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kraken

gemini

bitstamp

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Data and Information	IO, VA, LINK, ILC
Stablecoin	USDT, TUSD, DAI

Analysis

It was around this same time last year that cryptocurrency prices started to skyrocket — now we are faced with the opposite situation. Starting last week, cryptocurrency prices fell sharply and still has yet to recover. At the time of writing, bitcoin (BTC) is trading around \$4300, representing a drawdown of over 75% from its peak of around \$19,000 last December.

The cause has been attributed to a variety of reasons, including a bad overall investment climate and increased regulatory scrutiny for cryptocurrencies. The most commonly cited reason is a [hard fork to bitcoin cash](#) (BCH) that has led to the creation of bitcoin ABC and bitcoin SV. This has in turn led to analysts speculating that the root cause could be the [alleged dumping of crypto by opposing bitcoin cash miners](#), or the resulting dilution from the hard fork being [the latest evidence that cryptocurrencies lack long term fundamental value](#).

Figure 1. Plot of mean daily return against historical daily volatility for individual cryptocurrencies from October 23, 2018 to November 22, 2018. Higher returns at a given level of risk, measured through historical daily volatility, indicates a better investment.

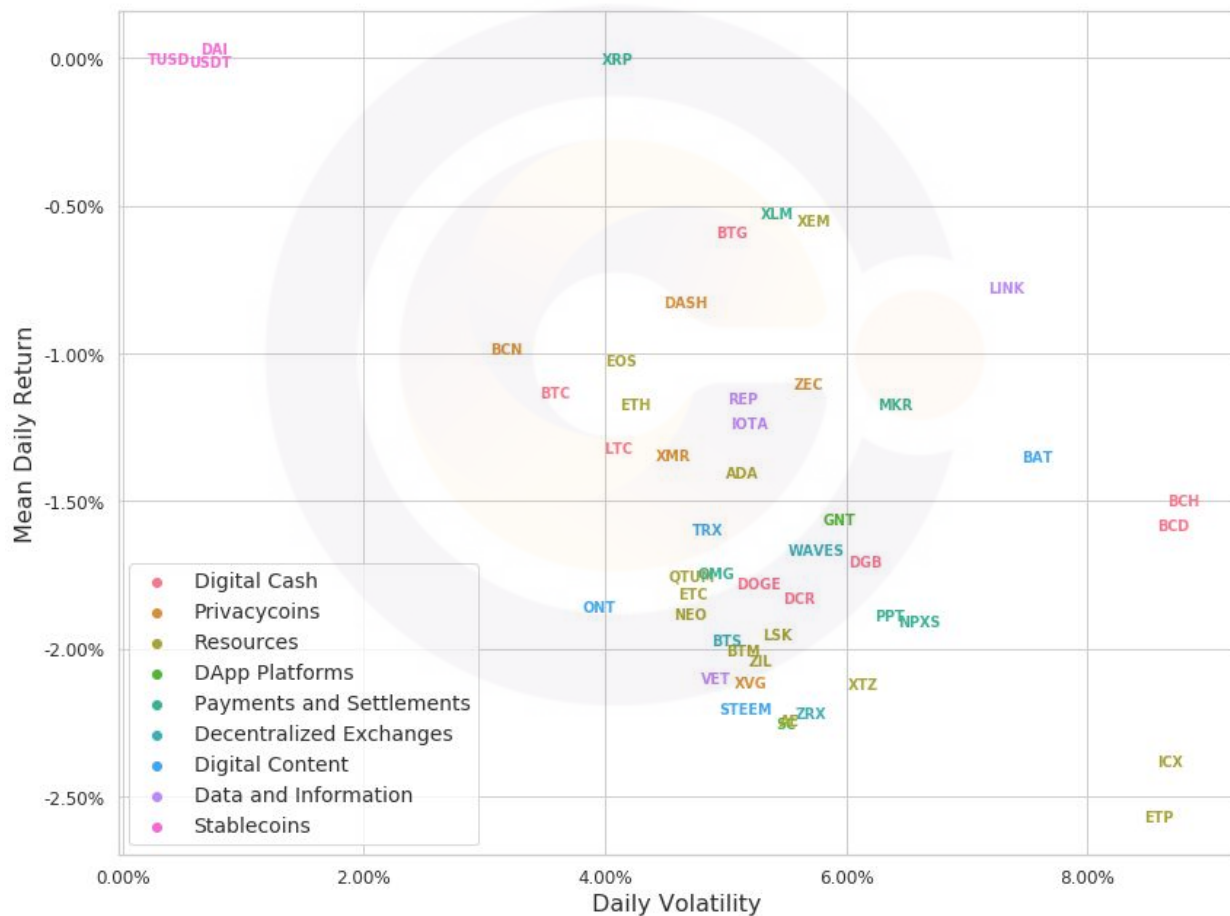


Figure 1 presents the risk versus return trade-off over the past 30 days by plotting mean daily return versus historical daily volatility for individual cryptocurrencies. Typically, investors who take on greater risk would expect to be compensated with greater returns but the past month had little upside volatility for any cryptocurrency holders to benefit from.

