



Munich Personal RePEc Archive

**The Legitimacy of Loan Maturity
Mismatching: A Risky, But Not
Fraudulent, Undertaking**

Bagus, Philipp and Howden, David

2009

Online at <https://mpra.ub.uni-muenchen.de/79589/>
MPRA Paper No. 79589, posted 19 Jun 2017 14:34 UTC

This article can be cited as: Bagus, Philipp, and David Howden. 2009. "The Legitimacy of Loan Maturity Mismatching: A Risky, But Not Fraudulent, Undertaking." *The Journal of Business Ethics* 90(3): 399-406.

It can be found at: <http://www.springerlink.com/content/pn81764318674wv0/>

**The Legitimacy of Loan Maturity Mismatching:
A Risky, But Not Fraudulent, Undertaking**

Philipp Bagus
Universidad Rey Juan Carlos
Applied Economics I Department
Paseo Artilleros s/n.
Madrid, 28032, Spain
philipp.bagus@urjc.es

David Howden
St. Louis University – Madrid Campus
Department of Business and Economics
Avenida del Valle, 34
Madrid, 28003, Spain
dhowden@slu.edu

Abstract: Barnett and Block (2008) attack the heart of modern banking by claiming that the practice of borrowing short and lending long is illicit. While their claim of illegitimacy concerning fractional reserve banking can be defended, their justification lacks substance. Their claim is herein strengthened by a legal analysis of deposits and loans based on Huerta de Soto (2006). A combined legal and economic analysis shows that while lending deposits can be regarded as illicit, the maturity mismatching of loans is legitimate contrary to Barnett and Block's claim. No over-issuance of property rights is involved with this practice once the distinction between present and future goods is taken into account. However, while the practice is not illicit per se, it is greatly assisted and developed through the presence of a fractional reserve banking system, and can sometimes breed detrimental effects.

Key words: Time deposits, private property rights, fraud, maturity mismatching, fractional reserve banking

JEL category: E2, E59, P16

Introduction

In their recent article “Time Deposits, Dimensions and Fraud” Barnett and Block (2009) argue that if one accepts fractional reserve banking as fraudulent it would follow that the general practice of borrowing short and lending long should also be considered illicit. Hence, not only demand deposits would entail fraudulent activity, but the argument could also be extended to time deposits.

While the use of demand deposits as loan collateral has been criticized by several economists in the Austrian tradition,¹ Barnett and Block reach into new territory with their second, broader claim. In fact, their article could not be of greater importance in face of the current economic crisis. By asking the crucial question if borrowing short and lending long are legitimate market transactions, we find the answer conveys important implications for the modern banking system, which is largely based on the practice of maturity mismatching. In fact, we maintain that the current economic crisis was caused by entrepreneurial error surrounding such a practice, but that this practice is not fraudulent, and need not always result in detrimental errors.

In their article Barnett and Block start with two additional assumptions concerning fractional reserve banking besides that it constitutes an illegitimate activity. They claim that such a practice would probably not survive in a free economy and that it is economically destructive.² Barnett and Block then try to show that the first claim of illegitimacy holds true for maturity mismatching in general. However, they do not investigate if the other two claims also hold true.³ Contrary to Barnett and Block, we take on this task and argue that while maturity mismatching is not illicit, it would likely be diminished within the constraints of free-banking, and can be economically destructive when coupled with fractional reserve deposits. Consequently, we defend the thesis that borrowing short and lending long is legitimate, even if it is fraught with peril.

While Barnett and Block's claim of illegitimacy for fractional reserve bank can be defended, their justification lacks substance. Their claim can be strengthened by a legal analysis of deposits and loans which we provide via a legal analysis based on Huerta de Soto (2006). This combined legal and economic analysis shows that using demand deposits in order to grant loans is illicit. Yet, the same analysis shows that the maturity mismatching by lending intermediaries is legitimate, contrary to Barnett and Block's claim. No “over-ownership” of property titles is involved when the distinction between present and future goods is accounted for. This follows from the fact that, in contrast to a deposit, lenders give up the availability of loaned money during the full term of a loan contract.

