

Analogies Between Internet and Blockchain, Hype Cycles, and Securities Trading Patterns

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ABSTRACT

In our daily lives, we are witnessing a similar impact between the Internet and Blockchains technologies, and we are assisting to a scenario of Blockchain greatly influencing the Financial System as the Internet did the Media Industry about 20 years ago. There are certainly many parallels, between the two.

Like the internet, cryptocurrencies such as Bitcoin are driven by advances in core technologies, along with a new open architecture. Another remarkable analogy is represented by the similar Cycles in the development of those technologies, and those Cycles were also remarkably replicated in the stock market by the leading Internet stocks and the exchange rate between Bitcoin and the US Dollar.

Keywords: *Blockchain, Internet, Bitcoin, Hype-Cycles, Securities*

1. ANALOGIES BETWEEN THE DEVELOPMENTS OF INTERNET AND BLOCKCHAIN

Even year after the beginning of the Internet Era, scholars and analysts believed that it was still a flop. The Internet has since become a major influence globally, commercially, socially, politically etc. In the mid-90s a lot of skepticism was raised when Nicholas Negroponte predicted that printed newspapers were getting obsolete, in favor of reading news online (Dolnik, 1987).

Currently, we are assisting to a similar impact from cryptocurrencies and blockchain. Like the Internet, cryptocurrencies such a Bitcoin are progressing by advances in core technologies with a new open Bitcoin blockchain architecture. Like the internet, this technology is designed to be decentralized, with “layers,” in which each layer is defined by an open protocol where companies and individuals can build product and services on top of it. (Joichi et al, 2017)

The Internet and relative layers took decades to develop, with each unleashing an array of creative and entrepreneurial activities. Example of that could be, early on, Ethernet which standardized the way computers transmitted bites over wires. Another example was the TCP/IP protocol used to address and control how packets of data were routed between computers. At the end of the 80s HTTP was developed, another open protocol, and that enabled new activities and business.

2. BITCOIN THE KILLER APP FOR BLOCKCHAINS

Internet was developed initially through defense funding and its reason of existing was indeed non-commercial. At the beginning it was only designed to develop a reliable and effective network and that influenced the formation of a network architecture that would have not otherwise occurred in a for profit market driven environment. In the very early days of internet, the “killer app” was the e-mail; that was what shaped up the initial network. Likewise, Bitcoin, is now the killer app to the blockchain. Bitcoin adoption of the underlying blockchain and its community and code review process are enabling it to be the most reliable and secure of the various blockchains. Despite initial doubts, going forward, bitcoin will persist, but the block chain will also support a variety of other apps, and transactions, even beyond the today’s financial and legal uses (Joichi et al, 2017).

Bitcoin represents a new, decentralized, and automated financial system, with limited capabilities, but it offers a new vision of the future, since the code describes both a regulatory and economic system, and transactions must satisfy certain rules before they can be accepted into the Bitcoin blockchain. Bitcoin’s code set the rules and the network constantly monitor for compliance. If a transaction breaks the rules, it is rejected by the network. Even the monetary supply policy is included into the code: the supply is limited (21 million Bitcoins) and new money is automatically issued every ten minutes.

Bitcoin is far from perfect, and there is a debate going on involving economists who disagree on the Bitcoin’s hard money rule, and lawyers arguing that the code is far too

inflexible and does not permit any margin for useful discretion. What cannot be disputed, however, is the fact that Bitcoin is real, it works and in a few years the return on investing in Bitcoin and other crypto currency has skyrocketed even though accompanied by high volatility.

3. FINANCING A NEW FINANCIAL SYSTEM

The current financial system is quite complicated, and that creates risk. A cryptocurrency based new financial system could decrease its level of complexity and remove layers of intermediation. The level of risk could be reduced, and different types of financial products could be developed. As research shows “making the system more transparent reduces intermediation chains and costs to users of the financial system” (J. Fenn et al, 2017, page 3).

4. HYPE CYCLES CONCEPT

“The Hype Cycle is a graphical depiction of a common pattern that arises with each new technology or other innovation.” (J. Fenn et al, 2017, page 3).

The concept of “Hype-Cycle”: was introduced in 1995, as a methodology to track a technology from the early phases, until financial maturity and its full potential deployment. It is characterized by the typical progression of innovation, from overenthusiasm through a period of disillusionment to

an eventual understanding of the innovation’s relevance and role of a given technology in the marketplace. Hype-Cycles could explain the trend of many new technologies, including Internet and Blockchain.

