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What is Stablecoin?: A Survey on Its Mechanism and Potential as Decentralized Payment Systems

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Abstract

Our study provides a survey on how existing *stablecoins*—cryptocurrencies aiming at price stabilization—peg their value to other assets, from the perspective of *Decentralized Payment Systems* (DPSs). This attempt is important because there has been no preceding surveys focusing on the stablecoin as DPSs, i.e., the one aiming at not only price stabilization but also decentralization. For clarity, we first classified existing stablecoins into four types according to their collaterals (fiat, commodity, crypto, and non-collateralized) and pointed out the high potential of non-collateralized stablecoins as DPSs; then, we further classified existing non-collateralized stablecoins into two types according to their intervention layers (protocol, application) and confirmed details of their representative mechanisms. Utilizing concepts such as *Quantity Theory of Money (QTM)*, *Tobin tax*, and *speculative attack*, our survey revealed the status quo where, despite the high potential of non-collateralized stablecoins, they have no standard mechanism to achieve the stablecoin for practical DPSs.

Keywords: cryptocurrency, decentralized payment system, stablecoin, survey paper

1 Introduction

Since Nakamoto [1] first proposed their theoretical concept, a large variety of *cryptocurrencies*[1] have been issued and actively traded online. After hitting a high of almost $20,000 for one bitcoin in December 2017 [5], the total market capitalization of cryptocurrencies reached $796 billion [6]—equivalent to second place in the world ranking of companies by market capitalization at that time, right after Apple Inc.'s $911 billion [7].

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[1]The term cryptocurrency has a number of definitions, such as "any form of currency that only exists digitally, that usually has no central issuing or regulating authority but instead uses a decentralized system to record transactions and manage the issuance of new units, and that relies on cryptography to prevent counterfeiting and fraudulent transactions" [2] and "A medium of exchange that functions like money (in that it can be exchanged for goods and services) but, unlike traditional currency, is untethered to, and independent from, national borders, central banks, sovereigns, or fiats" [3]. See Houben and Snyers [4] for other legal definitions.

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