We find that Barnett and Block ask both too much, and too little, of their findings. Too much by claiming that maturity mismatching is fundamentally fraudulent and should be treated as such. They claim too little, however, by failing to seek the answer as to why in this specific instance maturity mismatching has reaped such seemingly fraudulent results.

A legal and economic analysis of deposits and loan contracts

In order to make the argument that fractional reserve banking (i.e., using demand deposits to grant loans) is illicit while maturity mismatching based on borrowing short and lending long is licit, it is important to first investigate the differences between deposits and loans. Huerta de Soto (2006) shows that both deposit and loan contracts have a long tradition evolving from Roman law. They both can involve specific (i.e., art) or fungible goods (i.e., money). Thus, a *deposit* of a Rembrandt painting, 100 tons of wheat in a silo, or \$100 with a depositary may all be made. Similarly, a car, a gallon of olive oil, or \$100 may be *lent* to a borrower.

It is crucial to understand that there are clear legal and economic differences between the two types of contract. In a deposit contract, the depositors deposit goods with the depositary because they wish for the depositary to safe guard the goods, while retaining at all

time the availability of their use. It does not matter if the good is a painting, wheat or money. A loan contract in contrast involves the borrower relinquishing the availability of the car, olive oil or money for a specified time period. This willingness to relinquish the availability stems from generosity or in exchange for an interest payment. The differences between deposit and loan contracts have evolved spontaneously under Roman law and these differences were well known to Roman legal theorists at the time.

There are three main economic differences between monetary deposit and monetary loan contracts.

First, in the monetary *loan* contract there is an exchange of present goods for future goods. The borrower receives monetary units *now* in exchange for monetary units that will be paid back in the *future*. Yet, in the monetary *deposit* contract there is no exchange of present goods for future goods. Depositors do not give up the monetary units but hold the right to claim them whenever they wish *on demand*. A deposit with a depository institution is undertaken as it is thought to be a safer option than personally safeguarding the relevant good.⁴

Second, in the monetary loan contract the availability of the money is transferred. The lender gives up, and the borrower gains, this availability *and* use of the money until the end of the contract. In contrast, in the monetary deposit contract there is complete and continuous availability of the money for the depositor. One could even argue that the availability of the money is improved for depositors as they regard it safer under the custody of the depository, and that additional availability services may be offered (i.e., ATMs, debit cards, etc).

Third, in the loan contract interest is paid as there is an exchange of present goods for future goods.⁵ On the contrary, in the monetary deposit contract there will be no such interest paid as there is no exchange of present goods for future goods. Banks are able to pay interest on demand deposits by treating them as loans, that is to say, by using the money in the present for profitable activity, instead of holding it for safekeeping for the customer. By treating a

demand deposit in this manner, we find that banks violate their custody obligations by appropriating the money for an alternative use, which enables them the profits to pay interest on these otherwise interest-free deposits.

As a result of these three economic differences, there exist three main legal differences between the two contracts.

First, the purpose of the two contracts is radically distinct. The essential element or purpose of a loan is to transfer the complete availability of the present goods to the borrower. The essential element or main motivation for the depositor in a deposit contract is the safekeeping or custody of the money.⁶ The depositor pays the depository a fee for this safekeeping service. Second, the monetary loan contract requires the establishment of a term for the return of the loan and the calculation of the interest payment. On the contrary in a deposit contract there is no term for returning the money. It is “on demand”; the depositor can withdraw the deposit whenever they wish to do so. Third, the obligation for the borrower and the depository are different. It is the borrower’s obligation to return the tantundem, and pay the required interest at the end of the stipulated term. On the contrary, it is the depository's obligation to keep the tantundem available to the depositor at all times (i.e., he must hold a 100 percent cash reserve).

We may now come to a legal assessment of the legitimacy of fractional reserve banking and the bank practice of using demand deposits to grant loans. There are several possibilities to assess modern banking. First, if we assume that many depositors are not aware of the fact that the bank does not safeguard their deposits but uses them, we are faced with fraud. The bank appropriates the deposit without knowledge of the depositors. This is the conclusion that Barnett and Block reach by using a different argument.

