

EXECUTIVE SUMMARY

This assessment maintains a key theme of understanding historical volatility of cryptocurrencies globally. Cryptocurrency trading occurs on the same market and at the same time globally. This creates price bubbles and speculative price movements. This assessment is an extensive study of the most popular and valuable cryptocurrencies in terms of market capitalization as well as their returns, volatility and performance over time.

The initial section of the study focuses on the business problem and provides an explanation of the datasets. It also describes the data preparation methods employed to conduct the assessment. The datasets were checked for NA values and a variable with the date format was assigned to all datasets. The section that follows highlights the leading cryptocurrencies based on closing price and market capitalization. We derived that Bitcoin led the charts in terms of highest increase in closing price, followed by Ethereum. Market capitalization studies helped us infer that Bitcoin, Ethereum, Ripple (XRP) and Polkadot have managed to capture the largest chunks of the market, in that order. More recent changes in market capitalization have shown that Cardano and Binance Coin have taken the lead over Ripple as of February 2021.

In the next section of our assessment, we conducted a returns and volatility study for the “Top 5” cryptocurrencies over time based on market capitalization. These are Bitcoin, Ethereum, Ripple, Cardano and Binance Coin. This study was conducted for the period of February 27th 2020 to February 27th 2021. As per our inferences, the lockdown caused by Covid-19 caused a significant drop in the daily returns of all 5 cryptocurrencies. Over this period, Ripple had the highest volatility (~7.2%), followed by Binance Coin (~7.0%), Cardano (~6.8%), Ethereum (~5.4%) and Bitcoin (~4.2%). Bitcoin was the most stable of these 5 cryptocurrencies. Cardano had the highest cumulative returns for this period, which

is to say that it had the highest increase in returns compared to the rest, followed by Binance Coin, Ethereum, Bitcoin and Ripple.

The following section of our assessment focused on a correlation study of the cryptocurrencies based on their closing prices. A hierarchical clustering model shows us that Bitcoin had the highest correlation with Polkadot, Aave, Ethereum and Chainlink and it had lowest correlation with USD Coin, EOS, Tether, IOTA and Tron. We have not considered Wrapped Bitcoin since it is just a representation of Bitcoin on the Ethereum blockchain so it will have the same values as Bitcoin.

Further in the study, we created a correlation matrix to understand correlation between each variable of the dataset. This can help us predict closing prices for future time periods. We inferred that closing price had high positive correlation with High, Low, Open and Market Cap. A study of cryptocurrency volume Vs Cryptocurrency Market Capitalization showed us that Tether is an undervalued cryptocurrency since it has the highest volume but ranks 4th in market capitalization, while Binance Coin might be considered as a high value cryptocurrency since it has the 7th highest volume but the 3rd largest market capitalization. In order to better understand historical volatility of cryptocurrencies it may be a good idea to also factor in how the value of cryptocurrencies sways with radical changes in international situations.

A great example of this highlighted in our assessment is the drastic change in volatility due to Covid-19. Stock market increases and drops, great gains and losses, user trust towards a particular cryptocurrency as well as the media hype surrounding a cryptocurrency are all factors that contribute to the changing value of a cryptocurrency. Our recommendation is that considering these factors might be a more accurate way of understanding and predicting cryptocurrency prices to make it a more reliable investment opportunity.