

THE DIGITAL REVOLUTION

BITCOIN AND THE FUTURE OF DIGITAL ASSETS
2017

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Executive Summary

Exchanging value today is an antiquated, cumbersome and costly process. Digital assets can revolutionize the status quo. Benefits include the reduction of transactional frictions, the ability to transact across borders, the elimination of counterparty risk assessment, regulatory and monetary policy freedom, access to money for the “unbanked,” user anonymity and ledger transparency. Given the long list of benefits as well as the fact that a digital infrastructure is available to most of the modern world, there is a present and growing need for a digital medium of exchange. The future of money is digital – and bitcoin is the first early success of that broad, world-changing vision.

The digital revolution, and the popularity of bitcoin, have made it clear that digital assets have become a noteworthy candidate for alternative asset investing.¹ This white paper uses bitcoin to illustrate the digital asset market across three dimensions: 1) fundamental market metrics, 2) through the lens of portfolio theory, and 3) an economic analysis of a digital asset's response to events that cause global financial market uncertainty.

First, over the past three years in particular, the bitcoin market has exhibited signs of market stabilization and other characteristics of more mature asset classes, including declining volatility (i.e., risk), increasing liquidity (i.e., the ability for a buyer to readily find a seller at a particular price, and vice versa), and informational efficiency (i.e., a standard feature of established markets, as indicated by independence of returns and its quick price reaction to new information). These favorable trends in fundamental market metrics stem from bitcoin's increasing popularity and accessibility.

Second, bitcoin is attractive under modern portfolio theory (MPT) because it offers significant diversification benefits and potentially high returns. The key driver of diversification is low correlation with other portfolio components. Bitcoin has exceptionally low correlation with other traditional asset classes. In addition, bitcoin has established itself historically as a high-risk and high-reward asset, so its inclusion in a portfolio can serve to increase the portfolio's potential returns (and its risk). In 2016, for example, the value of bitcoin increased 122%, from \$432 to \$960 per unit. By comparison, for 2016, the S&P 500 total return was approximately 12%. Indeed, an allocation of bitcoin in a diversified portfolio can significantly improve the portfolio's risk-and-reward trade-off under MPT.

Third, recent economic evidence shows bitcoin may hold the potential to act as a hedge or “safe-haven” in certain investment strategies, as its price movement is positively correlated with the likelihood of uncertainty-inducing outcomes, including the Brexit referendum and the 2016 U.S. Presidential election. Results show that bitcoin's price changed in near lock step with prediction market probability of outcomes that were expected to introduce great uncertainty to global financial markets – that is, a vote to leave the European Union and a Donald Trump presidency. The results suggest that, to some degree, bitcoin represents a hedge opportunity against global financial market uncertainty.

Evaluating the still-nascent bitcoin currency from a financial market perspective provides a deeper understanding of the prominent digital asset and how market participants value and interact with it. This evaluation allows one to put a finer point on the definition of this digital asset that isn't quite like anything the world has ever seen. Only the future will tell of bitcoin's ultimate success, but its relationship with the digital revolution and unique and stabilizing financial market performance signal that digital assets - bitcoin or

¹ This white paper is designed to provide an overview of the current status of the bitcoin market, which is based upon the nascent bitcoin currency and its underlying technology. The attributes of the bitcoin market discussed in this white paper may change as the currency and its underlying technology continue to evolve, as a result of natural market forces or regulation. This white paper is not intended to serve as investment advice. Rather, it is intended to cast light on the bitcoin market through data analysis and the application of financial and economic theory.

otherwise - area noteworthy alternative investment option with great potential. Furthermore, bitcoin's stability and other investment-worthy qualities prove, along with its increasing user base, that digital assets backed by central banks are not only possible but inevitable.

Fundamental Market Metrics of Bitcoin

In the early years, the price of bitcoin experienced extreme volatility as indicated by large runs and corrections (or bubbles and crashes), as Figure 1 shows.² However, overall, bitcoin was a boon to early investors. Someone who bought at the first of the year in 2013 and held through today, for instance, would have enjoyed an increase in value of 70-fold (6,978%). By comparison, an investment in the S&P 500 increased approximately 1.6-fold (60%) over the same period.

Figure 1 – Daily Price of Bitcoin in USD



As Figure 2 shows, bitcoin has yielded high annual returns in all years but 2014.

Figure 2 - Bitcoin's Performance over Various Time Windows

Window	Total Return	Annual Arithmetic Mean Rate of Return	Annual Geometric Mean Rate of Return	Year	Total Return
2011-2016	319862%	1186%	283%	2011	1565%
2012-2016	18359%	1110%	186%	2012	161%
2013-2016	6978%	1348%	190%	2013	5290%
2014-2016	29%	34%	9%	2014	-58%
2015-2016	204%	79%	74%	2015	36%
2016	122%	122%	122%	2016	122%

² All bitcoin-related data, unless otherwise noted, is sourced from www.blockchain.info/charts and is expressed in USD.

Beyond the very high historical returns, how might a potential investor evaluate bitcoin from an ex ante perspective? In other words, what defines a worthy investment, and how does bitcoin measure up? First-order market metrics by which to evaluate a potential new investment include:

- **Basis of value** (does the asset have value? what forces determine its price? will such forces endure over time?)
- **Stability** (is volatility reasonably low and steady so that there is some predictability of how wide price swings could be, or does the asset show wild swings in value?).
- **Liquidity** (is the market large enough such that bids to buy are easily met with offers to sell, and vice-versa?),
- **Informational Efficiency** (does bitcoin resemble mature assets by responding to new information in a predictable way, or is it random?), and
- **Accessibility** (can you invest and how? can it be purchased and traded? are products such as ETFs available that offer divisible investment through the standard channels such as a brokerage?).

As the following sections discuss, the bitcoin market shows favorable trends in these fundamental market metrics.

Basis of Value

The future of value is digital. Benefits of digital assets include the reduction of transactional frictions, the ability to transact across borders, the elimination of counterparty risk assessment, regulatory and monetary policy freedom, access to money for the “unbanked,” user anonymity and ledger transparency. Given the long list of benefits as well as the fact that a digital infrastructure is available to most of the modern world, there is a present and growing need for a digital medium of exchange. Bitcoin is the most ubiquitous digital money option, with name recognition and a large network of market participants.

What determines bitcoin’s price? The forces of supply and demand, as is true for all markets.³ Its price is driven not by its intrinsic value, but instead by the opinion of buyers and sellers and what they believe to be bitcoin’s value. Bitcoin’s market value is undeniably linked to the rise of the digital economy and the need for digital money. As demand increases, so does price, all else being equal.