Second, there also exists the possibility that depositors are aware of the bank's use of their deposited money. In fact, this is likely true for many depositors today. Let us assume that the depositor wants to make a genuine deposit and knows that the money is going to be

used by the bank (i.e., that the bank regards the deposit as a loan). An indicator to the depositor that the money will be used is the payment of interest. Payment of interest to the depositor is, as we have seen, incompatible with a deposit contract. Instead it is the depositor who should pay the depository for the safekeeping services! When the depositor is unaware of the bank's use of the money we are faced with an *error in negotio* – the contract is impossible from a technical *and* legal point of view. It is impossible from a technical point of view as Barnett and Block vividly point out. Indeed, it is logically impossible that both the bank and the depositor own the money and maintain its full availability. The contract is also impossible from a legal point of view as the purposes are contradictory. The bank receives the money as if it would receive a loan and gains its availability while the depositor hands it over as if it were a deposit for safekeeping. Depositors is being deceived if they believe that full availability of the money exists with this type of contract. As Huerta de Soto (2006, 143) points out: “[L]egally null and void [is] any contract in which one of the parties authorizes the other to deceive him or accepts in writing self-deception to his own detriment.” In fact, even if the different purposes of each side of the contract was clear and agreed upon the contract is impossible to carry out at all times and therefore unenforceable.⁷

However, there is still a third possibility. The contract that involves the handing of the money to the bank is neither a deposit or a loan but an aleatory contract. Both parties would be aware of the fact that the bank uses the money. The “depositor” would not have the availability of the money but the right to ask for the money and the bank would try its best to give it to the “depositor” (Hülsmann 2000, 108). Here it becomes a question of probabilistic entrepreneurial forecasting if the bank would have the money or not when the “depositor” asks for it. Yet, in our modern banking system the contracts are not so clear. In fact bankers can be somewhat deceptive when it comes to their practices; they are reluctant to specify the precise nature of the contract and of the safekeeping obligation. They may also fail to make

clear whether they have been authorized or not by the “depositor” to use the deposited money.⁸ As Huerta de Soto (2006, 145) points out:

To fail to clarify or fully specify these details indicates a remarkable ambiguity on the part of bankers, and in the event that adverse legal consequences result, their weight should fall on the bankers’ shoulders and not on those of the contracting party, who with good faith enter into the contract believing its essential purpose or cause to be the simple custody or safekeeping of the money deposited.

Thus, at least without clear and unambiguous contracts it seems hard to defend our present fractional reserve banking system from a both a legal and ethical point of view.

Legitimacy of maturity mismatching

Although lacking substance, Barnett and Block's critique of fractional reserve banking comes close to our legal and economic analysis. They thus state: “[F]ractional reserve demand deposits are illicit because they involve the creation of more property titles than there is property in existence.” We see that a *depositor* has the title to the deposited money and at the same time the banks makes use of it by granting a credit based on its use as collateral. They refer to the technical and logical impossibility that both the bank and the depositor can claim the money at the same time. While their analysis is correct, the complementary legal analysis is much richer by explaining the contradictory nature of such contracts even if depositors are aware of the appropriation of the deposited funds by the bank.

Unfortunately, Barnett and Block's lack of legal analysis also contributes to their misguided condemnation of maturity mismatching. It is a *non sequitur* to deduce from the illegitimacy of fractional reserve banking the illegitimacy of maturity mismatching in general.

This can be best shown by analyzing the following key passage where they discuss the example of a bank that uses a demand deposit, granting part of it as a loan, thus holding only a fractional reserve:

The cause of the [fractional reserve banking] problem is that the bank had no right to make such loans, because it did not have the relevant elements of ownership of the deposited funds. That is, it had title to the funds only for period [*sic*] for which it had borrowed them, so it only had the right to lend these monies for a period ending no later than the time at which it had to repay the loan by which it acquired the funds it lent.

