Success and Failure in the Cryptocurrency Market

Neil Gandal (Tel Aviv University) and Hanna Halaburda

Introduction and Background

The digital currency Bitcoin, which was introduced in 2009, caught the interest of the mainstream media in 2012. Since then many new digital currencies have been launched – and some have failed as well.

Due to its supposed anonymity, Bitcoin and other digital currencies are often compared to cash. However, unlike cash, these currencies are purely digital and used primarily online. Digitization is essential for the emergence of this market. Digital currencies have the potential to compete against other online payment methods such as credit/debit cards and PayPal, and thus ease frictions for eCommerce. It is possible that Bitcoin and other digital currencies may have a large long-term effect on both currency and payments systems, but these currencies are currently in their infancy. There are many unanswered questions about their viability, as well as the potential of digital currencies to be a disruptive technology.

The large number of introduced digital currencies, and their mixed success provides grounds to investigate the drivers of adoption.

In a previous paper,[1] we examined changes over time in the exchange rate data among cryptocurrencies. Our data suggest that a winner-take-all effect is dominant early in the market: During this period, when Bitcoin became more valuable against the U.S. dollar, it also became more valuable against other cryptocurrencies. This period is consistent with ``winner-take-all'' dynamics. This trend however was reversed later in the market. We would like to learn more about what caused this trend reversal. It may also provide lessons to other markets with network effects.

Objectives and Expected Significance of the Research

In this project, we will examine what factors are associated with the success (or failure) of different crypto-currencies. This will involve measuring important aspects of the transition in media markets, organizational change due to increasing digitization, and the role of digitization in innovation, entrepreneurship and productivity.

While Bitcoin is accepted for payment by some merchants, other cryptocurrencies are only occasionally accepted by merchants. Hence, we cannot measure success by the number of merchants accepting the coin. Thus, we will measure success by both trade volumes and the

[1] Given the two page length, we do not provide a literature search. In general, there are very few economic papers about cryptocurrencies.

number of exchanges that trade the coin. In this sense, multiple coins may be successful at the same time.

Since most cryptocurrencies are based on the Bitcoin protocol, there are several standard features such as:

- How many coins will be issued? Is the number fixed?
- How often is a new blockchain created?
- Are coins issued based on "Proof of work (i.e., mining") or proof of stake/effort in the project?
- User fees
- Privacy features

These (fixed effect) characteristics differentiate the products. Other fixed effect characteristics include (1) the date of introduction and (2) whether the currency was the first to introduce an innovative protocol - (Coins with innovative protocols are available at https://en.bitcoin.it/wiki/Comparison_of_cryptocurrencies)

Data are also available on characteristics that change over time including the daily price and the percent of total supply in circulation at each point in time.

At the first stage, we will simply calculate the raw correlations in the data to examine whether "success" (as measured by daily trade volume and the number of exchanges where the currency is traded) is correlated with observable characteristics.

The trade data will enable us to examine how the coin traded in the early period of its existence. Are the first few weeks/months indicative of success six months after the introduction? For example, is it true that "if the coin did not take off within several weeks of introduction, it won't take off at all?" [2]

We will then examine coins that failed, i.e., no longer are traded. How quickly are they failing? What is the difference between failing early and failing late? (e.g., individual design issues vs. ecosystem failure). Is failure correlated with any of the observed characteristics?

Data

All the data described above are publicly available online from sites including http://www.cryptocoincharts.info/. We have already successfully downloaded most of the data.

Research Output

Deliverables come in two forms: an academic publication and a public database that we will make available for other researchers.

[2] Such a result would support the exponential growth argument that typically accompanies settings with network effects.