Stablecoins fulfilled their intended purpose well by maintaining low volatility and mean daily returns near 0%. Apart from Stablecoins, ripple (XRP) was the best token to have held in the past month, with total losses of only -2.59% from 30 days ago, relatively unaffected compared to the other cryptocurrencies. Metaverse ETP (ETP) was the worst token to have held, with losses totalling -60.39%.

Figure 2 shows various performance measures of the nine sectors as well as that of the S&P 500 for comparison. Figure 3 plots the performance over time of each sector. Apart from Stablecoins, all other sectors had losses ranging from a little over -30% to nearly -50%. Even an investor who had diversified holdings between various sectors would have been caught in this market crash. To prepare for these unlikely situations, it is necessary to quantify the risk of your holdings and adopt precautionary measures ahead of time—something that our Data Analytics API services can help to efficiently implement.

Figure 2. Mean daily returns, historical daily volatility, total returns, maximum drawdown, and ex-post Sharpe ratio for each sector from October 23, 2018 to November 22, 2018. Less negative maximum drawdowns and more positive Sharpe ratios are more desirable. The Sharpe ratio is calculated with the 10 year US Treasury bill rate as the annual risk-free rate.

Sector	Mean Daily Returns	Daily Volatility	Total Return	Maximum Drawdown	Daily Sharpe Ratio
Digital Cash	-1.49%	4.61%	-38.40%	-43.04%	-0.33
Privacycoins	-1.27%	4.17%	-33.75%	-36.77%	-0.31
DApp Platforms	-1.79%	4.71%	-43.84%	-44.68%	-0.39
Resources	-1.91%	5.46%	-46.51%	-54.27%	-0.36
Payments and Settlements	-1.18%	4.54%	-32.30%	-38.18%	-0.27
Decentralized Exchanges	-1.99%	4.71%	-47.18%	-49.34%	-0.43
Digital Content	-1.78%	4.83%	-43.78%	-44.86%	-0.38
Data and Information	-1.34%	4.69%	-35.59%	-38.73%	-0.29
Stablecoins	0.00%	0.45%	0.08%	-2.32%	-0.01
S&P 500	-0.11%	1.16%	-3.31%	-6.11%	-0.10

Figure 3. a) Price performance over time by sectors that had positive total returns since October 23, 2018. b) Price performance over time by sectors that had negative total returns since October 23, 2018. Please note that scales are not the same for both plots.

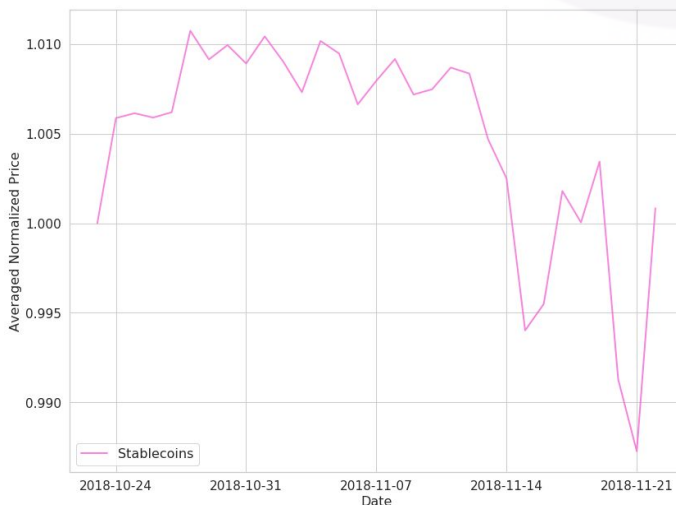


Fig 3a)