Barnett and Block are correct that the bank had no right to use the deposited money. Yet, this is not because there was no transfer of ownership of the monetary units, but rather because the purpose of a genuine deposit contract is safekeeping.⁹ The obligation of the depository is holding a 100% cash reserve; doing otherwise is a breach of contract. Putting this difference aside, the authors are right that the bank had no right to make such loans. However, the second sentence does not seem to follow from the first nor does it seem to be implied in it. In fact, the bank never borrowed the money as Barnett and Block seem to imply. Deposits are not loans, therefore, depositories do not have the right to use deposited funds as if they were loans. In distinction, borrowers have the right to use the borrowed funds made available to them. This is the purpose of a loan contract – the transfer of the availability of the funds in question. This breeds the following question, namely, if banks are allowed to make loans for a longer time period than loans were received by them.

It may first be pointed out that we agree with Barnett and Block that loan contracts are legitimate contracts. In these contracts the availability of funds is transferred to the borrower until the term of the contract expires. The borrower can do with these funds whatever they

please during this period. The only obligation is the return of the tantundem plus the stipulated interest upon expiry of the term. Now, would loan maturity mismatching be illegitimate? In contrast to Barnett and Block, it does not appear so.

If B borrows \$100 from A for a year, and then lends \$100 to C for two years no rights are violated. This is so because borrower B has received full availability of the \$100 for a year and may use it however they wish. The only obligation inherent in the contract is the remittance of \$100 plus interest at the end of the year. B can certainly do so even though a simultaneous loan of \$100 is made to C for two years. As Barnett and Block correctly point out, B could try to find a person D that is willing to lend him \$100 at the end of the first year to return the loan to A.¹⁰ B's procedure might be considered risky or even foolish but it does not violate anyone's rights. From legal, economic and logical perspectives there is no problem with this use of a loan, in contrast to the use of a deposit. How do Barnett and Block justify the alleged illegitimacy of borrowing short and lending long? Relying on their above example their argument boils down to:

[T]here is still that little matter of over determination of property titles, precisely the shortcoming of FRB. Consider the situation during the first year of our little scenario. There are not one but *two* people with a valid claim for that \$100 at the end of the first year. First of all there is A; he lent the \$100 to B for only one year, and has a legitimate claim on this money at the end of the year. And then there is C who was told by B that these monies are not due back until the end of year two.

There are two main short-comings with this argument. First of all, contractual obligations can still be fulfilled. Money is a fungible good as Barnett and Block seem to recognize. If the loan would be a Rembrandt painting and A lent it for one year to B and B lent it for two years to C, B, of course, could not fulfill their original contract and would assuredly fail to do so at the

end of the first year. However, as money is a fungible good, B can honor both the contract and his obligations. At the end of the first year, A has a claim to some \$100 and during the first year C has the claim to another \$100. They are not the same \$100 dollars as Barnett and Block seem to think.

Second, there is no over-subscription of property titles. The 100 present dollars are always owned by no more than one person. Barnett and Block neglect that loan contracts do not deal solely with present goods. Loan contracts constitute an exchange of present goods for future goods. The \$100 that A lends to B represents present goods and are transferred from B to C. The \$100 that B has to give to A in one year are future goods. These \$100 of future goods are distinct from the \$100 of present goods and also from the 2-year future goods that C owes to B. As the loan contract is always in terms of future versus present goods, there can never be a contradictory legal nature leading to an over-subscription of property titles, unlike that which may occur with demand deposit contracts based on continual and full availability of the funds. Goods may only become oversubscribed, as Barnett and Block wish to demonstrate, if claims against them exist in the same temporal moment.

We see that \$100 today are not the same as the \$100 in a year nor the \$100 in two years. Thus, there is no over-subscription in property titles, as they are titles to different kinds of goods, namely to present goods (money available on demand), future goods (money made available in one year's time) and future goods (money made available in two years' time). At the end of the first year there is no over issuance of property titles either. When B pays off his debt with A, there exist \$100 of present goods in A's hands and the claim to \$100 in one year by B.

