

Abstract

Even though it was introduced in 2009, the digital currency Bitcoin caught the interest of the mainstream media only in 2012. 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. Digital currencies have the potential to compete against other online payment methods such as credit/debit cards and PayPal. 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.

Current developments within the Bitcoin ecosystem, as well as competition with other digital currencies, may have an important impact on the future success of this technology. We focus on decentralized digital currencies that use cryptography, called cryptocurrencies. In this paper, we analyze how network effects affect competition in the nascent cryptocurrency market. We do so by examining the changes over time in exchange rate (price) data among cryptocurrencies.

We find that early in the market as Bitcoin becomes more valuable (against the USD), other crypto-currencies become less valuable against Bitcoin. This trend is reversed in the later period. Some of the other crypto-currencies lost most or all of their value. On the other hand, the values of some of the successful currencies increased in price against the USD, and at the faster rate than Bitcoin. The data in the latter period are consistent with the use of crypto-currencies as financial assets (popularized by Bitcoin), and not consistent with winner-take-all" dynamics.