Similar to Bitcoin, the studied determination (R^2) has high values - about 84% of the total variance and is directly related to the time sign. Similarly, 16% are a set of factors that may be the subject of future research.

The author's study of the forecast values of the selected cryptocurrencies leads to the conclusion that the value of Bitcoin per unit in 08/2021 is USD 47 130.40, 1 Ethereum in 08/2021 is traded for USD 3 430.74 and 1 Cardano in 08/2021 is exchanged for USD 2.77, which confirms that the price of cryptocurrencies is rising, similar to the presented trend lines related to the forecast of their future values.

3. Conclusion

In the conditions of technological rise and global pandemic, more and more often the practical displaces the logical, and human capital is displaced by the process of robotics. This also affects the financial well-being of economic agents, who in order to maintain their stable financial position resort to alternative means of increasing income, payment and trade. Such are the cryptocurrencies, which in connection with the supply and demand of cybercurrency markets increase their values. Price values can be influenced by a number of factors that the author recommends to be the subject of future research, including the presentation of a survey and correlation analysis of the results related to digital money selection preferences in a global COVID pandemic.

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