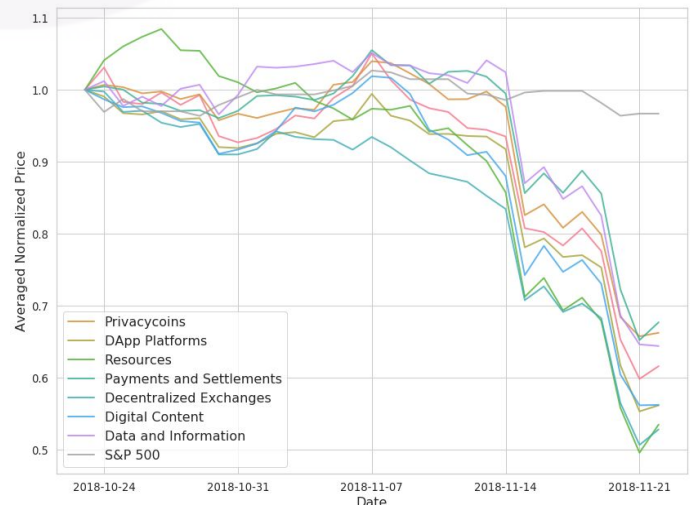
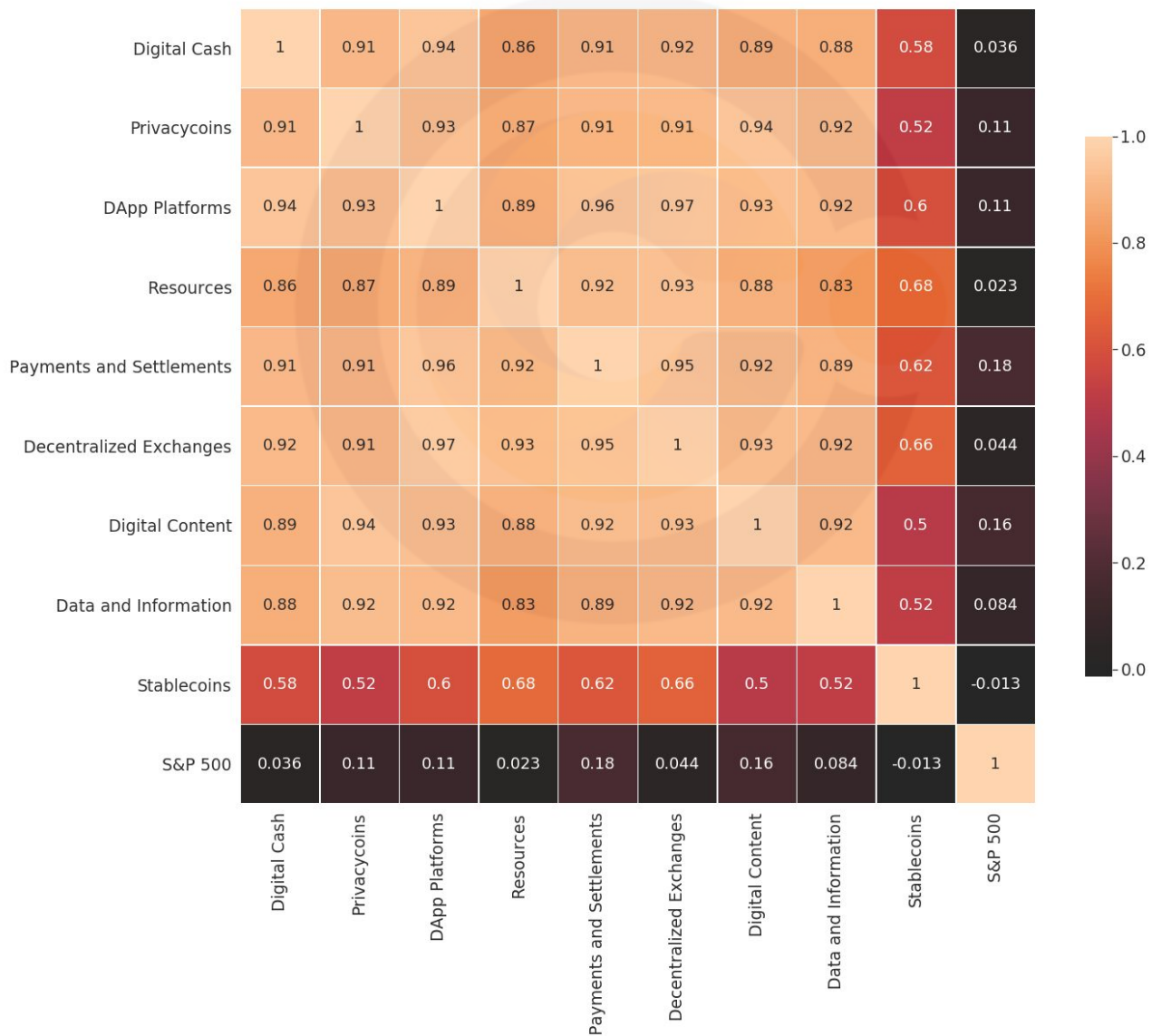


Fig 3b)

Figure 4 shows the correlation between the daily returns of each sector and quantifies what we could visually observe from Figures 2 and 3. Correlation was extremely high between sectors during the observation period, which is typical behavior for various financial instruments during a market crash. This shows that diversification only within cryptocurrencies is inadequate protection against factors affecting the whole asset class, as correlation can quickly tend towards 1 during a crash.