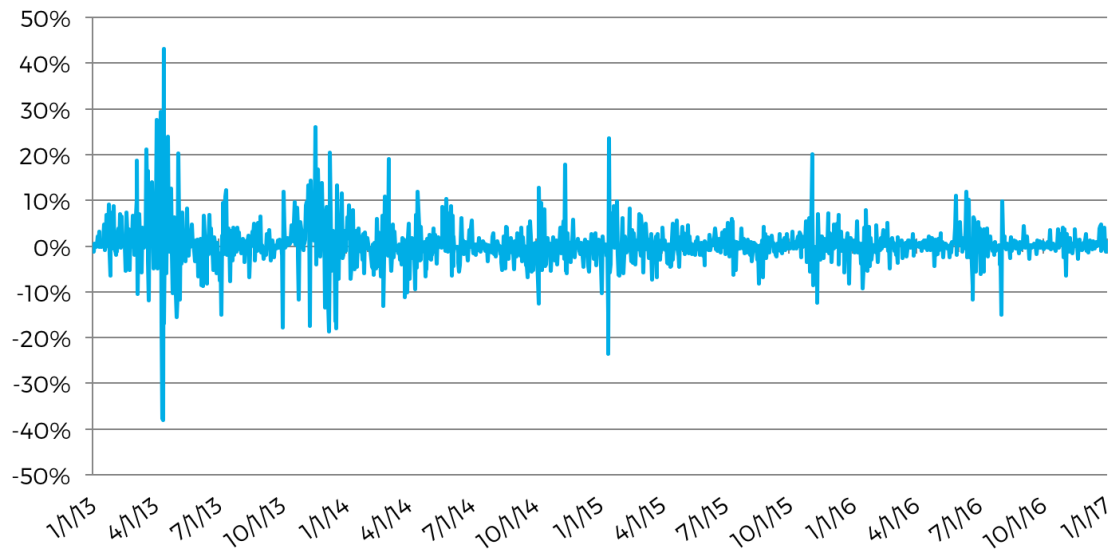
Stability

Bitcoin is becoming increasingly stable, thereby reducing investment risk. Stability and risk are typically measured in volatility, or the dispersion of returns.⁴ Figure 3 shows bitcoin’s daily returns. The chart shows periods of extreme volatility in the early years, with one-day returns often exceeding 10%, while, since early 2015, returns are relatively more stable and tend to fluctuate well within the 10% range.

³ Edwin Mansfield, Economics, 5th ed., W.W. Norton & Company, Inc., 1986, p. 45.

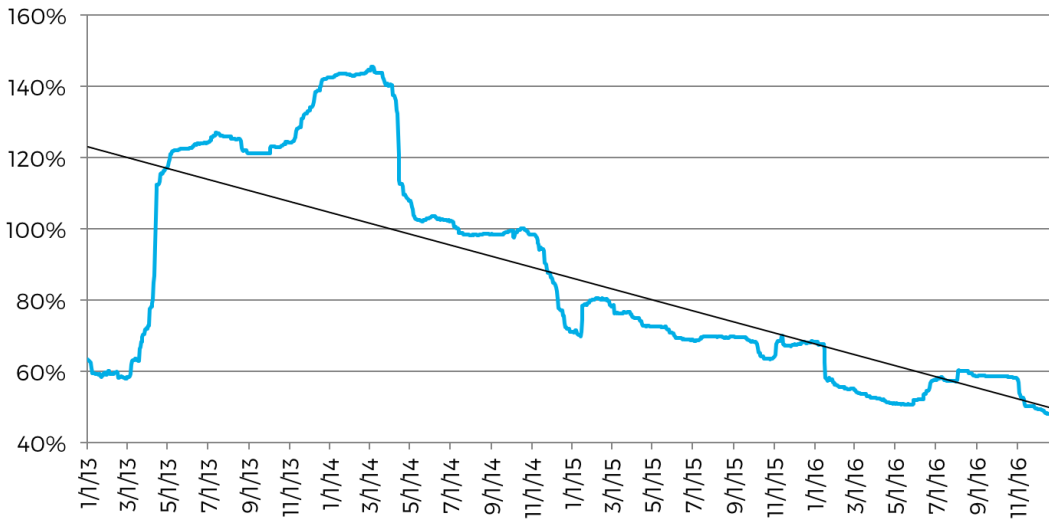
⁴ Frank K. Reilly and Keith C. Brown, Investment Analysis and Portfolio Management, 6th Ed., p. 6.

Figure 3 – Bitcoin's Daily Returns, 2013 - 2016



Annualized volatility is the daily return volatility expressed as an annual figure. It is a common financial metric useful for comparing across various assets. Figure 4 shows bitcoin's annualized volatility over a trailing one-year period. Volatility is clearly declining. For 2016, bitcoin's annualized volatility is approximately 48%. For comparison, over the same period, the figure is 15% for Gold, and for 14% for the S&P 500.

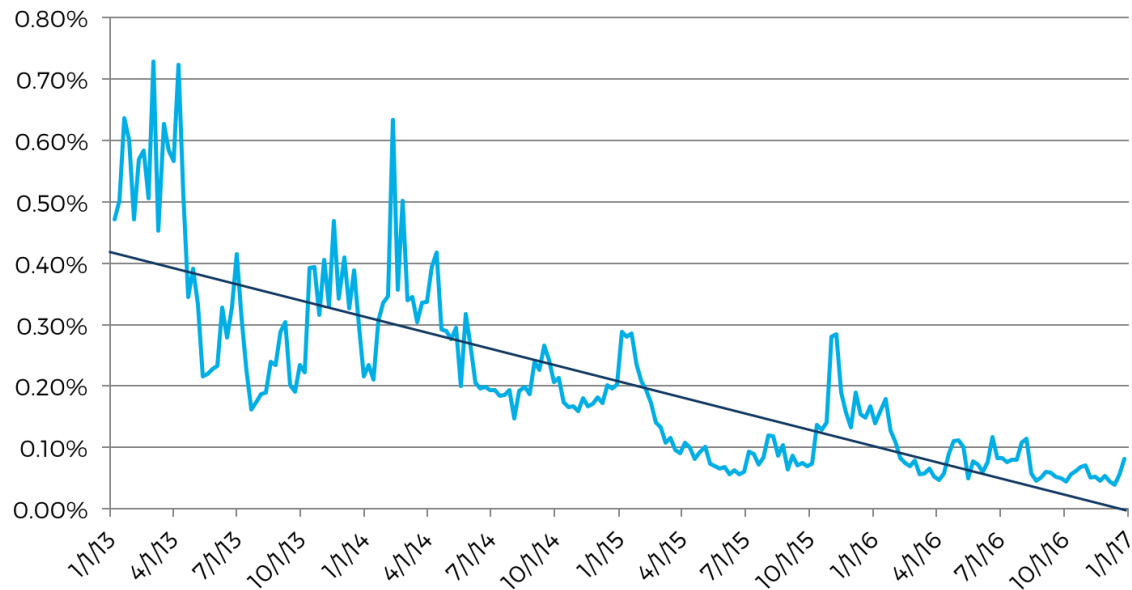
Figure 4 – Bitcoin's Annualized Volatility, with Linear Trend Line, 2013 - 2016



