Memo to: Aenigma Clients **Date:** 9/29/2018

From: David Grider, CFA

Subject: The More Things Change

Aenigma Capital, LLC

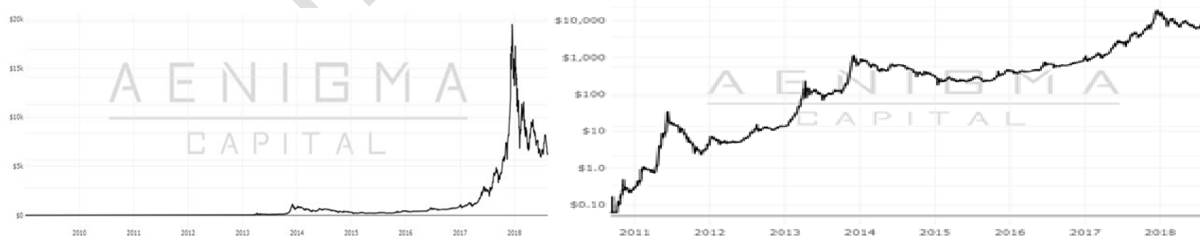
Macro Cryptoeconomic Theory

In 2018, crypto markets have been influenced by two major forces: 1) evergreen macroeconomic money cycles, and 2) a rapidly maturing industry in which companies can no longer jump straight from the drawing board to exchange listing. Together, these factors have depressed market capitalization and kept prices stagnant for much of the year.

But the forces that have created a prolonged bear market may also contain the seeds of the next bull run. At Ænigma, we evaluate market performance in the context of its current position in the money expansion cycle. Our analysis indicates that the downturn in Q3 was a predictable movement in keeping with historical cycles of market contraction -- and likely to be followed by a period of significant expansion.

1. What Is a Crypto Money Cycle?

Like all markets, crypto moves in alternating cycles of boom and bust. From 2015 to 2017, Bitcoin (BTC) and the greater cryptocurrency markets experienced an exponential run that attracted mass media attention and powerful waves of new adoption. Beginning in early 2018, both price and market capitalization took a precipitous dive, plunging us into a bear market that persists today.



Figures 1 and 2. The price of Bitcoin in linear (left) and logarithmic forms (right).

These market movements, or ”money cycles” as we have termed them in our published research notes, are not unique events. In linear terms, the most recent BTC cycle appears to be a simple case of rapid market appreciation and depreciation (Figure 1). However, when viewed on a logarithmic scale (Figure 2), significant peaks and valleys emerge throughout the history of BTC.

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These cycles of expansion and recession provide opportunities to earn positive returns regardless of the state of the market. Looking through the end of 2018, it is our view that the cryptocurrency market is in the midst of its third long-term money cycle expansion phase. As characterized by price movements during the downturns of 2011 and 2013, each cycle typically comprises two medium-term expansion phases with shorter-term contractions along the way. The expansions are distinguished by their absolute magnitude but are equally impressive in relative percentage terms.

While crypto assets move with different cadences and correlations to the market, large monetary cryptocurrencies such as Bitcoin typically drive aggregate price movements. Just as traditional banks influence business activity, asset prices, and aggregate GDP, a critical mass of large-cap cryptocurrencies pushes value in and out of smaller asset networks according to macro money cycles in the digital economy.

How do these smaller entities respond to different phases in the crypto money cycle? Emerging projects tend to flourish in the early to mid-stage of the cycle. This category of projects typically includes small-cap digital assets, proof-of-stake DACs, and ICO companies, and they enjoy the benefit of using overall market growth as an accelerant for their own valuations. Most recently, altcoins rode the bull market of 2017 to expand their market capitalization from $2,257,620,000 to $374,867,000,000[1].

The reverse is also true when the macro crypto economy becomes overheated and enters a recessionary period. Though most digital assets are highly correlated and use Bitcoin as a benchmark, they are not all affected to the same degree. Smaller staking and early-stage ICO tokens are more severely impacted by recessionary phases in the money cycle, while larger "blue-chip" and utility-type mineable currencies tend to retain value and offer greater stability.

Having established that crypto markets move in readily identifiable macro money cycles, we turn to a metric we call the Price-to-Store of Value ratio (P/SoV) to evaluate short-term price movements.

[1] https://coinmarketcap.com/charts/ Total Market capitalization (Excluding Bitcoin)

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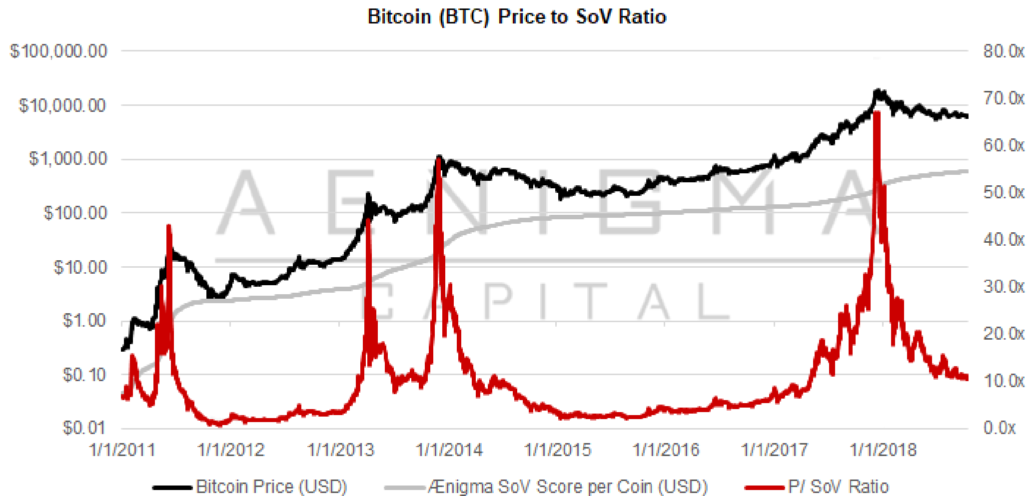

Figure 3. Bitcoin price vs. SoV score vs. the P/SoV ratio.

