Fractional-Reserve Free Banking System and the Systematic Risk of Business Cycle

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The purpose of this paper aims at responding to the tenants of the 100%-reserve principle who retain the creation of fiduciary media as a violation of property rights. According to them, any creation of fiduciary media is fraudulent as fiduciary media is not fully backed by 100% commodity money. Indeed, they purposely distinguish « money certificate » or « money substitute » from « fiduciary media »:

> « If money substitutes, in turn, are defined as claims or titles to specified amounts of money (gold), Mises denotes them « money certificates », and we will refer to them here simply as money substitutes. If money substitutes (paper notes) are uncovered by money (gold), they will be referred to as fiduciary media instead »[2].

Moreover they believe that fractional-reserve banking activity necessarily leads to the distorsion of the structure of production favouring thus business cycles.

In the following sections, I shall argue that fractional-reserve banking activity is not a fraudulent activity. Within the free banking debate I do not condemn money creation activity neither do I condemn any free bank that would choose to work under 100%-reserve. I am just skeptical about the prediction expressed by the 100%-reserve tenants according to which fractional-reserve banking could not possibily be the outcome of an unhampered economy since it does not respect property rights.

Two fundamental questions oppose the 100%-reserve tenants to fractional-reserve tenants:

- from the point of view of property rights, deposit is the property of the depositor according to the 100%-reserve tenant. For that reason it is not possible to create additional property rights out of nothing;
- money is a very present good and holding money express the need for hedging against uncertainty. An increase in the demand for money may be the result of an increased uncertainty and a lower confidence in the future. Thus any creation of fiduciary media out

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[2] Cf Hans-Hermann Hope with Jörg Guido Hülsmann and Walter Block, « Against Fiduciary media », *Quaterly Journal of Austrian Economics*, vol 1, n°1 (1998), p.20.

of deposits has the opposite effect: it increases the quantity of future goods. This is the very origin of business cycle inherent to any creation of fiduciary media.

I would like to contribute to the defense of the fractional-reserve banking principle[3] by underlining what I retain to be the two flows of the 100%- reserve position:

1- the total refusal of accepting the activity of fiduciary media creation on the ground that it is a violation of property rights comes from the debate over class probability and case probability. Fiduciary media activity is unacceptable as it derives from speculation[4] .

Moreover, for the 100%-reserve tenants the quantity of money is always sufficient. Money is not needed *in se* but its services.

2- the failure to acknowledge that endemic instability identified in « money creation » is inherent to any financial activities as a consequence of uncertainty.

To argue my case in favour of fractional-reserve banking I will emphasize on the key role played by the capital in a fractional-reserve bank and on the complex effect of changes in demand for liquidity within the financial intermediation.

[3]See the debate between free bankers like George Selgin and Larry White and the tenants of the 100% reeserve banking system mainly exposed in Hülsman, J. G., "Free Banking and the Free Bankers", *The Review of Austrian Economics*, vol. 9, n°1, 1996, pp. 3-53; Selgin, G. and L. White, "In defense of Fiduciary Media", *The Review of Austrian Economics*, vol. 9, n°2, 1996, pp.83-107; Hoppe H.H. with J. G. Hülsmann and W. Block, "Against Fiduciary Media", *Quaterly Journal of Austrian Economics*, vol 1, n°1, 1998, pp. 19-50; Huerta De Soto J., "A Critical Note on Fractional-Reserve Free Banking", *Quaterly Journal of Austrian Economics*, vol 1, n°4, 1998, pp. 25-49; Cochran J.P. and S.T. Call, "The Role of Fractional-Reserve Banking and Financial Intermediation in the Money Supply Process: Keynes and the Austrians", *Quaterly Journal of Austrian Economics*, vol 1, n°3, 1998, pp; 29-40; Salin P., "Free Banking and Fractional Reserves: a Comment", *Quaterly Journal of Austrian Economics*, vol 1, n°3, 1998, pp. 61-65, Hülsman J.G., "Free Banking and Fractional Reserves: Reply to Pascal Salin", *Quaterly Journal of Austrian Economics*, vol 1, n°3, 1998, pp. 67-71.

