

Comments on VeriCoin from an economist

My background

I am a lecturer (assistant professor) in economics at the University of Surrey in the UK. My PhD was obtained from the University of Oxford. In my research, I focus on dynamic macroeconomics, with papers on topics including medium frequency cycles, solution methods, macroeconomic learning, bank balance sheets and the transmission of monetary policy in heterogeneous agent models.

Having been impressed with the work done by the VeriCoin team, I recently sent a few comments to Patrick Nosker. Patrick has asked me to expand on these initial comments, with particular reference to the dynamic interest rate.

General comments

A currency is valuable today just in case people think they will be able to buy something with it tomorrow. Creating expectations of future value is thus crucial for a new currency. From the outside, it appears that the VeriCoin team has worked hard to achieve this along two distinct fronts.

Firstly, the VeriCoin team have aggressively targeted their coin towards the markets in which crypto-currencies show most promise, namely those in developing countries, those for which anonymity is desirable, and those in which Bitcoin is already established. To assist the spread of VeriCoin in developing countries, which lack the infrastructure for conventional payment networks, they introduced an SMS wallet. Given that developing countries often possess extremely unstable currencies, it is in these countries in which the widespread take-up of a crypto-currency could be most economically beneficial. To assist in the take-up of VeriCoin in markets in which state-surveillance is a concern, they introduced a novel algorithm for anonymising transactions. Finally, they introduced an automated system for using VeriCoins to pay for items listed in Bitcoins, opening up all existing Bitcoin markets to VeriCoin users. Given that VeriCoins can now be purchased without leaving the wallet, this makes it easier to use VeriCoins to buy things priced in Bitcoins than it is to use Bitcoins. All of this should lead to expectations of high future take-up, and thus to expectations of high future value.

Secondly, the VeriCoin team have vigorously engaged with the community via social media, and with the wider world via the hiring of a PR company. This has both attracted new investors, and signalled that the future value will likely be higher to existing investors, encouraging them to hold. VeriCoin's dynamic interest (an innovation of VeriCoin) has introduced a further signalling channel that I discuss at greater length in the next section.

VeriCoin's dynamic interest

VeriCoin recently experienced an event that would have been devastating for any other currency, with the stealing of a leading exchange's VeriCoin balance. It seems there are several reasons why this did not trigger a crash. Firstly, the developers intervened very quickly to reverse the theft, something for which they ought to be commended. Secondly, with trade closed on the exchange in question, there was a limit to the number of VeriCoin that could be panic-sold. However, for any other coin, I expect these two factors alone would not have been sufficient to prevent a crash.

VeriCoin survived where others would not have because the dynamic interest system provided a mechanism for investors to track the behaviour of other investors, before any sales were made. In order to sell VeriCoins, investors must first move them from their wallets, to the exchange. However, such a move would reduce the number of VeriCoins currently staking, and hence produce a noticeable drop in interest rates, given the dynamic interest system. Thus, the dynamic interest system alerts investors to the possibility of a crash even

before any panic sales take place. But if investors know they will be notified prior to a crash occurring, through the dynamic interest system, then investors have no incentive to move their coins to the exchange now, particularly given VeriCoin's fast transactions.

Another way of seeing this is as follows. For older Proof-of-Stake coins, with slow transactions, and low, fixed interest, if you are at all concerned about the possibility of a crash, then it makes sense to have your money in the exchange, and your finger on the "sell" trigger, ready to pull at any moment. With few people staking, the security of the coin is compromised, and, in addition, it only takes one person with moderate holdings to hit "sell" for a crash to occur. With VeriCoin, investors do not need to have their finger on the "sell" trigger at all times, because they can see that other people are not nervous enough to do this, which itself reduces how nervous they are, producing a virtuous circle of increasing confidence.

For this mechanism to work, as described, all that has to happen is for investors to receive clear signals about the number of other people currently staking. This could have been done via other channels than the interest rate, and it could have been done as well by an interest rate that declined as more people staked as one which increased. A natural question then is whether VeriCoin's increasing interest rate is a sensible set-up.

One might perhaps intuitively think that it makes sense to offer very high interest rates when no one is staking, to encourage people to begin. However, recall that paying interest on a currency is intrinsically inflationary, since the interest is newly created currency. Thus with high interest at low staking levels, low staking rates would result in falls in the value of the currency holdings of people who were not currently staking. Since low staking only occurs when people are already very nervous, this drop in the value of the currency would almost certainly precipitate a crash, making the currency quite unstable. With VeriCoin however, when few people are staking, inflation is low, so the value of the coin increases, increasing confidence enough that people are prepared to take their finger off the "sell" trigger. Hence, the dynamic interest ensures the stability of the value of the currency, in much the same way as the "Taylor rules" pursued by central banks around the world.

Furthermore, like a "Taylor rule", VeriCoin's dynamic interest should help curb excess price inflation of goods denominated in VeriCoin. High price inflation generally occurs in economies when demand is high. But if demand for goods denominated in VeriCoins is relatively high, then currency is flowing around rather than sitting in wallets, hence relatively less is being staked, and so the rate of increase in the monetary base is relatively low, dampening the price inflation, and stabilising the value of VeriCoin.

In the long-run, VeriCoin's dynamic interest ensures a rate of interest of around 2%, and hence an increase in the monetary base of around 2% per year. With the velocity of money stable over long-horizons, this corresponds to an increase of around 2% per year of the nominal GDP of the VeriCoin economy. Moreover, since the real GDP of the VeriCoin economy will grow at the same rate as that of developed nations in the long-run, i.e. at 2% per year, in the long-run, the inflation rate for VeriCoin denominated goods should be roughly 0%, meaning that prices of goods priced in VeriCoin should be stable both in the short-run and the long-run.

Although the competition amongst crypto-currencies is intense at present, I have no doubt that with these features, VeriCoin will be one of those to break-through, perhaps some-day challenging Bitcoin itself.

Dr. Tom Holden

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Disclaimer

The author currently holds around 6000 VeriCoin.

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