In the most basic terms, the P/SoV ratio helps investors measure whether:

- A crypto asset is more likely to be relatively cheap or expensive.
- The market is potentially nearing a price bottom or top.

For proof-of-work (PoW) mineable currencies such as Bitcoin, store of value can give us insight into when investors will tend to buy and sell. How? We look to mining costs for an approximation of the value stored by PoW cryptocurrencies.

The Ænigma store of value model (Figure 3) measures the cumulative sunk costs deployed into the system though the mining process. Blockchain technology requires some method to validate the transactions being added to the chain (i.e., its "blocks"). One method is PoW mining, in which miners verify transactions by completing encrypted algorithms solvable only through brute force computation. As a result, PoW mining incurs high costs of power, hardware, mining facility overhead, labor, and other inputs.

Our theory asserts that the value of real-world PoW mining costs form a behavioral and economic floor for the price of the cryptocurrency asset. Mining inputs are not wasteful costs of consensus; they are semi-permanent stores of value that influence the fundamental valuation of the crypto network by driving the behavioral incentives of market participants.

For PoW mineable cryptocurrencies, the P/SoV ratio helps us quantify the probability that investors will buy or sell. It functions similarly to traditional Price/Book, EV/EBITDA, and P/E ratios. We calculate P/SoV on an overall network value basis as the ratio of: 1) aggregate market capitalization, and 2) total store of value, approximated using cumulative mining rewards (CMR) earned from the network. The price is assumed to be relatively cheap (expensive) when the P/SoV ratio is low (high), making the asset more likely to appreciate (decline).

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As a fundamental valuation indicator, the P/SoV ratio helps us gauge our location in the macro money cycle and position our portfolio accordingly. At the beginning of the year, we compared our own valuation indicators to the market's exuberance for high-risk deals with unproven companies -- and found those deals wanting. It was clear to us that a risk-reduction approach was needed to limit exposure to broader macro market movements.

To others in the market, the need to reduce risk was less clear. The first quarter of 2018 produced great returns for many investors, but it is likely they were lagging gains from the 2017 ICO and small-cap boom. As a result, many were caught off-guard by the recessionary phase that emerged in mid-2018.

Based on our fundamental analysis of market conditions, we believe the digital asset markets have reached their trough multiples. The mid-year recession presented an opportunity for us to position our portfolio allocation toward higher quality projects in the large- and mid-cap sectors.

2. The Crypto Market Grows Up

Driven by recession economics, emerging projects in the pre-token and pre-ICO stages have been forced to show evidence of quality in order to justify their valuations. In 2017, companies rapidly raised money through ICOs regardless of quality, often before they had built a prototype, demonstrated team dynamics, or proven product/market fit.

This year, we have seen the market grow to resemble the established venture capital landscape, with quality teams, better deals, and more reasonable valuations. The expanding life cycle of the average crypto company is a sign of increased due diligence and investor savvy. The market has evolved away from cycles of hype and mass speculation, and companies are no longer able to skip directly from inception to exchanged-listed liquid trading.

We are seeing high-quality companies raise private seed rounds with venture and crypto funds, developing core technology prior to tokenization and outside funding. Lower-quality projects are struggling to meet their raise goals, and equity seed rounds to fund initial technology development in lieu of an ICO are increasingly common. Many of these seed rounds include rights to future tokens in proportion to equity investment.

Equity rounds are also funding interesting projects that combine for-profit business with a not-for-profit foundation to support open-source blockchain development. These relationships are similar to that of the Linux open-source platform and Red Hat, the B2B company that has enabled businesses to utilize Linux. Hybrid projects provide an opportunity for VCs to support mass blockchain adoption under their traditional investment mandate.

Lastly, we have noted an explosion of equity companies that provide blockchain services without tokenization. After a 2017 of ICOs full of unnecessary, rent-seeking intermediary tokens,

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we welcome the additional thoughtfulness and product/market fit suggested by the rise of blockchain service companies.

Looking Forward

Over the next six months, we expect market expansion to allow us to harvest our liquid positions before our uncorrelated seed investments, which are operating in accordance with new expanded startup timelines.

Key trends to watch:

- We anticipate that many of 2017's speculative and low-quality ICO tokens will move toward zero.
- Though the infrastructure is still nascent, we think significant M&A activity, particularly in the acquihire realm, will emerge in 2019.
- In Q3, the established MakerDAO project set a precedent in the crypto market by issuing a new, discounted diluting round from their treasury. Other quality projects are likely to follow suit. We anticipate that most of these rounds will be private issuances -- the equivalent of A and B rounds in traditional venture capital.
- Because funds can offer strategic partnership advantages, they are likely to hold an access advantage over retail investors and high-net-worth individuals. Funds may also receive discounts to public prices and obtain additional intelligence and financial information through the diligence process.

While the market is currently bearish on the surface, we see many bright signs for the future. The level of project quality in the market is increasing. The way companies are coming to market and growing is also maturing. On the investment side, we see institutional investors moving into the market, with the notable endowments of Harvard, Stanford, MIT, Dartmouth and Yale making their first allocations in the space. As market maturity and value grow, institutional involvement will continue to deepen, bringing additional liquidity and adoption. We look forward to positive progress in Q4 and 2019.

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