Detrimental effects from maturity mismatching

While maturity mismatching is legitimate in contrast to today's fractional reserve banking system, it shares with fractional reserve banking the feature that it would probably not survive in a world of free-banking (or at least see its prominence greatly reduced) and that it also has the potential to be economically destructive.

Without a central bank as a lender of last resort, borrowing short and lending long is a very risky business. Banks are continuously forced to roll over their short term liabilities to cover longer term loans. More sound competitors might lend to the maturity mismatched banks on a short term basis and together initiate a run on the bank in the sense that they suddenly refrain from allowing the bank to roll over with fresh loans. This would place a considerable check on the amount of maturity mismatching in practice. Additionally, speculators could assume a position as a short-term lender to such banks and simultaneously short the bank's stock. By eliminating or reducing the amount of maturity roll over, the maturity mismatched bank can suffer severe liquidity problems, resulting in a falling stock price and benefits reaped by the speculators.

When coupled with fractional reserve banking, maturity mismatching may be economically destructive and serve as the causal antecedent of the Austrian Business Cycle.¹¹ Often credit expansion is viewed as the sole source of this cycle. In fact credit expansion and detrimental issues surrounding maturity mismatching are two sides of the same coin.

The classical example of credit expansion is the investment of demand deposits – debts that are due at every instant – by granting a several year loan to a company that finances a long-term investment project using these demand deposits as collateral. As Mises (1953, 263, citing Knies (1876, 242)) states about maturity mismatching in general:

For the activity of the banks as negotiators of credit the golden rule holds, that an organic connection must be created between the credit transactions and the debit transactions. The credit that the bank grants must correspond quantitatively and

qualitatively to the credit that it takes up. More exactly expressed, 'The date on which the bank's obligations fall due must not precede the date on which its corresponding claims can be realized.' Only thus can the danger of insolvency be avoided.

The case of maturity mismatching using time deposits rather than demand deposits shifts the issue slightly. Risk is reassigned from one party (the borrower) to another (the lender). If there existed no market for mismatched term durations for loans, borrowers could only borrow from lenders willing to match their time horizons *or* they would be faced with borrowing short-term themselves and rolling over their loans periodically as the durations dictated.

Absent a lender of last resort (i.e., a central bank with unlimited credit issuing power), it becomes clear that the extent of this practice would be curtailed. If the sole source of lending were in the hands of institutions foregoing present consumption to make these loans, the amount of future loans would be limited – the need for future consumption would continually place downward pressure on the amount of available loanable funds. However, a central bank has in its power the ability to continually create loans (i.e., credit) and hence ensure that future lending possibilities will be made available. As lending intermediaries realize this, they can begin extending their mismatching to a level not deemed appropriate under an environment with an expectation of more limited future loans. The recent turmoil provides a case in point.

Absent fractional reserve banking, maturity mismatching allows investments to be undertaken in the present, with no strict guarantee that future consumption will be adequately curtailed to allow the resource availability needed to complete the projects. Entrepreneurial forecasting will guide how effective the future dated loans will be with respect to their ability to be continually re-financed through additional short-term borrowing. As entrepreneurs may err in this function, losses may result much like the market has been plagued with recently; *this in no way constitutes fraudulent activity*. To the extent that this practice is combined with

fractional reserve banking, we see the increased possibility for entrepreneurial error to result as the coordination process of present and future loans is disrupted.

Conclusion

Barnett and Block tackle a very important question for understanding our recent economic turmoil as the crisis is marked by a huge amount of maturity mismatching. Is this maturity mismatching legitimate? They argue that analogous to fractional reserve banking it is not. In this article a legal and economic analysis of two fundamentally different types of contract – deposit and loan – has been made. Deposit contracts require the depository to hold a 100% cash reserve, available on demand. Fractional reserve deposit banking is therefore illicit. However, loan maturity mismatching is a legitimate economic transaction as the only obligation of the borrower is the return the *tantundem* at the end of the contract. Barnett and Block maintain that in mismatching loan contracts there is over-issuance of property rights. However for fungible goods there is no right to specific units of a good specified in a loan contract. Thus, it is possible that mismatched loan contracts will be honored. Consequently, they are found to be legitimate. Moreover, loan contracts are exchanges of present for future goods. As the titles to these different goods are also different in nature, there is no over-issuance of property titles.