[4]Cf Mises (von) L., *Human Action*, Ludwig von Mises Institute, Scholar's Edition, Auburn, Part I, Chapter 6, pp. 105-119, 1998; Selgin G., "Ludwig von Mises and the Case for Gold", *Cato Journal*, vol. 19, n°2, Fall 1999, pp. 259-277.

I- The Emergence of Banking Activities

I.1- « Vault » Banks providing with Money Certificates

Banks can be viewed as playing basically two roles outside of the creation[5] of inside money or « fiduciary media ». Banks play an important part in the system of payments by issuing « money certficates ». Within a monetary system that spontaneously emerged as a « commodity-based » money (especially based on gold), banks improved the efficiency of the payment settlements by offering « money certificates». Through the use of this « money-certificates », transactions became less costly and safer. In fact, "banks" in that sense are just replacing "commodity money" transactions by forms of payments like money certificates, checks, money wires…) that avoid transfert of commodity money but does not alterate the quantity; From that point "vault" banks provide customers with two services at the same time: a security service (avoiding to individuals to carry commodity money with them) and a service in processing the payment settlements. "vault" banks could further decrease the need for using commodity money by developing multilateral clearing settlements.By substituing money certificates to commodity money (gold), banks are acting as vaults respecting the 100%-reserve principle. Under this system, there is no fiduciary media creation. « Vault »-banks could specialized in improving the efficiency and safety of the system of payments by developing further sophisticated instruments of payments (like today with the development of the smart card and e-money[6]). These are just different forms of « money certificates » and it does not affect the purchasing power of the currency. It is important to note that under these circumstances banks receive a fee for providing « money substitutes » and processing transactions on the behalf of their customers. There is no risk for the customers to not getting back its « commodity-money » back unless the bank is fraudulent in its conduct of business. In this first step into the development of bank's activity, the value of the means of payments issued by the bank never exceeds the value of the commodity money held in its vault.

[5] Cf L. White, *Theory of Monetary Institutions*, Blackwell Publishers, Oxford, 1999.

[6] Cf F. Shostak, « The Electronic Money Myth », posted on *Mises Institute* page on June 2000 ; L.H. White, « The Technology Revolution and Monetary Evolution », in *The Future of Money in the Information Age* , edited by J. A. Dorn, Cato Institute, 1997, part I, chap 2, pp15-20.

I.2- Intermediation and Economies of Scope

« Vault »-banks understand that collecting information through payment settlements could be valuably used to service efficiently intermediation[7] and improve the relationship between potential lenders and potential borrowers increasing thus the flow of savings that could fund investment projects. This role is fully justified especially when the information is exclusively private in the sense that information does not circulate easily. Through managing the system of payments banks are able to get « inside information » in other words non disclosed information, that confer them with an advantage for pricing adequately loanable funds. By doing so the bank attenuates the typical conflict of interest that emerges from the agency relationship between lenders and borrowers. This conflict of interest can lead lenders to lend at a high interest rate to screen potential borrowers or to heavily monitors borrowers. By playing the intermediary the bank is offering savers to endorse the risk of default promising to pay them a fixed rate of interest during the overall maturity. That way the bank is increasing the available flow of savings ready to back investment earning an interest margin. From that point of view banks have a comparative advantage in gathering private information over individuals. Moreover given its size, the bank can profit from diversification to reduce its exposition to risk more than an individual could actually achieve.

To summarize a bank could independently run an activity in managing the system of payments or an activity of intermediation eventhough the bank can benefit from economies of scope by combining both.

[7] This is not say that these "vault" banks need necessarily to undertake the activity of intermediation. These institutions could choose just to specialize in processing payments.

II- Fractional-Reserve Banking Activity

II.1- Stability of Deposits and Creation of Fiduciary Media

For the moment the bank does not create any «fiduciary media». The creation of «fiduciary media» starts as bankers notice that «commodity money» deposited within the bank's vault demonstrates a certain stability. In other words, even if depositors are making transactions using their checking-account, the balance of these transactions compensate among them to a certain extent. As a result, part of the «commodity money» deposited remains «idle» in the vault. The stability of this amount of «commodity money» can be estimated for different terms. This fact is the empirical illustration of the law of large numbers and holds as long as the behaviour of depositors are supposed to be independant[8].

