Bitcoin: Examining the Benefits and Risks for Small Business

U. S. House Committee On Small Business

April 2, 2014

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Principal Effects on Small Business

- Bitcoin is a practical and successful reality in the current world in which small businesses operate.
- Bitcoin is potentially very disruptive to existing business models, whether the model describes consumer, business, employees, governments, or regulators.
- Small businesses that are considering Bitcoin must consider the steep learning and implementation curves inherent in this new and unfamiliar technology.
- Bitcoin 's fundamental promise lies in its ability to reduce transactions costs for organizations that adopt it, including new e-commerce businesses and non-profit organizations.
- Compared with existing payments processes, Bitcoin can enhance security, but only if best practices for its implementation are followed.

Financial Advantages

- Bitcoin makes possible very secure cash flow payments, especially if existing 2 Factor Authentification practices are used.
- Compared with credit/debit cards, small businesses that implement Bitcoin may incur lower startup costs.
- Small entities that choose to hold Bitcoin balances may realize speculative gains (or losses) as the dollar price per Bitcoin fluctuates. For the time period May 14, 2013 to March 18, 2014 the annualized return is 207%
- Because chargebacks are virtually eliminated, the merchant can expect the prompt receipt of almost all sales revenue.
- Bitcoin represents a much cheaper payment processing system compared with credit/debit cards. Its swipe fee is $0.15 compared with $0.25 for credit cards, and a typical Bitcoin wallet provider has a 1% fee compared with about 3% for credit cards. This results in cash flows which are between 7.5% (for micro sales) and 1.6% (for large sales) higher If a customer chooses to pay with Bitcoin rather than a credit card. The table below compares the expense:

Some Cost Comparisons - BTC vs. Credit Cards

CC Sale in $$$	Micro - $1	Small - $10	Typical - $100	Large - $10,000
Swipe Fee	$0.25	$0.25	$0.25	$0.25
3% Visa/MC/Disc.	$0.03	$0.30	$3.00	$300.00
Bid Ask %	$0.00	$0.00	$0.00	$0.00
Total Fees	$0.28	$0.55	$3.25	$3.00
% of Sale	28.0%	5.50%	3.25%	3.00%
Net Sale	$0.72	$9.45	$96.75	$9,699.75

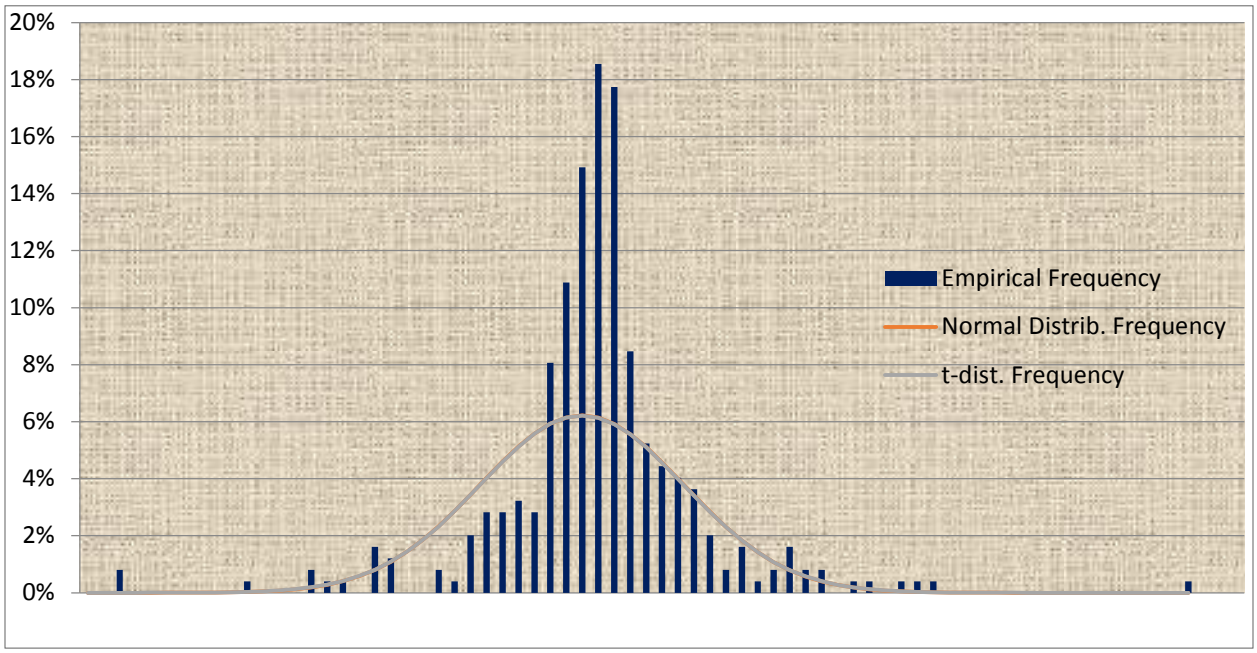
BTC Sale in $$$	Micro - $1	Small - $10	Typical - $100	Large - $10,000
Swipe Fee	$0.15	$0.15	$0.15	$0.15
1% Bitcoin Wallet	$0.01	$0.10	$1.00	$100.00
Bid Ask % -.40%	$0.01	$0.01	$0.40	$40.00
Total Fees	$0.17	$0.26	$1.55	$140.15
% of Sale	17.0%	2.60%	1.55%	1.40%
Net Sale	$0.83	$9.74	$98.45	$9,859.85

