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Are Virtual “Currencies” Likely to Succeed?

Daniel L Thornton, *Vice President and Economic Adviser*

Virtual currencies, such as Bitcoin, represent an attempt to accomplish what only government-issued currencies and some commodities have historically been able to do—reduce transactions costs by becoming a generally accepted method of guaranteeing final settlement for the purchase of goods and services. This essay discusses the role that government-issued currencies and commodity monies have played in achieving final settlement. I then consider whether virtual currencies are likely to succeed.

The process of exchange is central to economic activity. For example, you might exchange something that you have but don't want for something you want but don't have; more commonly, persons exchange their labor for the goods and services they wish to consume. One method of exchange is barter—finding someone who has what you want and wants what you have. While barter achieves *final settlement*—the exchange of the commodity you have for the commodity you want—it is extremely inefficient for reasons that are well known. For example, it would be very difficult to exchange your labor for all of the commodities that you consume.¹ Consequently, it is not surprising that money arose to facilitate trade. As an asset generally accepted in exchange, money is an effective method of achieving final settlement: You simply exchange the commodity that you have (including labor) for money and then exchange the money for the desired commodities. It is also not surprising that the first monies were commodity monies (e.g., gold and silver): To be money, the commodity must be something that is generally desired so that persons accepting it are confident they will be able to trade it for the commodities they desire.

To enhance the general acceptability of government-issued money, governments typically declare their money to be legal tender—so-called fiat monies. Governments found other ways to insure the value of their fiat currencies, so the commodity backing was eliminated; fiat money became paper currency with no intrinsic value. This gave rise to considerable seigniorage (which is the difference between the money's value in exchange and its cost of pro-

duction) because fiat money's value in exchange is large relative to its costs of production.²

There is seigniorage associated with virtual currencies as well, which goes to the private money producers instead of a government. In the case of Bitcoin, the seigniorage goes to the “miners” who use computer technology to produce new coins. Indeed, seigniorage provides the incentive to produce the virtual currency. Because the total quantity of Bitcoin is capped at 21 million, the total seigniorage is finite. Consequently, seigniorage will be exhausted when the amount of coins reaches this limit.

The continued use of a currency depends on the stability of its value and the existence of alternatives for achieving final settlement.

For any currency to be an effective method of final settlement—virtual currencies included—there must be an expectation that it will have a long life, conceptually infinite. In the case of government fiat money, the seigniorage typically goes into general revenue and there is an implicit promise that the government will maintain the stock of currency indefinitely. In the case of virtual currencies, there is essentially no cost associated with maintaining the stock; however, there will be costs associated with operating the network associated with making transactions. Where the seigniorage goes and how it is used depends on how the virtual currency is structured. In the case of Bitcoin, the seigniorage goes to the currency producers and therefore cannot be used to maintain the network for making final settlement transactions. Bitcoin users will have to pay a fee to achieve final settlement. Of course, the seigniorage can be allocated in a variety of ways, including the possibility that it is used to maintain the network indefinitely. For example, the seigniorage associated with the “production” of coins could be allocated to purchase a fund of income-

generating assets, which could be used to pay the expenses associated with operating the network. As long as the annual income from the fund is greater than or equal to annual operating expenses, seigniorage could be used to maintain the network indefinitely.

The continued use of a currency also depends on both the stability of its value and the existence of alternative methods of achieving final settlement.³ Other things equal, the less stable the value, the less useful the currency will be for achieving final settlement. Also, the more close substitutes there are for achieving final settlement, the less likely its continued use will be. For example, post-World War I Germany ran a hyperinflation that significantly reduced the usefulness of the mark as a means of exchange. Despite its rapid decline in value, for a period of time (until the Allies secured reparations and replaced the old inflated marks with new marks) the old mark continued to be used as money because it remained the most efficient means of achieving final settlement for many transactions. (There were relatively few substitutes available.) Most countries have turned the job of maintaining the value of fiat money over to the central bank. Today, unstable value in a domestic currency causes many transactions to be carried out in another currency whose value is more stable (for example, countries may “dollarize”). Hence, the continued use of a currency depends on the existence of close substitutes.

What do these requirements mean for the continued use (and success) of virtual currencies? Whether the value of virtual currencies can remain stable is an open question; however, the dollar value of Bitcoin has fluctuated considerably. The fact that the total supply of virtual currencies is finite means that once the limit is reached, the virtual currency’s value will increase with an increase in demand for it. This could lead to speculation, which would make its price more variable and, hence, make it less useful as a means of final settlement.

Also, there is a large and growing number of virtual currencies that could be close substitutes for each other. Hence, it is difficult to know whether any virtual currency can become dominant. Of course, there are other substitutes for the function that virtual currencies perform, which might be more troublesome for their continued use. For example, third parties could accept promises to be paid in government currencies for guaranteeing final settlement at the point of transaction. Indeed, this is what credit cards do. This could be a death knell for virtual currencies if the transactions cost is competitive with that of virtual currencies and the government currency’s value is more stable. As with any innovation, it is difficult to predict what will ultimately happen. However, I doubt that virtual currencies will be used to provide final settlement for more than a small fraction of global transactions. Indeed, I am skeptical of their long-run viability. ■

NOTES

¹ For example, see Daniel L. Thornton. “Money in a Theory of Exchange,” *Federal Reserve Bank of St. Louis Review*, January/February 2000, 82(1), pp. 35-60.

² This is nomenclature. When a company produces a good and sells it for more than it costs to produce, we call this profit—not seigniorage. Seigniorage is the term for the “profit” associated with the production of money. (If one purchases an asset and sells it for more than they purchased it for, they might say they made a “profit”; however, economists call that a “capital gain.” If the asset is sold for less than the purchase price, it is called a capital loss.)

³ This is enhanced because the government dictates that the fiat money can be used to settle all debts, public and private, i.e., declares the fiat money to be *legal tender*.