As the bank starts to lend out money creating «fiduciary media» out of deposit accounts, the terms of the contract between the bank and depositors need to be rewritten. In fact, the economic role and thus the legal status of deposits need to change compare to the situation in which the bank just provided its customers with the service of «money substitution» and the management of deposit accounts.[9] As the bank starts to be willing to lend out part of the deposits kept in its vaults, the relationship between the bank and its customer change radically .

In fact, deposits become now an input for the fractional-reserve banks. *Di fatto* the customers are exposed to illiquidity risk and from the property rights stand point, the bank must inform its customers of that change. As a consequence, deposit-holders are rewarded by an interest rate given that they accept to face the illiquidity risk[10] that did not exist before. As underlined previously the business of creating «fiduciary media» rely heavily on the assumption that deposit-holders behave independently. The customers need to be fully aware of the fact that because of fractional-reserves, unforseeable circumstances may provoke situations in which

[8] When that crucial assumption does not hold anymore, the bank can not reimburse each depositor given that the bank works under the fractional-reserve principle, situation that further fuels the state of panic (overreaction of the depositors) according to opponents of fractional-reserve banking: this is the so-called bank run. This inherent instability that characterizes fractional-reserve banks is another strong limit of that activity according to the 100- reserve tenants.

[9] I intentionnaly leave out of the discussion for the moment the role of the bank as an intermediary on the loanable funds market as it is not essential for understanding the transformation of the economic activity of «vault» banks into fractional reserve banks.

[10] I fully aware that that terminology of risk won't suit the 100%-reserve tenants given that the term risk is reserved for insurable situation. The term «uncertainty» will be more adequate.

banks can not honour their promise of restituting on demand deposits into « commodity-money ».

Why should customers accept this new situation ?

The advantage of fractional-reserve banking rests on an easier access to funds that can be borrowed. A major flow of « savings » is poured into the banking system that acts as an intermediary between lenders and borrowers and as a result it increases the financing of investment projects. This is comparable to the impact of the development of activities of intermediation. Before intermediation takes place, entrepreneurs were mainly self-financing their activity. As the activity of intermediation starts to develop, the amount of savings that flow into the laonable funds market increases. As a consequence, intermediation, like creation of fiduciary media is not neutral on interest rate.

Depending on the risk-preference of individuals, they may o may not accept fractional-reserve banking principle. It is the reason why it is not possible to predict the outcome if « free banking » was to be authorized by the gouvernment authorities .

II.2- Fractional-Reserve and the Need for Capital

For the sake of the demonstration I assume that fractional-reserve bank does exist under the free banking regime. As the bank starts to create « fiduciary media », they need at the same time to rewrite the contract with its customers. Moreover fractional-reserve banking activity not only expose their customers to temporary illiquidity as they are not able to withdraw their commodity money deposits at the same time. Customers are further expose to the risk of bankruptcy due to serious illiquidity. In fact, as underlined at the beginning, when banks just perform their role processing transactions on the behalf of their customers, as they are just « creating » « money-substitutes », they need capital like for any kind of business in order to enforce responsability as banks are offering services. In other words, the nature of the bank activity does not require any specific amount of capital. On the contrary, as banks transform into fractional-reserve, they do need to hold capital as a cushion for depositors to prevent any risk of illiquidity of transforming into risk of insolvency. Indeed, as fractional-reserve banks hold more capital, they reduce their risk of insolvency due to illiquidity problems. Demonstrating a high capital ratio allow illiquid banks to borrow easily. In other words, a fractional-reserve bank could not work without any capital contrary to a 100%-reserve bank. Holding capital for a fractional-reserve bank is a condition for existing. Moreover the very nature of bank capital helps in distinguishing between deposit-taking banks and mutual funds.

Since in the case of mutual funds depositors are fully aware[11] of the potential loss of value they risk to face, mutual funds do not require any specific amount of capital for their activity sake. These institutions do not need to provide for any request of liquidity, their liabilities adjusting continuously to the market value of assets.

In explaining the specificity of deposit-taking business, the notion of liquidity and its interpretation seems to be at the centre of the debate between 100%-reserve tenents and fractional -reserve tenents as I will explore later on.

Refering to the property right question discussed in «Against Fiduciary Media », H.H. Hoppe *and a*l argue :

> « *Why* is it that there can – and should – be money substitutes backed by assets other than money ? For the same reason that there can and should be no car or house titles backed by assets other than cars or houses, that there can and should be no equity titles backed by assets other than equity, and that there can and should be no assets – money, equity, or debt – owned (backed) by more than one person at a time. Titles to money are – and should be – backed by money in the same way and for the same reason as titles to cars are and should be backed by cars »[12].