Liquidity

Bitcoin is becoming increasingly liquid, meaning that trades are likely to be executed at desired market prices because there are a greater number of buyers and sellers in the market. Bid-ask spread – that is, the difference between the highest price someone is willing to buy and the lowest price someone is willing to sell at a particular moment in time – provides a common measure of liquidity.⁵ The lower the bid-ask spread, the higher the liquidity and the easier it is to make a successful trade. As Figure 5 shows, bitcoin's bid-ask spread, expressed as a fraction of the bitcoin price in order to be comparable over time, has declined substantially.⁶ Today, bitcoin's bid-ask spread as quoted on dealer exchange sites is approximately 0.07%, roughly one-tenth what it was in early 2013.⁷

Figure 5 - Bid-Ask Spread Across Major Exchanges, with Linear Trend Line, 2013-2016



Informational Efficiency

Bitcoin is beginning to process information in a similar manner to traditional mature assets. The Efficient Market Hypothesis (EMH) holds that an efficient market is one in which the price of an asset adjusts rapidly to the arrival of new information and that therefore the price of the asset reflects all information about the security.⁸ Evaluating the bitcoin currency under the EMH provides insight as to whether the bitcoin market functions like other traditional asset classes, which typically respond swiftly to new information. During recent years, bitcoin has trended toward informational efficiency, as indicated by its quick price reaction to new information and independence in returns.

⁵ Abdourahmane Sarr and Tonny Lybek, Measuring Liquidity in Financial Markets, IMF Working Paper (2002).

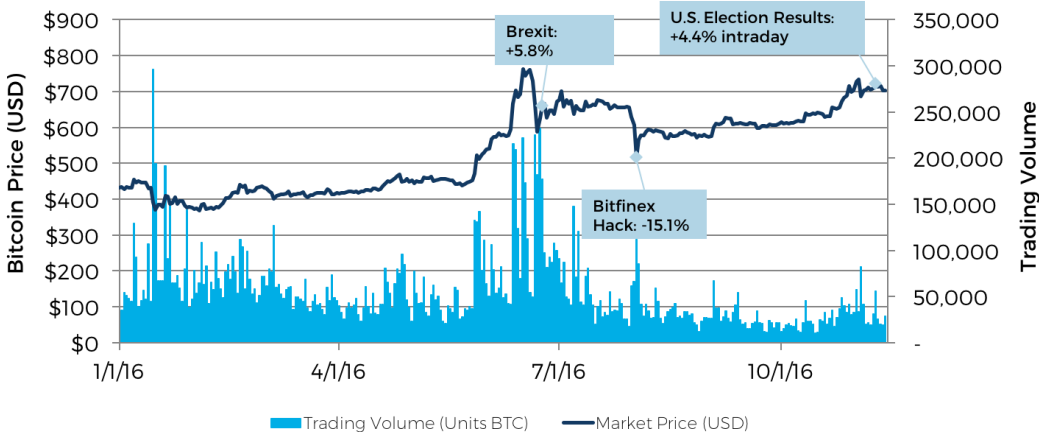
⁶ Data source for chart: Blockchain.info; data.bitcoinity.org; Averages include data from the following exchanges: bitfinex, bitstamp, btce, coinbase, gatecoin, gemini, itbit, lakebtc, and okcoin.

⁷ This figure excludes the additional transaction fees that the average retail investor would face in acquiring bitcoin. Additional transaction charges may include currency exchange fees (converting traditional currency to bitcoin), wire transfer fees, and marketplace exchange fees.

⁸ Eugene Fama, Efficient Capital Markets: A Review of Theory and Empirical Work, 25, Journal of Finance. 383 (1970). See also, Frank K. Reilly and Keith C. Brown, Investment Analysis and Portfolio Management, Sixth Edition, pp. 212-216. Fama's seminal paper makes the distinction between the degree of informational efficiency, including weak- and semi-strong form efficiency. For the purposes of this white paper, commentary on the degree of market efficiency has been omitted.

The event study results in Figure 6 show that bitcoin's price reacts swiftly to new relevant information. For example, on August 2, 2016, the day of the Bitfinex hack, resulting in the theft of over \$60 million in bitcoin, the price of one bitcoin decreased from \$606 to \$515 bitcoin, representing a 15.1% decline.⁹ The last section of this white paper will go into greater detail on the relationship between Brexit and the 2016 U.S. Election, showing that the price of bitcoin moved in near lock-step with the changing probabilities of outcomes that would introduce uncertainty in the global financial markets. Such findings are also supportive of informational efficiency.

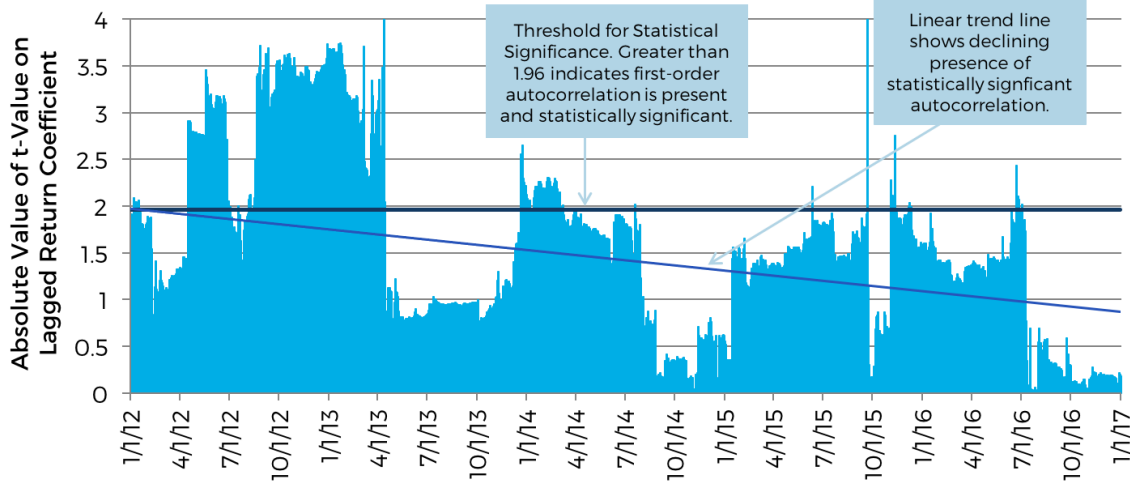
Figure 6 - Event Study: Bitcoin Price and Volume, 2016 Key Events



Another way to test for informational efficiency is through an evaluation of one-day serial correlation, which tests whether the return from yesterday consistently predicts the return today. If first-order serial correlation is present in the form of a statistically significant test result, this is not supportive of market efficiency because it would imply past price movements are predictive of future price movements. Figure 7 shows a clear declining trend line in the test results. Since 2013, very few of the test results are statistically significant.

