TTCC[1] Quantity Equation – a Different Perspective

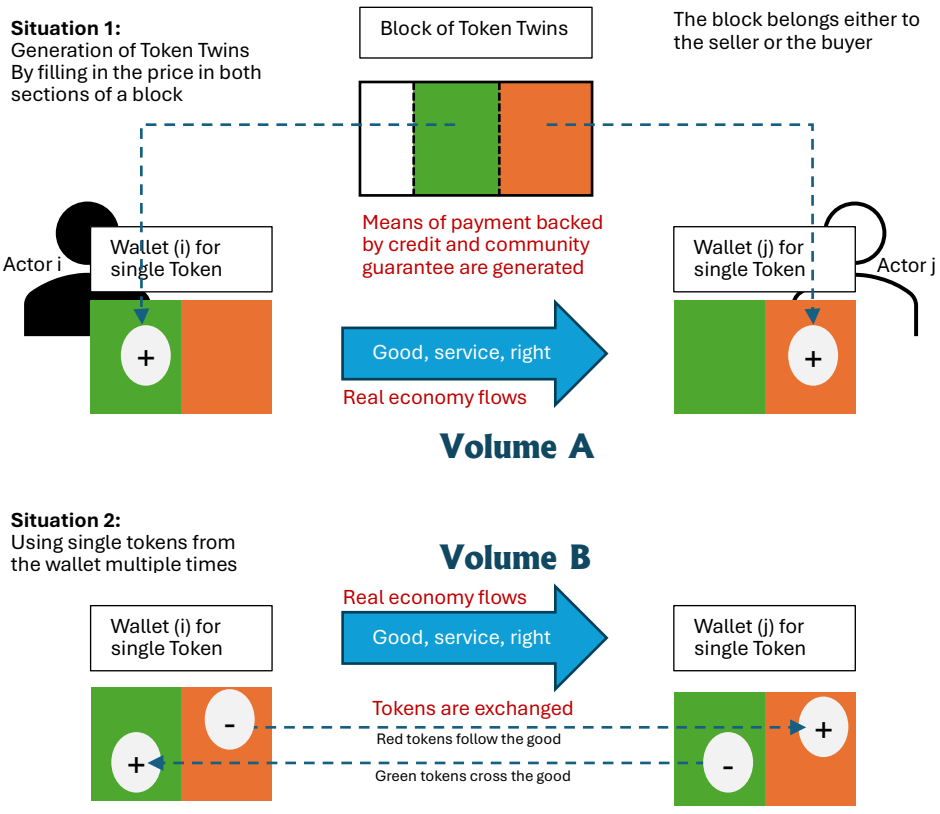
How much currency is needed to distribute a quantity of goods, services and rights – measured by their prices - to re-sellers or end-consumers?

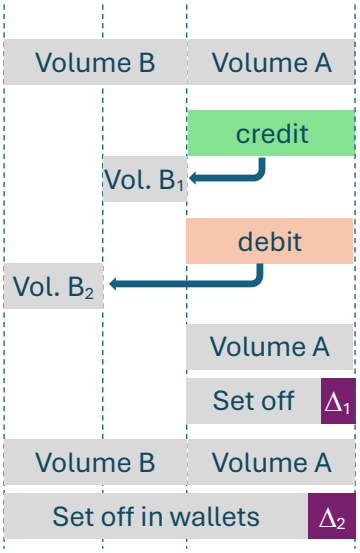
Analogue[2] TwinTokens are supplied as blocks with green and red sections that can be separated after the price has been filled in.

Volume A then is the total of prices to be paid for goods delivered, services performed and rights granted by filling in TwinTokens.

The single Tokens in the wallets then can be used by their holders to "pay" for further real economy exchanges. This can take place multiple times until the settling day is reached.

Volume B then is the total of prices to be paid for goods delivered, services performed and rights granted by exchanging single Tokens.





The total quantity of commodities exchanged on the base of credit is Volume A + Volume B

Some of the credit token are used multiple times, changing the wallets and increasing the volume of commodities exchanged.