In fact, holding a property right on a good means that you hold an unconditional claim at any time on that good. But imagine for the sake of the example you own a car that you park everyday for security reason in a parking slot. The parking keeper tells you he noticed that on average most of the cars parked in the morning just remain parked on the same slot during the entire working day preventing other cars from parking. He then offers you to lend for a certain rental price your vehicle meanwhile you are not using it because he also noticed that some individuals left without a car may be willing to rent one for few hours. If you accept you are still the owner of your car but by renting it during your working day in exchange of a payment you voluntarily expose your self to the risk of not being able to use it in case of emergency. In fact, one day more people than usual have urgency to use their car but all of them can not be satisfied because the number of cars remained parked is insufficient. At that point it is crucial for the parking keeper to be able to offer its own cars (its physical capital) in order to satisfy its customers. In addition, having lent the car to someone else will give course to actions that wouldn't have taken place otherwise as lending deposits may give the opportunity to entrepreneurs to undertake project they would not have undertaken otherwise. This hypothetical renting business like fractional-reserve banking relies heavily on the

[11] Depositors are clearly exposed to the change in the market value of their funds eventhough in the case of money market funds depositors may actually believe that their probability of loss is almost 0.

[12] Cf Hoppe.H. H. *and al, op. cit*. p.25.

assumption that no one will need at the same time his car or less dramatically that there is no excessive request (illiquidity problem for the bank). In fact, it is here that capital is important. As a bank needs to provide with capital in order to lower the strength of an illiquidity situation, the parking keeper needs to dispose of personal cars to remedy to any emergency situation.

II.3- Law of Large Numbers and the Concepts of Risk and Uncertainty

According to me, the profound disagreement that oppose the tenants of 100%- reserve to the fractional-reserve tenants is to be found in the divergence of treatment of the concepts of risk and uncertainty. The clear distinction between risk and uncertainty is clairly expressed in Mises[13] .

The concept of risk can be approached by the concept of class probability meanwhile uncertainty belongs to case probability. This is a very important point given that it justifies the condemnation of the creation of « fiduciary media » as illegal.

Given the definition of class and case probability, class probability can not be applied to the sphere of human action given its uniqueness and its unpredictability. For that reason human action can not be embodied in equations and can not be measured. Only insurance activities can be evaluated through class probability and for that reason any insurable activity can be named risky activity. In fact, what distinguishes risk from uncertainty is that risk can be insured but not uncertainty.

Applied to the activity of fiduciary media creation, it is easy to understand that this activity falls under the case probability category as the outcome of this activity depends on individual decisions. The stability of deposits as is an empirical observation, a result of the law of large numbers. But by any means can a bank predict the exact maturity of its deposits callable on demand. As a consequence, the tenants of 100%- reserve sustain that it is fraudulent for a bank to rely on probability to deteremine the amount of deposit it could out. This is a point that comes up when predictibility is concerned. Trying to use probability to measure individuals behaviour is very hazardous and is mere speculation.

There is no doubt that the decisional process of individuals can not be approached by class probability in order to derive general rules about their behaviour. But neither could we deny that entrepreneurs and managers in order to take any decision need to transform to some extent case probability in class probability. In order to undertake an activity and conduct it

[13] Cf Mises, *Human Action, op.cit*,pp.

succesfully, they need to figure out the expected demand and or more correctly they need to figure out what they think the behaviour of their customers and competitors would be in the next future. They know that this representation may not be the «true » one but they have no other mean to approach uncertainty. An entrepreneur can not undertake an activity if he starts from the hypothesis that everything is changing constantly. An entrepreneur or a manager needs to beleive in some kind of stability at least for a given period of time in order to be willing to start a process of production … and the fractional-reserve banker as well. In his daily activity, even as a pure intermediary, the banker needs to estimate the maturity of the savings deposited in order to lend them at the proper maturity. Even in the financial markets the change in the decision of savers regarding the maturity of savings affects producers and may provoke business cycle because the time structure of production does not represent anymore the one currently desired by consumers.