⁹ This price change is statistically significant at the 99% confidence level.

Figure 7 - First-order Serial Correlation in Bitcoin Returns

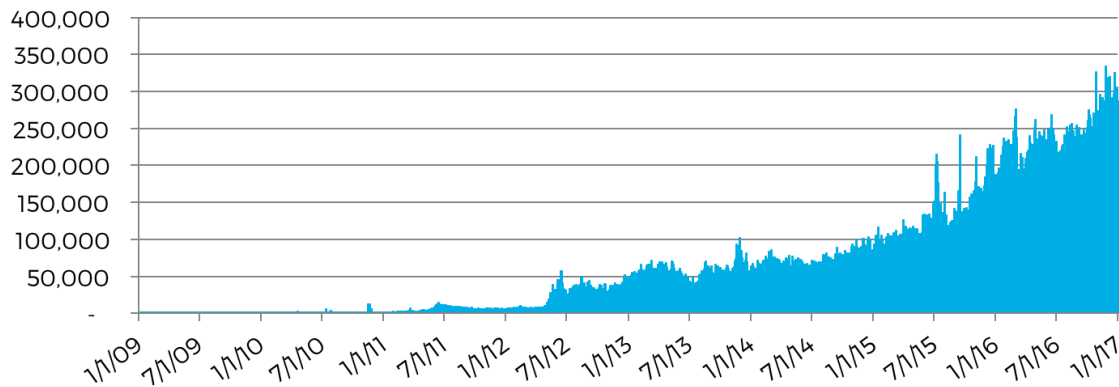


The event study and autocorrelation analyses described above support the notion that bitcoin is trending toward market efficiency, especially in more recent years. This is consistent with other studies.¹⁰

Accessibility

Declining volatility, increasing liquidity and informational efficiency are attributable in large part to increasing accessibility of bitcoin. Bitcoin usage has increased as the currency becomes better known and as retailers and others begin to accept bitcoin payment.¹¹ Figures 8 and 9 show the near exponential growth in bitcoin transactions per day and the total number of wallet users over time.

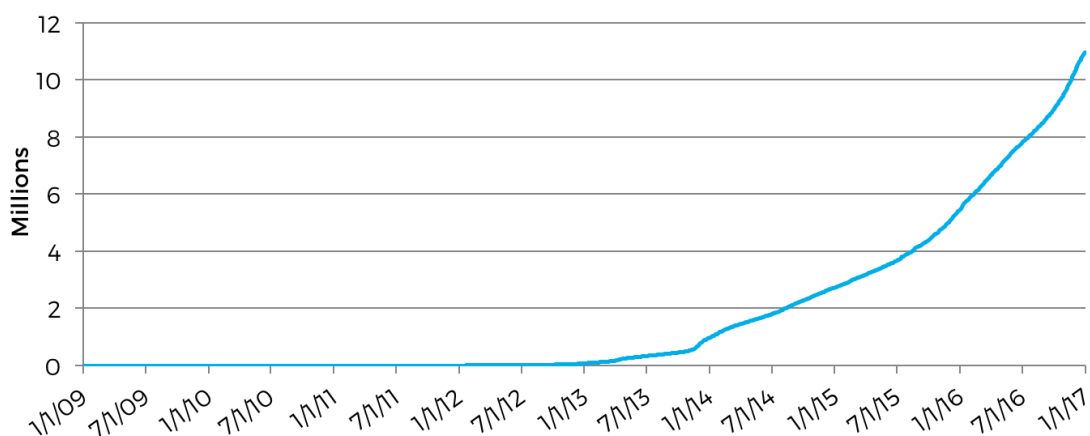
Figure 8 - Confirmed Bitcoin Transactions per Day



¹⁰ See, for example, Urquhart, Andrew, The Inefficiency of Bitcoin (August 24, 2016). This August 2016 paper by Andrew Urquhart, a Lecturer in Finance at Southampton Business School, concluded: “[t]hrough a battery of robust tests, evidence reveals that returns are significantly inefficient over our full sample, but when we split our sample into two subsample periods, we find that some tests indicate that Bitcoin is efficient in the latter period. Therefore we conclude that Bitcoin in an inefficient market but may be in the process of moving towards an efficient market.”

¹¹ See support.coinbase.com/customer/portal/articles/1834716-where-can-i-spend-bitcoins-

Figure 9 - Blockchain Wallet Users



Furthermore, bitcoin ATMs have emerged across the world, aiding in popularity and accessibility. There were less than a handful of bitcoin ATMs in 2014 and today there are nearly 900.¹² Bitcoin's average monthly trade volume over the past three-year period is \$740 million (1.8 million bitcoin units) and its market cap across major U.S. exchanges is \$16 billion,¹³ which is equivalent to a large-cap stock.¹⁴

It has always been, and continues to be, possible for retail users to take a long position in bitcoin by acquiring the currency (via mining or buying through a bitcoin wallet) and simply holding it. Profit would be realized by selling back into the market at a higher price – “buy low and sell dear,” as the adage goes.¹⁵ Recently, however, a number of funds have emerged offering bitcoin investment through more traditional brokerage channels like ETFs, including:

- Bitcoin Investment Trust
- Bitcoin Capital
- Global Advisors Bitcoin Investment
- Pantera Capital
- Gemini Trading

Such offerings may allow investors to enter into divisible and more complex investment configurations through financial derivatives, including futures and options, and debt, thereby increasing the popularity of the currency.

¹² See coinatmradar.com/charts/#growth. There are 533 locations in the United States, 135 in Canada, and 46 in the United Kingdom, notably.

¹³ See Blockchain.info/charts. Figure is as of December 31, 2016.

¹⁴ Herbert B. Mayo, *Investments: An Introduction*, Eleventh Edition, Cengage Learning, 2013. “Large cap stocks are the largest companies, with market value exceeding \$10 billion.”