- Bitcoin daily returns do not correlate with those of other financial assets. Four distinct assets were analyzed for any potential relationship to Bitcoin: US Stock Market (SPY), Short-Term Global Interest Rates (MINT), Emerging Markets Currency (CEW), and the US Dollar Index (UUP). In each case, the single-factor models show that no connection was demonstrated with very high levels of confidence. This lack of a strong relationship makes Bitcoin a potentially valuable hedge for businesses with exposure to these risk factors.

Financial Disadvantages

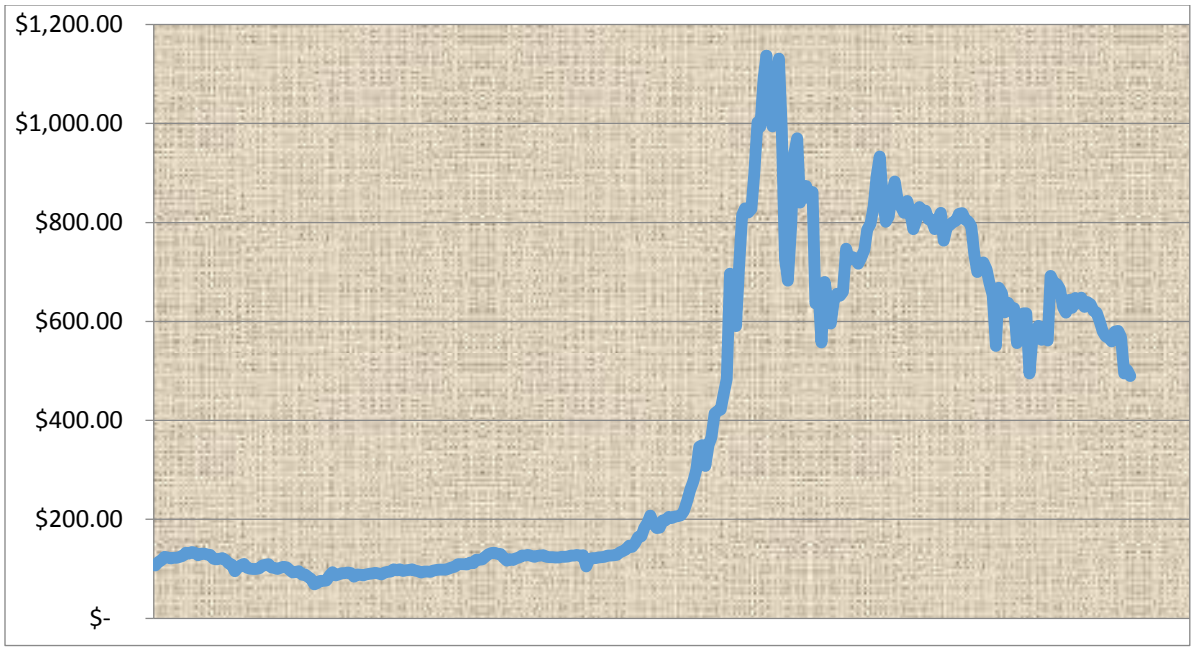
- Bitcoin is a 100% digital method of remittances. Therefore, any small business that chooses to use it must have reliable access to the Internet whenever any transaction is initiated.
- The business must link its business checking account with a traditional bank to the accounts of the online wallet provider. This link enables seamless transfer of cash to Bitcoin and vice versa. If its commercial bank is reluctant to do business with a Bitcoin entity some integration problems will occur. Such problems are more likely with overseas banks than US banks.
- In the past, many Bitcoin exchanges have failed. If a small business chooses to use an exchange that is not professionally managed and does not employ best security practice, it is possible that Bitcoin exchange balances might be compromised as the affairs of the failed exchange are resolved. Since the exchange may well be located in a non-US country, such resolution can take many months and result in significant loss of working capital for the small businesses and customers affected.