A technology passes through several stages until it reaches productivity

- Innovation Trigger: Hype-Cycles start when a new invention, and/or new products generate industry and public opinion interest in a technology innovation.
- Peak of Inflated Expectations: a “buzz” develops, and the expectation for the new technology rise above the current reality of its capabilities.
- Trough of Disillusionment: impatience for results starts to replace the original excitement about the potential value. Normally this is accompanied by problems with the performance, slow adoption, and under-par financial results.
- Slope of Enlightenment: some of the early adopters start to experience benefits and increase their effort to move forward
- Plateau of productivity: the real benefits of the technology are now demonstrated and accepted, reduced levels of risk and a growing number of users lead to a wider acceptance of a new technology (Fenn et al, 2017)

According to the efficient-market hypothesis (EMH) of Fama (1970), we could argue that assets prices reflect all available information, and securities prices should react to new information. “In a market efficiency situation, new about particular stock/industry places immediate effect on the stock prices and hence market is said to be efficient in response to the information received “. (Fama, 2019).

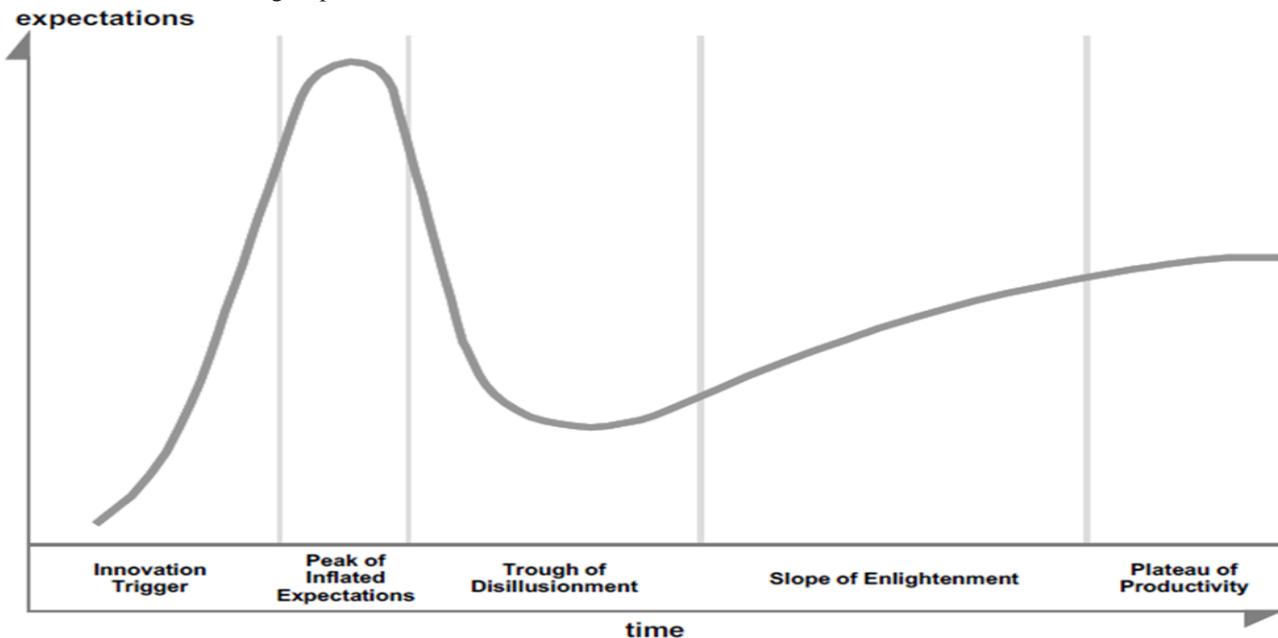


Figure 1: Fenn et al, (2017), page 4

In more recent years, the Behavioral Finance approach to stock market trading has emerged has a compatible alternative to EMH. Thaler with his coauthor Sunstein (2018) asserts that human investment decision-making is far

from being completely rational, and phenomena like markets’ over/under reactions can be analyzed and explained. That represented also, a credible justification for the 2000 dot.com stock and the 2008 global recession

market crashes and the great swings that contribute to create Hype-Cycles in Internet Stocks and in Bitcoin exchange prices.