¹⁵ Additional transaction fees would reduce any realized return. Such fees may include currency exchange fees (converting traditional currency to bitcoin), wire transfer fees, and marketplace exchange fees. Coinify, for example, charges a 3.9% fee to convert certain European currencies to bitcoin. See www.coinify.com/trade/bank-transfer. The fee structure for Bitstamp, another exchange site, also includes a fee of up to 0.25% for transactions. See www.bitstamp.net/fee_schedule.

Bitcoin and Modern Portfolio Theory

Modern Portfolio Theory (MPT) suggests that an asset that is uncorrelated to other portfolio assets leads to diversification which can benefit the portfolio by reducing overall portfolio risk.¹⁶ In addition, MPT holds that an asset that provides the greatest return for the lowest risk, and is therefore suitable to investor willing to assume a particular level of risk-and-return trade-off, can also benefit a portfolio by increasing potential returns.¹⁷

Bitcoin Returns Exhibit Low Correlation with Traditional Asset Classes Leading to Portfolio Diversification

The correlation coefficient measures the strength of a linear relationship between two variables, and it varies between -1 (perfect negative correlation) and 1 (perfect positive correlation). Low correlation means that when one asset in a portfolio loses value, the other tends to not follow suit, and vice versa.¹⁸ Correlation of zero indicates no relationship. Bitcoin returns exhibit exceptionally low correlation with other traditional asset classes, as shown in Figure 10. In fact, its highest correlation is with Ether, another digital currency, and that is very low at 0.065. To put this figure into perspective, the correlation of the S&P 500 and the FTSE 100 is 0.609, which is a strong positive relationship.

Figure 10 - Correlation Matrix of Select Asset Classes and Indices, 2015-2016

	Bitcoin	Ether	U.S. Corporate Bonds	U.S. Government Bonds	Emerging Market Currencies	FTSE 100 (U.K. Equities)	S&P 500 (U.S. Equities)	Gold	Crude Oil Index	U.S. Real Estate	Short-term Treasury	Long-term Treasury	CBOE Volatility (VIX)
Bitcoin	1	0.065	-0.006	-0.042	-0.015	0.065	0.031	0.000	0.035	0.022	0.05	0.038	0.005
Ether	0.065	1	0.022	-0.008	-0.119	-0.121	-0.061	0.064	-0.102	-0.026	-0.022	-0.059	0.095
U.S. Corporate Bonds	-0.006	0.022	1	0.875	-0.033	-0.186	-0.279	0.375	-0.235	0.108	-0.488	-0.862	0.24
U.S. Government Bonds	-0.042	-0.008	0.875	1	0.065	-0.173	-0.189	0.414	-0.191	0.132	-0.58	-0.827	0.173
Emerging Market Currencies	-0.015	-0.119	-0.033	0.065	1	0.504	0.359	0.13	0.309	0.202	0.05	0.166	-0.339
FTSE 100 (U.K. Equities)	0.065	-0.121	-0.186	-0.173	0.504	1	0.609	-0.182	0.317	0.156	0.202	0.299	-0.55
S&P 500 (U.S. Equities)	0.031	-0.061	-0.279	-0.189	0.359	0.609	1	-0.2	0.331	-0.013	0.177	0.365	-0.846
Gold	0.000	0.064	0.375	0.414	0.13	-0.182	-0.2	1	0.054	0.062	-0.351	-0.378	0.174
Crude Oil Index	0.035	-0.102	-0.235	-0.191	0.309	0.317	0.331	0.054	1	-0.055	0.152	0.313	-0.269
U.S. Real Estate	0.022	-0.026	0.108	0.132	0.202	0.156	-0.013	0.062	-0.055	1	-0.05	-0.134	0.014
Short-term Treasury	0.05	-0.022	-0.488	-0.58	0.05	0.202	0.177	-0.351	0.152	-0.05	1	0.431	-0.187
Long-term Treasury	0.038	-0.059	-0.862	-0.827	0.166	0.299	0.365	-0.378	0.313	-0.134	0.431	1	-0.272
CBOE Volatility (VIX)	0.005	0.095	0.24	0.173	-0.339	-0.55	-0.846	0.174	-0.269	0.014	-0.187	-0.272	1

Figure 11 shows the correlation coefficients over a trailing one-year window for the VIX, Emerging Market Currencies, and Oil.¹⁹ Each chart contains the relationship of the select asset with bitcoin (the light blue line) and the S&P 500 (the dark blue line), separately. As Figure 11 makes clear, the relationship between bitcoin and the VIX, Emerging Market Currencies, and Oil is not only very low, but also oscillates on either side of 0

¹⁶ Markowitz, Harry. "Portfolio Selection." The Journal of Finance, vol. 7, no. 1, 1952, pp. 77-91. See also, Frank K. Reilly and Keith C. Brown, Investment Analysis and Portfolio Management, Sixth Edition.