- Standard financial tools are of limited value to regulators and other market participants. The root problem is that the underlying data do **not** conform to the assumptions which are commonly made to assess risk and return. In particular, the assumption of a normal distribution for Bitcoin daily price returns is not valid. Its distribution is rather skewed right, has a pronounced peak, and contains numerous outliars ("fat tails") or extreme observations.

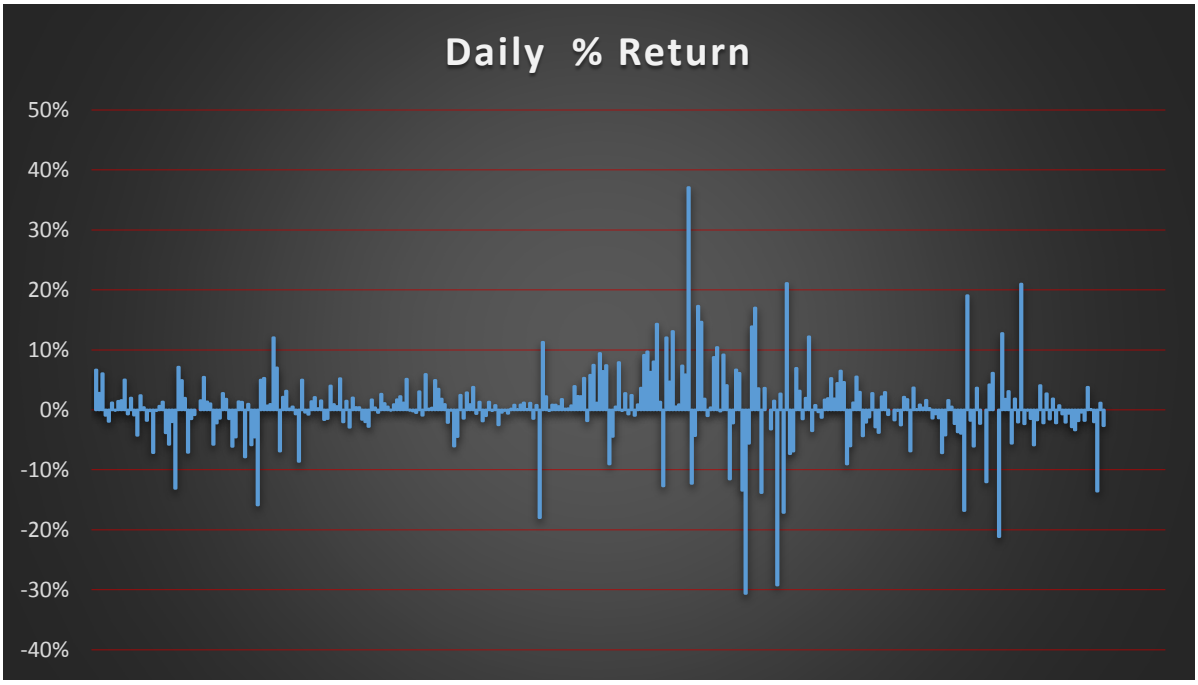


Goodness-of-fit tests indicate that the above distribution is neither normal, t-distributed, lognormal, or uniform. Because of this limitation, it will be difficult for financial regulators to use traditional tools such as Value at Risk to effectively conduct stress tests. This limitation also makes it more difficult for asset managers to limit risk budgets and to optimize portfolios. Covariance matrices become unstable. Bitcoin price predictions are much more difficult to make accurately.