While loan maturity mismatching is a legitimate activity, its amount would probably be very reduced on a free market due to its inherent riskiness and the continual check of competition. Moreover, loan maturity mismatching can be the cause of an Austrian Business Cycle when coupled with fractional reserve banking and its inherent credit creation. As such, the present crisis which is characterized by a huge amount of maturity mismatching is at least partially caused by this exact process, and the entrepreneurial errors it has bred. We may thank both Barnett and Block for bringing attention to maturity mismatching as one source of

today's market turmoil. However, while we may agree that fractional reserve banking constitutes fraudulent activity, we fall short of making the same endorsement concerning maturity mismatching.

¹ See Bagus (2003), Hoppe (1994), Hoppe, Hülsmann and Block (1998), Huerta de Soto (1995, 1998, 2006), Hülsmann (1996, 2000, 2008) and Rothbard (1991), for this point of view.

² They seem to imply a truism by stating: “[F]ractional reserve banking for demand deposits could not long endure in the free enterprise system where property rights and the niceties of bankruptcy law are respected.” Barnett and Block previously make the claim that fractional reserve banking is incompatible with the respect of property rights. In fact, fractional reserve banking could not endure for any period of time in the free enterprise system, as it would be forbidden owing to this reason. From this perspective it seems superfluous for them to show how competition would limit the extent of fractional reserve banking.

³ Although they do provide a case example with the recent Bear-Stearns collapse. This exposition, however, only demonstrates tangential evidence that maturity mismatching breeds detrimental effects.

⁴ Advocates of fractional reserve banking claim that monetary deposits do involve an intertemporal exchange. However, from a legal perspective, the essence of a deposit is the safeguarding principle and it does not involve an intertemporal exchange. Thus, advocates of fractional reserve banking seem to argue that what is called a “monetary deposit” is really a loan.

⁵ Although the interest payment might be waved out of friendship or other reasons.

⁶ For fungible goods such as money, it is not necessary to guard the same units as were deposited. The depositary just has to safeguard the *tantundem* (i.e., an equivalent amount of quantity and quality of the deposited good).

⁷ We must stress again, the contradictory nature of these contracts makes them unenforceable both in practice, and legally. Both parties cannot legally agree to any contract based on contradictory terms (i.e., that both may have full availability of the money under contract). The practical problems that arise in enforcing such contracts becomes evident given this legal insight.

⁸ One example of this ambiguity is the conduct of bankers regarding “time deposits.” Time deposits have a term and the saver renounces the availability of the deposit for this term in exchange for interest. Hence, time deposits become loans to the bank; *they are not deposits*. It becomes, as a result, confusing to call them “time deposits.” The strong distinction between demand deposits and time deposits becomes blurred.

⁹ Legally, the ownership of the individual money units is transferred to the depositary. Thus, the transfer of ownership in the monetary deposit contract can lead to the belief that the monetary deposit contract is a loan. However, the depositor maintains the complete availability of the money units and remains the owner in the material sense. It could well be argued that there is no true transference of ownership in the monetary deposit contract, but rather that “the concept of ownership refers abstractly to the tantundem or quantity of goods deposited and as such always remains in favor of the depositor and is not transferred” (Huerta de Soto 2006, 5).

¹⁰ There are also other ways for B to fulfill the contract. They may sell assets in order to fulfill the contract, obtain payment by C, or ask the A for an extension on the original loan.

¹¹ On Austrian Business Cycle Theory (ABCT) see: Bagus (2007, 2008), Bagus and Howden (2009), Garrison (1994, 2001), Hayek (1929, 1931), Huerta de Soto (2006), Hülsmann (1998), Howden (2008), Mises (1998), and Rothbard (1975, 1993).