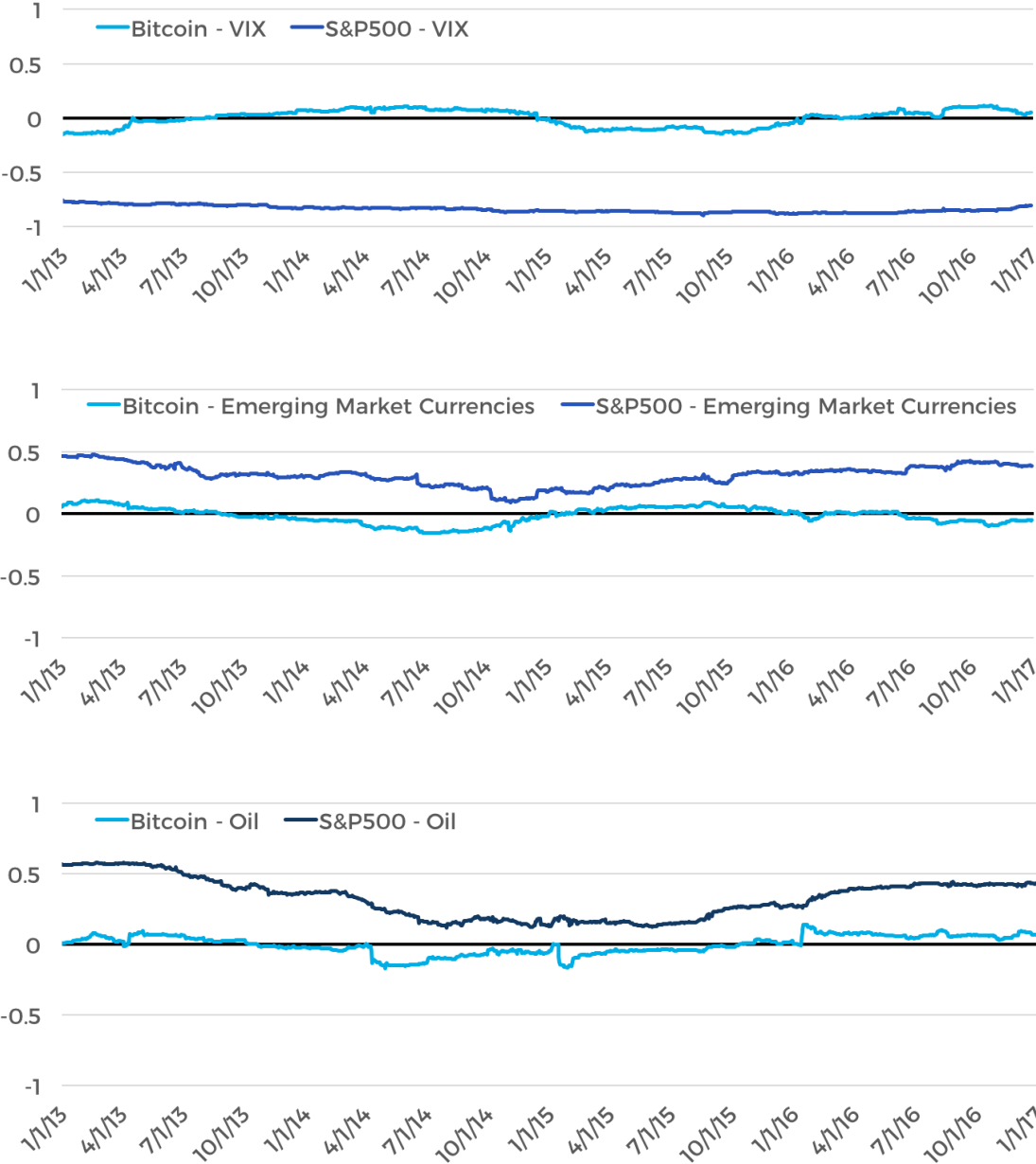
¹⁷ Frank K. Reilly and Keith C. Brown, Investment Analysis and Portfolio Management, Sixth Edition.

¹⁸ David Freedman, Robert Pisani, & Roger Purves, Statistics (1st ed. 1978).

¹⁹ Data source for chart: CapitalIQ; Blockchain.info.

(the thick black line), indicating lack of consistent or predictable directionality. For the S&P 500, on the other hand, the correlation coefficients are large and consistently either positive or negative in directionality.

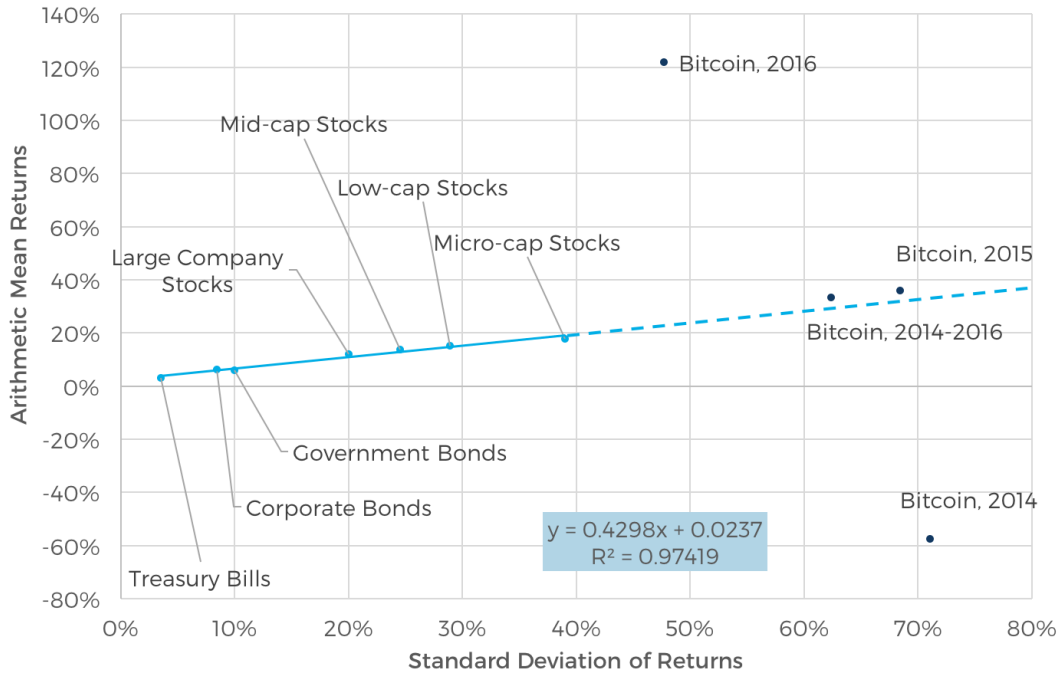
Figure 11 - Trailing one-year Correlation Coefficients



Bitcoin Can Expand Return Potential and Improve the Risk-and-Reward Trade-off in a Diversified Portfolio

Figure 12 shows the Capital Market Line, which plots the relationship between risk and return for various traditional investment assets. The chart shows that bitcoin's risk-and-reward profile is nearing the regression line cast by other traditional investments, such as treasury bills, bonds and equities.²⁰ The chart makes clear that bitcoin is relatively high-risk, with standard deviation of returns above 50% in 2014 and 2015. But bitcoin also carries with it relatively high reward potential as a result.

Figure 12 - Capital Market Line; Empirical Estimate based on Realized Total Returns by Asset Class 1926 - 2015



Indeed, an allocation of bitcoin in a diversified portfolio has the potential to improve the portfolio's risk-and-reward profile under MPT.

Bitcoin and Global Financial Market Uncertainty

Now that we've covered the various market fundamentals of bitcoin, what can be said about how bitcoin reacts to global financial market events – in particular, to such events that are expected to introduce financial market uncertainty? An analysis of the probability markets related to two major recent world events – Brexit and the U.S. Presidential Election – suggests that bitcoin acted as a type of “safe-haven” from the global financial market uncertainty. In short, economic evidence shows that, for the two events analyzed, bitcoin became more valuable as the likelihood of global financial market uncertainty increased.

