

Hard Forks: the needed innovation to cryptocurrency systems?

Bachelor thesis

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Abstract

Some years after its emerge, Bitcoin and, in the meanwhile other cryptocurrencies, gained remarkable adaption. The adaption, however, brought different needs and scaling problems with it, resulting in disharmony over technical specifications of a particular cryptocurrency. The disagreement in a communities went so far that one fraction decides to establish their own, new cryptocurrency from the previous one, doing a hard fork. This work investigates selected hard forks as possible solutions to typical cryptocurrency problems, meaning that the innovation's content is not necessarily only valid for the particular cryptocurrency. To illustrate the scalability, and centralization problem I examined Bitcoin as a representative, and the importance of an unimpeachable blockchain is shown by the case of Ethereum. Monero and Dash are subject to the ASIC difficulty. Besides the impeachability of the blockchain, each problem required quantitative data for two reasons. First, to give a better expression of the issues and secondly to conclude whether these hard forks succeeded. Based on the used data sample the Bitcoin Cash hard fork offers indeed more capacity in terms of transactions per time but the transaction costs are still not persistent. For the Bitcoin Gold hard fork, which aims to reestablish the decentral mining, I could not find any evidences against their claim. However, in presence of assumed rational ASIC mining hardware designer, any cryptocurrency with a significant market share can be a target. Typical result is an impact on the number of miners and their relative mining power due to economics of scales. Bitcoin provides evidence for this hypothesis. Another field of use of hard forks, namely to prevent mining takeover by ASICs. Unlike Dash, Monero defended itself against the ASIC mining hardware by doing a hard fork. I conclude that hard forks are an inevitable instrument which provides the cryptocurrency system with flexibility. This allows the cryptocurrency to adapt over time to technological progress and the changing needs of its users.