Based on EMH, and the Financial Behavior approaches and the patterns of the Hype-Cycles, we looked for two proxy assets representing Internet and Blockchain, selecting the stock of Amazon and the Exchange Rate of bitcoin to US

Dollar which is a currency not a security, but trades like one (Bonelli, 2020).

5. HYPE-CYCLE OF INTERNET

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BATS:AMZN, 1W 3125.00 ▼ -96.26 (-2.99%) **O:** 3148.85 **H:** 3224.00 **L:** 3117.17 **C:** 3125.00



Figure 2: TradingView.com AMZN chart 1998-2005

The Amazon stock chart in Fig.1 covers the closing prices of 1,253 days from 8/31/98 through 8/25/03 (blue line). For the same period, we calculated the moving average for 50 days. Then, we calculated the 50 days moving average, which is calculated by summing up the past 50 data points and then dividing the result by 50 (line red). That is a popular technical indicator better highlighting the trend and reducing the visual effect of the daily volatility.

We can observe the extreme swings characterizing the “innovation trigger” period from 1998-99, the very long turbulent “peak” that caused huge losses among traders from 1999-00 through the beginning of the infamous “dot.com crash. The “Disillusion” phase lasted from the

beginning of 2000-through the Fall of 2002, period in which traders and investor start to find some “value” in Internet stocks which in turn started to post some profits and show signals of recovery (“Slope of Enlightenment”, and “Plateau of Productivity”. The Internet/Amazon Hype-Cycle was reached completion, and stock prices lever of that period look a small fraction compared to where they are now.

6. HYPE-CYCLE OF BITCOIN



Figure 3: TradingView.com Bitcoin chart 2017-19

The Bitcoin/USD Exchange rate chart in Fig.2 covers the closing prices of 651 days from 11/2/17 through 8/14/19 (blue line). For the same period, we calculated the moving average for 25 days. Then, we calculated the 25 days moving average, which is calculated by summing up the past 25 data points and then dividing the result by 25 (line red). The technical indicator better highlights the trend and smoothes an otherwise volatile curve.

We can observe again extreme swings but concentrated in a shorter time-period, compared to the Amazon Hype-Cycle. The “Innovation Trigger” period at the end of October 2018, is very sharp. After reaching a peak, the “Disillusion” descending phase, from the beginning of 2019-through the Fall of the same year, was initially as sharp as the pre-Peak rise, it then tapered to reach a flex point just at the beginning of 2019. A bottom was formed (“Slope of Enlightenment”, and successively a “Plateau of Productivity”, during in mid-2019. The Bitcoin Hype-Cycle then reached completion, and Exchange Rate level of that period look considerably lower compared to the levels they traded in the last year pre and post Covid-19 emergency periods.

7. CORRELATION BETWEEN INTERNET (AMZN) AND BLOCKCHAIN (BTC) HYPE CYCLES PRICE CHARTS

The two moving averages for AMZN (50 days) and BTC (25 days) were “aligned”. That was possible calculating the average between the 1st and 2nd values, the 3rd and the 4th etc., of each AMZN and BTC moving average. The aligned data of the two Moving Averages allow us to calculate the Correlation Coefficient between the two Cycles. The result is a CC of .67, which indicates a medium-high level of correlation between the two. [Correlation Coefficient of Amazon BTC Hyper Cycles.xlsx](#)

Additionally, we calculated the confidence level of CC r (with a significance level $\alpha = 5\%$), between the .624 and .711 interval.

8. CONCLUSION

The first takeaway is that the primary use and even the values of the people using new technologies tend to change substantially as these technologies mature. This was certainly true for the internet and will also be for blockchain. The expectations of new disrupting technologies will inevitably progress through a pattern of overenthusiasm and disillusionment, followed by eventual productivity.

The same it is also reflected in the financial markets, steep increase in securities are always ending in excessive speculation and eventually in a bubble bursting. Hype-Cycles of securities representing new technologies might be different for the time-period in which they develop, but they are quite similar and correlated for the pattern of their Cycles.

The recommendation for Technology experts and Investor alike is the same: “do not invest in an innovation just because it is being hyped, nor ignore it just because it is not living up to the early over-expectations – that is, it’s not the through.” (Fenn et al, 2017 page 1)

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