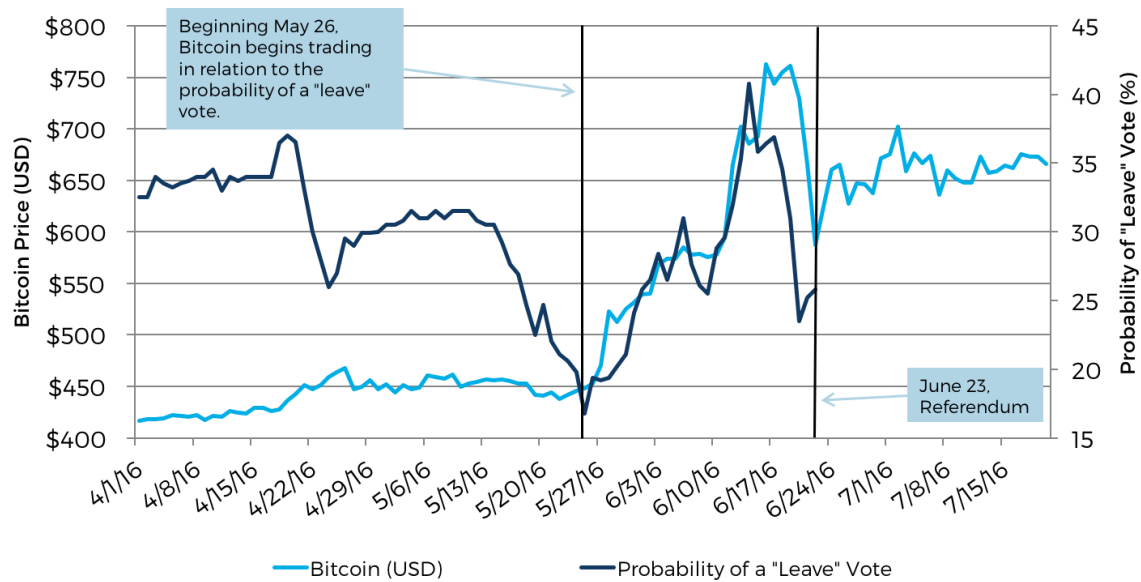
²⁰ Data source for chart: Duff & Phelps Valuation Handbook 2016, citing Morningstar Direct Database; Blockchain.info.

Brexit, UK's Referendum to Leave the European Union

On June 23, 2016, Britain held a referendum to decide whether the UK should leave or remain in the European Union. The leave vote won 52%/48%, and final results were released on June 24th in the early morning hours Eastern Time. Prior to and after the results were announced, investors and analysts expected that a "leave" vote would have a negative impact on global markets by introducing great uncertainties.²¹

As with many major events, probability markets tracked expectations of the Brexit outcome in the months leading up to the vote. Interestingly, as Figure 13 shows, bitcoin traded in near lock step with the changing probability of "leave" during the four-week period prior to the vote.²² In fact, the correlation of the bitcoin and the probability of "leave" prior to May 26th was negative 0.4, while after May 26th it was positive 0.8.²³ Not only did the relationship flip signs, but it increased in magnitude to near perfect positive correlation.

Figure 13 - Bitcoin Price and Brexit "Leave" Probability



From May 26th to June 19th (the highest point in the chart above) bitcoin price increased from \$452 to \$761, or 68%. To put this another way, for each one percentage point increase in the probability of "leave," bitcoin increased by \$27/unit. No other news explains this extreme growth during this period.

Figure 14 shows the performance of a \$100 investment in select assets – Bitcoin, GBP/USD, GBP/EUR, FTSE 100, Gold and the S&P 500 – on May 26th, identified above as the date on which bitcoin effectively became pegged to the "leave" probability.²⁴ As the chart shows, no other select asset performed as well as bitcoin during this period. Immediately following the conclusion of the referendum, the \$100 investment in

²¹ "Turbulence and Uncertainty for the Market after "Brexit,"" The New York Times, June 23, 2016. "Brexit is Bad for Growth and Everything Linked to It – Brexit Market Talk," Dow Jones, June 24, 2016.

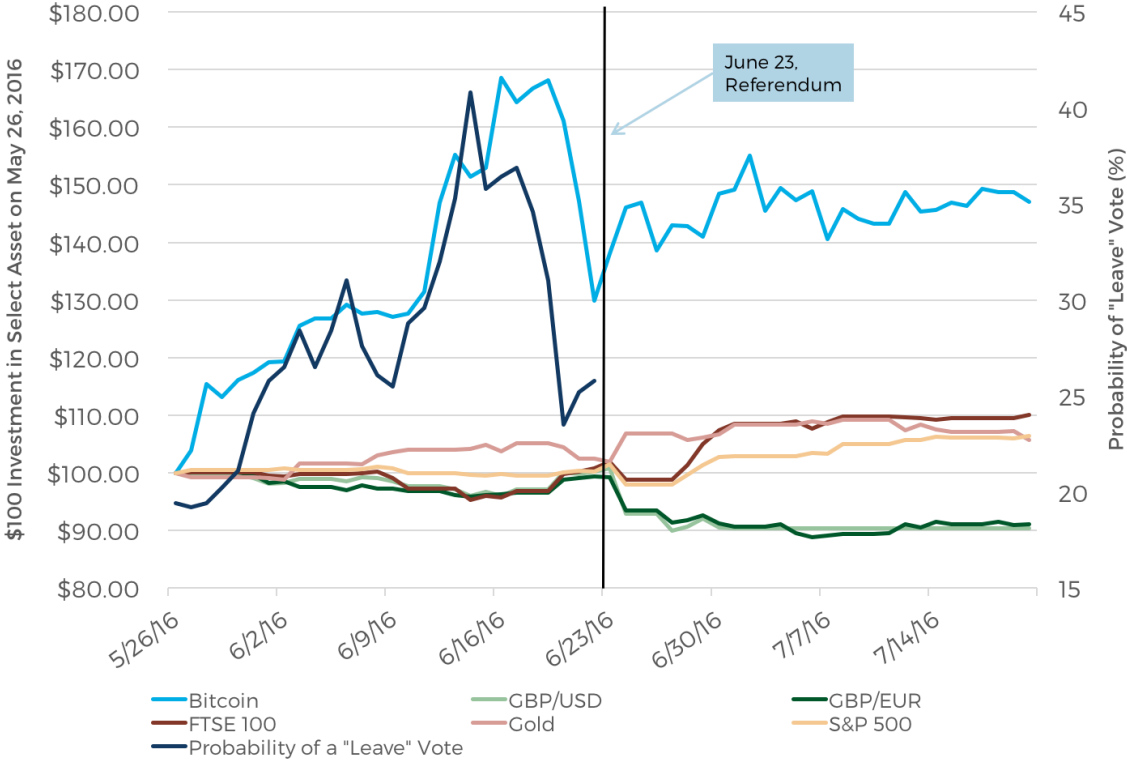
²² Data source for chart: Blockchain.info; PredictWise.

²³ PredictWise data is available from April 1, 2016 through June 22, 2016.

