Subject: File No. SR-CboeBZX-2019-004
From: SAM AHN

This is my 10th comment on bitcoin, made in succession to the 9th one of 03/22/19 at this proposal. All my writings about bitcoin, including this, are about intrinsic value. This one is to mathematically illustrate an error in the thought process of bitcoin supporters and major economists.

Before going further, as there are so many new articles about my 8th comment in various languages, I feel obligated to correct one error committed by me. I am not an investor of Hana Trading. While sending the 8th comment, I did not know that my computer was writing Hana somewhere in the input form. I did not type it, and I did not have a motivation to type it. Somehow, my computer made the false association automatically. Sorry for the confusion. I have never taken any position, long or short, of anything directly or indirectly related to bitcoin. I wrote purely for the public interest. The mathematical error in the thought process of both the bitcoin supporters and major economists is the following proposition:

Issuance of fiat money is calculated as addition of net assets to the economy.

They feel danger in what the Fed does now, because of the belief that paper pieces of zero value is counted as additional value, thus diluting the value of the total value of the same class of paper pieces. The truth is not like that. Issuance of a Benjamin Franklin does not add to the calculated net worth of the whole economy. The value of the paper is zero, and it is calculated as such. The equation is like this:

Equation 1: \$100 to the possessor - \$100 to the Fed = \$0.00 to the economy

What prevents Equation 1 above from being understood is the "seigniorage" explanation in most textbooks of economics. In fact, there is no seigniorage at the stage of issuing paper money or electronic money. (Now, seigniorage is recognized in the form of interest income to the issuer. You can learn it without my help.)

It is wrong that the Fed gets profit(seigniorage) of \$99.50 when they issue a Benjamin Franklin at the cost of 50 cents. Have a look at their accounting. They record 50 cents as a part of expenses, 100 bucks as an addition to debt, and no profit at all. No asset is added to the whole economy because the holder of said paper money gets 100 bucks and the Fed owes the same. It is like you issue a promissory note to somebody. A promissory note does not add any net worth to the economy. Money issuance is just an owning process.

Compare this to bitcoin. A new bitcoin is nobody's debt. Creation of a new bitcoin is calculated as an addition to the whole economy, as in the following equation.

Equation 2: 12.5 BTC – Zero BTC of anybody = 12.5 BTC added to the economy

Bitcoin supporters argue that fiat money and bitcoin are equal in that they have no intrinsic value. But the nominal value calculated in Equation 2 above is discrepant with the truth that a bitcoin has no intrinsic value.
The total value to the economy in Equation 1 above is zero, but it splits into a positive number to the possessor and a negative number to the issuer. A Federal Reserve note in your wallet does have value to YOU because it does not have any value to the whole economy (first term in Equation 3 below) and has a negative value to the FED (second term in Equation 3 below).

Equation 3: $0.00 – (- $100) = $100

Equation 3 is a transposition from Equation 1, and mathematically shows the intrinsic value of a fiat money. In general, many economists look good at complex math but poor at simple math like the three equations above. Keynes was poor at simple math, too, and his mathematical error messed up economics for many decades. The algebraic process in induction of investment multiplier, in Chapter 10 of his General Theory, really means the following:

True: In an economy where the marginal propensity to save is 10%, they need $100 million of additional income to get $10 million of additional saving.

But Keynes understood it weirdly like this:

False: In an economy where the marginal propensity to save is 10%, they will get $100 million of additional income by investing $10 million additionally, because saving always equals investment.

Milton Friedman and Hayek never understood Equation 3 above, and Keynes never understood the red truth above. Investment multiplier was false from its birth, but neither Friedman nor Hayek could crack it like the red truth above. What I mean in this paragraph is that mathematical error in the thought process can occur to anybody. It is not a shame.