To conclude on this issue of measurement of the economic activity, it is rather difficult to deny that in order to undertake any economic activity entrepreneurs as well as managers implicitly or explicitly assume a certain stability of consumers and competitors behaviour. Stating this does not mean that it is possible for external observers to replicate the procedure and infer any general law at the aggregate level .

III- Change in Time-preferences and Mismatches

III.1- Increasing Uncertainty and the Demand for Money

As underlined earlier, any creation of fiduciary media - or short-term liabilities that are fully covered by reserves in commodity moey- is not a violation of property rights as long as commercial banks hold capital. In fact the very economic justification of capital in the bank's balance sheet is to provide a cushion for depositors against illiquidity risk involved in the activity of fiduciary media creation. In a 100% reserve banking system - banks acting only as vaults - the illiquidity risk does not exist as in a system of mutual funds the need for capital does not exist, the value of liabilities being automatically adjusted to the market value of assets. This dispute over the violation of property rights may come from a different analysis of money as a present good and a different economic interpretation of a rise in the demand for money. According to tenants of the 100% reserve, an increasing demand for money is a sign of an increasing uncertainty and thus an increasing demand for present good relatively to future good. Issuing fiduciary media as a response would be a inappropriate answer and would lead to distorsions of the structure of production provoking a business cycle. But within the fractional-reserve banking system any increase in the demand for fiduciary media on the contrary reflects a major confidence in the banking institutions and not a greater uncertainty. Under these circumstances, a larger issue of fiduciary media won't distort the structure of production. In fact within the fractional-reserve banking theory an increased in the demand for fiduciary media is not interpreted the same way as an increased demand for the commodity money – or outside money[14]. In case of major uncertainty, individuals tend to demand more commodity money instead of fiduciary media. As a result, they will drain reserves in commodity money out of the banks vaults thus will have affect negatively the capacity of banks to sustain its lending policy. An increasing uncertainty reflects on the stability of the reserves in commodity money. On the contrary, an increased confidence in the banking system is expressed through a major stability of the reserves in commodity money which can allow banks to increase their lending, increasing for example the quantity of fiduciary media issued. So it is not true that under fractional-reserve, an increasing demand for money following a major uncertainty leads to an increased funding of investment projects.

[14] Cf Selgin,. G., *op.cit*, 1988 and White, L., *op. cit*, 1984.

Issuing fiduciary media surely involves additional risk of misinterpretation as it increases indirect finance but the kind of error a fractional-reserve bank may provoke is not fundamentally so different from the kind of error a mere financial intermediary may provoke too. Indeed when banks act as financial intermediaries facilitating the transfert of saving to finance investment, these institutions have not only an impact on the interest rate but they also carry the risk of mismatching their balance sheet (discrepancy between the maturity of assets and liabilities) that can provoke a business cycle. As a result, the activity of financial intermediation may add to the risk of distorsion of the structure of production. In order to avoid any source of distorsion the tenants of 100%-reserve banks should condemn not only fractional-reserve banks but also any kind of financial intermediation.

Money may be a present good. You hold money because you may want to acquire a present good but you haven't done it yet. In the moment you are holding money you are not currently spending in present goods. This is what already argued by Selgin and White[15] when they underlined that there is no difference between time deposits and saving accounts except a difference of maturity. In the case of saving accounts the banker may be more able to the maturity but it does mean that it knows it for sure. He can even be confronted with situations of mismatch between its assets and its liabilities. Situations of mismatch may look similar to some extent to money creation as we will see.

[15] Cf Selgin, G. and L. White, *op.cit*, 1996.

III.2-Time-preferences and demand for liquidity

100%- reserve tenants sustain the idea according to which any money creation lower the money interest rate and in particular lower the interest rate under its natural level which means that systematically it leads to an « overinvestment » (or « malinvestment »). Mises is not very clear regarding that matter in *On the Manipulation of Money and Credit* :

> « Nevertheless, establishing the existence of « forced savings » does not mean that bank expansion of circulation credit does not lead to the initiation of more roundabout production than available capabilities would warrant. To prove that, one must be able to show that the banks are only in a position to depress the « money interest rate » and expand the issue of fiduciary media to the extent that the « natural interest rate » declines as a result of « forced savings ». This assumption is simply absurd and there is no point in arguing further »[16].