²⁴ Data source for chart: Blockchain.info; PredictWise; CapitalIQ.

bitcoin stabilized while the GBP lost value relative to the EUR and the USD and gold increased before also stabilizing. The FTSE 100 initially declined, remained flat for approximately one week following the results, then increased 10% along with a smaller increase in the S&P 500.

Figure 14 – Performance of \$100 Investment in Select Assets Relative to the Probability of “Leave” Vote

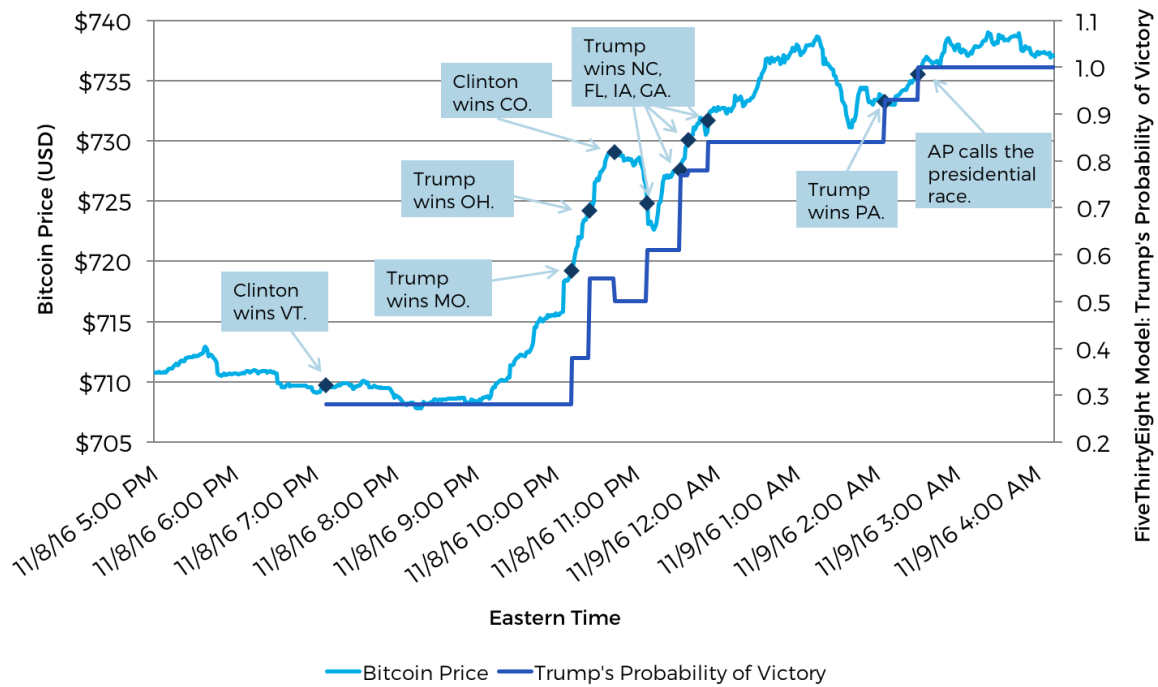


2016 U.S. Presidential Election

Leading into election day, various prediction market sites showed Clinton as the strong favorite. As state-by-state results rolled in on the evening of November 8th, FiveThirtyEight, a popular opinion poll and statistical analysis website, released real-time updates to their probability models regarding the election outcome. As Figure 15 shows, bitcoin prices increased in lock step with the increasing probability of Trump securing victory.²⁵

²⁵ Data source for chart: www.coindesk.com/price/; fivethirtyeight.com/live-blog/2016-election-results-coverage/

Figure 15 - 2016 U.S. Election Results and Bitcoin Intraday Price



In total, on election night, bitcoin increased 4.4%, through 3 am ET, approximately one half hour after the AP called the election, to \$737/unit. This increase coincided with sharp declines in world markets (including Asian markets, S&P Futures and the Mexican Peso relative to the USD) and a wild 40% increase in the S&P 500 VIX Futures index (a measure of market uncertainty) in pre-trading hours.²⁶

One analyst provided the following explanation for the sharp reaction in the markets: "Market players had viewed Clinton as the candidate of the status quo and there is much uncertainty over what a Trump victory will mean for U.S. foreign policy, international trade deals and the domestic economy."²⁷

Following the initial sell-off in the early morning pre-trading hours, U.S. equity markets ultimately ended the day up approximately 1% on November 9th as the market digested the shock of the election result and began to focus on the forward-looking impact of Trump's governing on financial markets.²⁸ In the week following the election, bitcoin pared some of its gains, ending the week at \$715/unit.

Conclusion

The future of money is digital – and bitcoin is the first early success of that broad, world-changing vision. The digital revolution, and the popularity of the bitcoin currency, illustrate that digital assets - bitcoin or otherwise - have become a noteworthy candidate for alternative asset investing.

²⁶ "VIX Tumbles, Reversing Course From Election Day Concerns – Update," Dow Jones Newswires, November 9, 2016; "Trump Win Shocks Markets," Institutional Investor Magazine, November 9, 2016; "View From Mexico: Reaction To Trump's Election Victory," NPR: Morning Edition, November 9, 2016.

²⁷ "U.S. stock futures plunge after shock Trump White House victory," Investing.com, November 09, 2016.

²⁸ "Why Stock Markets, Initially Shaken, Went Up After Trump's Victory," The New York Times, November 10, 2016. <http://www.nytimes.com/2016/11/10/business/dealbook/stock-markets-election.html>.

To summarize, the bitcoin market has exhibited signs of market stabilization and other characteristics of more mature asset classes, including decreasing volatility, increasing liquidity, informational efficiency and increased accessibility. According to modern portfolio theory, bitcoin's low correlation with other traditional assets and its risk-and-reward profile indicate that an allocation of bitcoin can lead to greater portfolio diversification and an improved risk-and-reward trade-off for the portfolio. In addition, bitcoin's remarkable price reaction to probability market data on the outcome of Brexit and a Trump presidency indicate that bitcoin may behave as a hedge against global financial market uncertainty.

Bitcoin's relationship with the digital revolution, including its unique positioning as the first success story in digital money and unique and stabilizing financial market performance signal that digital assets are an alternative investment option with great potential.

Bitcoin's stability and other investment-worthy qualities, along with its increasing user base, prove that digital assets backed by central banks are not only possible but inevitable. In other words, bitcoin represents the pioneer use-case of blockchain technology and can be thought of as an original success in the digital currency/digital asset category. Because bitcoin has not only survived but thrived since its inception, we know that it is realistic to build state- or central bank-issued digital currencies. The implication of bitcoin's survival and success is that it has paved the way for various kinds of other digital assets to emerge in the future.

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