The S&P 500, which we included here as a proxy for the equity market, is only slightly positively correlated with cryptocurrencies. Fears of trade wars and higher interest rates have also recently caused the stock and bond prices to drop, but the near zero correlation suggests that the decline in cryptocurrency prices were primarily a result of cryptocurrency-specific factors rather than a shift in the general investment climate.

Figure 4. Correlation between daily returns of each sector from October 23, 2018 to November 22, 2018. Correlation ranges between -1 and 1. Correlation close to 1 indicates a more positive relationship between the pair of cryptocurrency returns and correlation close to -1 indicates a more negative linear relationship. Correlation close to 0 indicates no linear relationship.



Appendix A: Methodology

The daily price data of cryptocurrencies in USD at 4:00 PM EST from October 23, 2018 to November 22, 2018 was used for our calculations.

The prices are the volume weighted average price of the cryptocurrency in USD at 4:00 PM EST each day across all exchanges where Coinscious has data. If there was insufficient good quality data on a cryptocurrency's value in USD, we would instead use the cryptocurrency's value in USDT and apply a conversion rate to turn it to USD. If data was still insufficient, then we would find the volume weighted average price of the cryptocurrency in both BTC and ETH, then converted both into USD, and finally took the mean of those values. The conversion rates we use at a given time are the volume weighted average price of USDT, BTC, or ETH to USD at that specific time across all exchanges where Coinscious has data.

To analyze performance by sector, the prices of constituent cryptocurrencies was normalized by dividing by the price on October 23, 2018, then averaged. When calculating the daily returns using this averaged normalized price, it is equivalent to if each sector was represented as an equally weighted portfolio of its constituent cryptocurrencies formed starting October 23, 2018 and the returns of the portfolio were calculated. Returns used throughout this report refer to simple returns.

Daily closing price data of the S&P 500 index from Yahoo Finance was also used as a proxy to represent the US equity market. The latest 10 year US Treasury bill rate from YCharts. was used for calculations involving a risk-free rate.

In subsequent reports, we may update our universe, sectors, methodology, and analysis to reflect new developments.

Appendix B: Terminology

- Volatility:** A measure of the dispersion in the trading price of an instrument over a certain period of time, defined as the standard deviation of an instrument's returns.
- Drawdown:** A measure of the decline of the trading price of an instrument or investment since the previous peak during a certain period of time. Less negative, less frequent, and shorter drawdowns are more desirable.
- Maximum drawdown:** The maximum peak to trough decline of the trading price of an instrument or investment over a certain period of time. Less negative maximum drawdowns are more desirable.
- Sharpe ratio:** A risk adjusted measure of return that describes the reward per unit of risk. The reward is the average excess returns of an investment against a benchmark or risk-free rate of return, and the risk is the standard deviation of the excess returns. A higher Sharpe ratio is better. Ex-ante Sharpe ratio is calculated with expected returns whereas ex-post Sharpe ratio is calculated with realized historical returns.
- Correlation:** A measure of the linear relationship between two series of random variables, which in the context of finance, can be two series of returns. Correlation ranges between -1 and 1. Correlation close to 1 indicates a more positive relationship between the pair of cryptocurrency returns and correlation close to -1 indicates a more negative linear relationship. Correlation close to 0 indicates no linear relationship.

ABOUT US

Coinscious Inc. builds artificial intelligence and data-driven insights for the cryptocurrency market. Coinscious delivers compelling, informative analytics to the cryptocurrency community and uncovers hidden insights and patterns from the data behind the scenes. Coinscious is focused on helping the cryptocurrency community make informed judgements through its services.

Coinscious was established in 2018 and in Canada, Europe and China. Coinscious uses sophisticated financial engineering and quantitative technologies, such as statistical modeling, machine learning, market structure, and risk management techniques, in order to facilitate the maturation of the cryptocurrency market through various tools and data services.

DATA SERVICES

We provide comprehensive raw **Market Data API** services, including: millisecond level live stream data, order book data, trade history data, blockchain transaction data, and media updates data. These data services enable traders and investment institutions easy access to the massive amounts of information through our platform and API, and removes the need for them to collect all of this data by themselves — a task that is either impossible, or at the very least, expensive and extremely time-consuming.

Through our **Data Analytics API** services, we also offer derivative data services, plus the analysis and evaluation of both specific coins (micro level) and the coin market (macro level) through data mining and deep analytics. This includes: indicators, ratings, correlations, and patterns. The derivative data allows traders to look at information from a wider lens and with greater perspective.

CONTACT US

To learn more about Coinscious, visit us at: www.coinscious.io

Any questions? Email us at: info@coinscious.io

You can also check us out on social media for in-depth articles, updates, and more. Join in on the conversation by posting a question or comment. We will be sure to respond!

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