As we've seen before this happens because any rise in demand for money is an increased in present good (major uncertainty) and through money creation this demand for more additional money is followed by an increase in loans granted by the institutions. A rise in banking loans mean on the contrary a rise in the demand for future goods. This situation provokes then a distorsion of time-preferences since producers receive an incentive to produce more goods in the future meanwhile individuals increase their demand for money . This distorsion is inherent to the process of money creation since the property rights on future do not increase in the first place.

In fact what distinguishes money creation from intermediation is that in the process of money creation two individuals dispose of a certain purchasing power at the same time even if one of the two individuals borrowed his funds indirectly from the other individuals.

> « Rather, any contractual agreement that involves presenting two different individuals as simultaneous owners of the same thing (or alternatively, the same thing as simultaneously owned by more than one person) is objectively false and fraudulent. Yet precisely, is what a fractional-reserve agreement between bank and customer involves ».[17]

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[16] Cf Ludwig (von) Mises, *On the Manipulation of Money and Credit*, Free Market Books, New York, 1978, p.126.

[17] Cf Hans-Hermann Hope with Jörg Guido Hülsmann and Walter Block, « Against Fiduciary media », *Quaterly Journal of Austrian Economics*, vol 1, n°1 (1998), pp. 21-22.

On the contrary, in case of pure intermediation, an individual (usually called saver or investor) transfer his purchasing power to a firm that needs to fund its development. In this last case, because of the transfert of purchasing power there is no money creation. That way the quantity of property rights on present and future goods is not altered . This situation can not lead to any distorsion of the time-preference between consumers and firms. The same scheme applies to the financial markets, the only difference rests on the fact that the relationship between savers and borrowers is direct. So the development of finance can not lead to any distorsion of time-preferences.

Here lies a strong opposition between the 100%-reserve tenants and the fractional-reserves tenants. According to me, this strong opposition is to be identifed in the treatment of the concept of liquidity. Infact the answer of fractional-reserve tenants (especially for Selgin and White[18]) to the attack from the 100%-reserve tenants consists in underlying the fact that it does not exist such a strong difference between deposit that leads to money creation and the other type of deposits managed by the bank in their function of intermediary. The difference is a question of maturity. In fact deposits are characterized by an absence of maturity and given that in the peculiar case of deposit-taking institutions (and contrary to mutual funds) the value of its liabilities is fixed but without maturity. In case of saving accounts the maturity may be more predictable but nonetheless can not correspond exactly to the maturity of assets. There is no banker who could match perfectly and at any time the maturity of his assets and liabilities. This is possibile only in the case of internal fundings. In fact, when the entrepreneur is exclusively relying on internal funds, he is providing himself with the fundings for its development and transfert his purchasing power for the sake of his activity development. In that case liabilities and assets maturity match perfectly. As soon as the entrepeneur starts to rely on external funds for sustaining the development of his activity, the exact correspondence between liabilities and assets maturity can not perfectly match. In fact here comes the concept of liquidity and the role played by banks and secondary markets in offering liquidity services but as they provide for this service they can favour the distorsion of time-preferences. In fact when a bank (without speaking of money creation) backs its long-term lending policy on savings account, this does not prevent situation in which the term on which the bank lend proves to be for example longer that the actual term of savings account. This happen for the very reason that there is no obligation for the saver to engage in a given term. It would be too much constraining for him. He would need to be sure of his future to be

[18] Cf Selgin and White, *op.cit*, 1996.

able to commit himself to such a long term engagement. Again he might do it for himself otherwise the saver would tend to lend on a rather short term maturity schedule. From that point of view there is no strong difference between saving deposits and checking deposit except for the fact that checking deposit bear an even shorter maturity on demand so even more difficult to predict and for that reason more volatile.

The same principle applies to secondary finanial markets. An investor would not be interested in holding an assets for his entire maturity. Such a commitment would be too much binding given uncertainty. The large development of financial markets rests on the sucessful contemporaneous development of the secondary markets. Indeed investors do not hesitate to hold a bond or a share because he knows that in case he needs due to unforseeable circumstances to transform these assets in liquidity he would be able to do it through the secondary markets.

Does this mean that any change in liquidity should be accompanied by an equal change in the funds invested in order to adjust any mismatch ? Or does it mean that any change in liquidity means necessairily a change in time-preference ?

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