Some of the debit token are used multiple times, changing the wallets and increasing the volume of commodities exchanged.

In a simple clearing community (*without* TwinToken) Volume A would be settled *in a central clearing system* with a minimum of currency Δ_1.

In a clearing community *with* TwinToken Volume A+B would be settled *in decentral wallets* with a minimum of currency Δ_2.
$\Delta_1 \neq \Delta_2$ is due to the fact, that the distribution pattern of the tokens changes.

Conclusion: If a clearing community can securitise its outstanding payments and use them in circulation as a temporary means of payment, the need for cash/legal tender in settling is significantly reduced.

[1] TTCC: TwinToken in a ClearingCommunity

[2] Digital TwinToken certainly will be the convenient version to use

Irving Fisher[3] introduces the concept of averaging prices and quantity of money in circulation to determine,

how much money is needed, to move a volume of commodities.
If the equation is satisfied, but all money would be in one accout / wallet, the needs of the citizens could not be satisfied.
Distribution matters.

The advantage of the multiple use of money in a given period of time is realized by assuming a “velocity”.

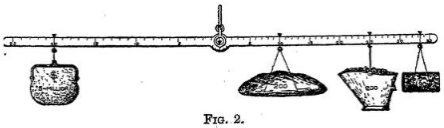


FIG. 2.

This averaging of prices is represented in Figure 3, which visualizes the fact that the average price of goods

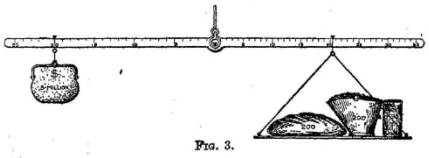
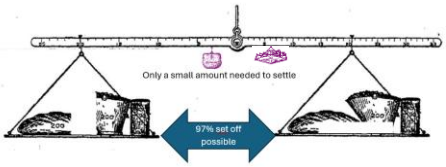


FIG. 3.

(right arm) varies directly with the quantity of money (left weight), and directly with its velocity of circulation

Since the distribution is not included, mutual set off is not taken into account. The weighting pan on the right hand side can be, according to the distribution, re-sorted into another pan, which



Fisher introduces banks and money in ledgers without the activity of the clearing house / clearing systems.
These enable banks to process the customers payment transactions in the background with minimal use of currency to settle their resulting obligations.

It can be argued that banks disguise the advantage and demand commission from customers for payment transactions that do not take the efficiency of clearing into account in an appropriate measure.

Even if the obscuring is not fully intentional, it is time to make the benefit effective in civil society.

The analysis of the balance sheets of banks has prepared us for the inclusion of bank deposits or circulating credit in the equation of exchange. We shall still use M to express the quantity of actual money, and V to express the velocity of its circulation. Similarly, we shall now use M' to express the total deposits subject to transfer by check; and V' to express the average velocity of circulation. The total value of purchases in a year is therefore no longer to be measured by MV, but by $MV + M'V'$. The equation of exchange, therefore, becomes:—

$$MV + M'V' = \Sigma pQ = PT.^{1}$$

Let us again represent the equation of exchange by means of a mechanical picture. In Figure 4, trade,

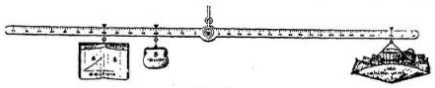


FIG. 4.

as before, is represented on the right by the weight of a miscellaneous assortment of goods; and their average price by the distance to the right from the fulcrum, or the length of the arm on which this weight hangs. Again at the left, money (M) is represented by a weight in the form of a purse, and its velocity of circulation (V) by its arm; but now we have a new weight at the left, in the form of a bank book, to represent the bank deposits (M'). The velocity of circulation (V') of these bank deposits is represented by its distance from the fulcrum or the arm at which the book hangs.

This mechanism makes clear the fact that the average price (right arm) increases with the increase of money or bank deposits and with the velocities of their circulation, and decreases with the increase in the volume of trade.

[3] Fisher, Irving (1911): The Purchasing Power of Money. https://archive.org/details/in.ernet.dli.2015.224209/page/n44/mode/1up