References

- Bagus, Ph.: 2003, 'The Commons and the Tragedy of Banking', November 12, <http://mises.org/story/1373>
- Bagus, Ph.: 2007, 'Asset Prices – An Austrian Perspective', *Procesos de Mercado: Revista Europea de Economía Política* **4**(2), 57-93.
- Bagus, Ph.: 2008, 'Monetary policy as bad medicine: The volatile relationship between business cycles and asset prices ', *The Review of Austrian Economics* **21** (4): 282-300.
- Bagus, Ph. and D. Howden: 2009, 'The Subprime Solution: How Today's Global Financial Crisis Happened, and What to Do About It. By Robert J. Shiller: A Review', *Quarterly Journal of Austrian Economics*. Forthcoming.
- Barnett, W: II and W. Block: 2009, 'Time Deposits, Dimensions and Fraud', *Journal of Business Ethics*.
- Garrison, R. W.: 1994, 'Hayekian Triangles and Beyond ', in J. Birner and R. van Zijp, (eds.), *Hayek, Coordination and Evolution: His Legacy in Philosophy, Politics, Economics, and the History of Ideas* (Routledge, London).
- Garrison, R. W.: 2001, *Time and Money: The Macroeconomics of Capital Structure* (Routledge, London).
- Hayek, F. A.: 1929, *Geldtheorie und Konjunkturtheorie* (Gustav Fischer, Vienna).
- Hayek, F. A.: 1931, *Prices and Production* (Routledge, London).
- Hoppe, H.-H., with J. G. Hülsmann and W. Block: 1998, 'Against Fiduciary Media', *Quarterly Journal of Austrian Economics* **1**(1), 19-50.
- Hoppe, H.-H.: 1994, '[How is Fiat Money Possible? or, The Devolution of Money and Credit](#)', *Review of Austrian Economics* **7**(2), 49-74.

- Howden, D.: 2008, 'Stability of Gold Standard and its Selected Consequences: A Comment', *Procesos de Mercado: Revista Europea de Economía Política* **5**(1), 159-175.
- Hülsmann, J. G.: 1998, 'Toward a General Theory of Error Cycles', *The Quarterly Journal of Austrian Economics* **1**(4), 1-23.
- Hülsmann, J. G.: 1996, 'Free Banking and the Free Bankers', *Review of Austrian Economics* **9**(1), 3-53.
- Hülsmann, J. G.: 2000, 'Banks Cannot Create Money', *The Independent Review: A Journal of Political Economy* **5**(1), 101—110.
- Hülsmann, J. G.: 2008, *The Ethics of Money Production* (Ludwig von Mises Institute, Auburn AL).
- Huerta de Soto, J.: 1995, '[A Critical Analysis of Central Banks and Fractional-Reserve Free Banking from the Austrian Perspective](#)', *Review of Austrian Economics* **8**(2), 25-38.
- Huerta de Soto, J.: 1998, '[A Critical Note on Fractional-Reserve Free Banking](#)', *The Quarterly Journal of Austrian Economics* **1**(4), 25-49.
- Huerta de Soto, J.: 2006, *Money, Bank Credit and Economic Cycles* (Ludwig von Mises Institute, Auburn AL.)
- Knies, K.: 1876, *Geld und Kredit*. Vol. II (Berlin: Weidmännische Buchhandlung)
- Mises, L.: [1949] 1998, *Human Action* (Ludwig von Mises Institute, Auburn, AL.).
- Mises, L.: [1912] 1953, *The Theory of Money and Credit* (New Haven, Yale University Press).

Rothbard, M. N.: [1962] 1991, 'The Case for a 100 Percent Gold Dollar', In *Search of a Monetary Constitution*, Leland B. Yeager, ed., (Harvard University Press, Cambridge, MA), pp. 94-136.

Rothbard, M. N.: [1962] 1993, *Man, Economy, and State* (Ludwig von Mises Institute, Auburn, AL.).

Rothbard, M. N.: [1963] 1975, *America's Great Depression* (Sheed and Ward, Kansas City).