- Bitcoin exhibits extreme price volatility. In fact, compared with the US stock market (S&P500) the standard deviation of Bitcoin returns is 129% vs. 11% and is thus 12x higher. While its reward-to-risk ratio (Sharpe Ratio) is 1.61 and comparable to that of the S&P500 (1.50) should a small business be unable or unwilling to convert BTC to currency at the point and time of sale it is likely that the dollar value of the sale could be very different than expected. The chart below shows the price history of Bitcoin from May 2013 to March 2014:



Another way to study the price volatility of Bitcoin is to examine day-to-day movements in its dollar price. For this time period, the largest positive price move was about 37% and the largest negative was 31%. Such price swings are far larger than chance would suggest. The chart below depicts the history of these daily returns. The autocorrelation coefficient is significant at the 5% level and is -0.146, suggesting that large upward daily price swings are slightly more likely to be followed by negative swings than chance would predict.



Nonfinancial Advantages

- Large-scale data breaches that have affected millions of credit card users are almost impossible with Bitcoin use . Retail use cases are an important application in which Bitcoin is safer to use than credit/debit cards.
- Confirmation of transactions can occur very quickly for merchants who use Bitcoin, often in just a few minutes.
- Chargebacks do not occur for Bitcoin merchants unless the merchant decides to grant a refund. While this makes the cash flow more certain, the consumer at present has no recourse should a charge be contested.
- At least for now, Bitcoin is considered trendy by younger consumers. This factor helps to differentiate a new small business from its competition.
- Bitcoin is specifically designed for E-commerce applications. It thus represents an easy and inexpensive way for a small business to attract interest in its website.
- The blockchain makes messaging possible.. In this way it represents another way for small businesses to communicate with their customers.

Nonfinancial Disadvantages

- The technology is simple to implement and inexpensive for small businesses. However, employees must be trained in its use and in how to answer questions from customers.
- Likewise, at least at first some businesses must educate their customers.
- Resistance from existing banks and suppliers who do not wish to do business with a Bitcoin accepting firm could be a problem which is not necessarily easy to solve.
- Every transaction, no matter how small, is encoded permanently in the blockchain. While this feature makes it possible to conduct triple-entry accounting processes and helps to perform audits, it does represent a problem for small businesses who do not wish to have their transactions noted.
- The regulatory status of Bitcoin, especially in the US, is uncertain. Different regulators have taken different positions on the use of Bitcoin, such as:
  A. State governments have adopted a wide variety of different regulations regarding Bitcoin use in their state.
  B. The Federal Reserve System has no current plans to regulate Bitcoin as long as current statutes regarding Know Your Customer and Anti-Money Laundering are followed.
  C. The Internal Revenue Service has just issued taxpayer guidance which provides for differing tax treatment of Bitcoin transactions depending on the use case and intent of the taxpayer.

Predictions

- Digital currency is here to stay and will ultimately thrive as partial substitutes for credit cards and fiat currency.
- Consumer and small business ease-of-use will steadily improve as smart phone apps seamlessly integrate to facilitate the exchange of BTC between consumer and business coin wallets.
- Businesses that are early adopters will have a real first- mover advantage over more cautious competitors.
- Governments will monitor developments and find ways to apply existing regulatory principles to this market. A partnership between the Bitcoin Foundation and the public sector will collaboratively establish best practices for implementation.
- Federal taxation is now established as the IRS implements its new guidelines. State taxation is not likely but is possible in some jurisdictions.
- The market price of Bitcoin follows a Random Walk. The price series is integrated of order 1. The best single predictor of the price of a Bitcoin tomorrow is 99.2% of its price today plus $4.73. With a model standard error of $40.115, we can be fairly certain (95%) that the price in the future will be within these bounds, assuming a starting value of $500. The price range tomorrow will then be $421 -- $579. In 46 days, the price range expands to $1,000 -- $0. If the current price volatility moderates over time, Bitcoin has a bright future.