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THE ROLE OF SHADOW BANKING IN THE BUSINESS CYCLE

ARKADIUSZ SIEROŃ

ABSTRACT: The aim of this article is to examine the impact of shadow banking on credit expansion and the business cycle. I focus on two main functions of the shadow banking system: securitization and collateral-intermediation. The former enables traditional banks to expand their credit activity, while the latter allows the shadow banks to create new money by themselves. Shadow banking shows that non-banking institutions can also conduct credit expansion and generate the business cycle. Thus, the Austrian business cycle theory should be extended to take into account the way in which shadow banking activity changed the conduct of credit expansion.

KEYWORDS: shadow banking, business cycle, credit expansion, Austrian business cycle theory, securitization, collateralization

JEL CLASSIFICATION: B53, E32, E51, G21, G23

The process of lending and the uninterrupted flow of credit to the real economy no longer rely only on banks, but on a process that spans a

Arkadiusz Sieroń (sieron.arkadiusz@gmail.com) is assistant professor of economics at the Institute of Economic Sciences at the University of Wrocław, Poland. The author would like to thank Harry David, Cassirer Colloquium participants, and anonymous reviewers for helpful comments and suggestions. The article is based on the third chapter of the author's doctoral dissertation entitled "The Effects of Money Supply Growth from the Perspective of the Cantillon Effect" and was partially made possible by a 2014 Summer Fellowship at the Ludwig von Mises Institute, Auburn, Ala.

network of banks, broker-dealers, asset managers, and shadow banks
funded through wholesale funding and capital markets globally.

Pozsaret et al., 2013, p. 10

I. INTRODUCTION

According to the standard version of the Austrian business
cycle theory (e.g., Mises, 1949), the business cycle is caused
by credit expansion conducted by commercial banks operating
on the basis of fractional reserve.[1] Although true, this view may
be too narrow or outdated, because other financial institutions
can also expand credit.[2]

First, commercial banks are not the only type of depository insti-
tutions. This category includes, in the United States, savings banks,
thrift institutions, and credit unions, which also keep fractional
reserves and conduct credit expansion (Feinman, 1993, p. 570).[3]

Second, some financial institutions offer instruments that
mask their nature as demand deposits (Huerta de Soto, 2006, pp.
155–165 and 584–600). The best example may be money market

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[1] I assume that the orthodox version of the Austrian business cycle theory is very
well known among the readers of the *QJAE*. In short, commercial banks operating
under the fractional reserve system can create circulation credit, which increases
the money supply and lowers the market interest rate below the natural level
determined by the social time preference. The expanded money supply and
artificially lower interest rates result in the cluster of entrepreneurial errors or
malinvestments. The initial boom inevitably leads to a bust, as consumer pref-
erences did not change. See Hayek (1935), Mises (1949), Garrison (2001), Huerta
de Soto (2006).

[2] To be clear, when I write about "credit expansion" I mean loans granted in excess
of monetary savings available for lending. In other words, it is important to
differentiate between "commodity credit" or "transfer credit" from "circulation
credit." According to Mises (1928, pp. 104–105), the former is credit "which a bank
grants by lending its own funds or funds placed at its disposal by depositors,"
while the latter is credit "which is granted by the creation of fiduciary media, i.e.,
notes and deposits not covered by money." Hence, only an increase in circulation
credit results in money creation and lowers interest rates, generating the business
cycle. On the contrary, credit fully backed by reserves does not lead to such effects.

[3] According to Palyi (1961, p. 138), "savings banks and associations do exactly what
commercial banks do: they build a credit structure on fractional reserves."

funds.[4] These were created as a substitute for bank accounts, because Regulation Q prohibited banks from paying interest on demand deposits (Pozsar, 2011, p. 18 n22). Importantly, money market funds commit to maintaining a stable net asset value of their shares that are redeemable at will. This is why money market funds resemble banks in mutual-fund clothing (Tucker, 2012, p. 4), and, in consequence, they face the same maturity mismatching as do banks, which can also entail runs.[5]

Many economists point out that repurchase agreements (repos) also resemble demand deposits. They are short term and can be withdrawn at any time, like demand deposits. According to Gorton and Metrick (2009), the financial crisis of 2007–2008 was in essence a banking panic in the repo market ('run on repo').

This paper focuses on the effects of securitization and collateral-intermediation—two main functions of shadow banking—on the credit expansion and business cycle.[6] The rationale for focusing solely on shadow banks is the quantitative unimportance of the saving institutions, whose assets possessed by them amount to only 7.55 percent of commercial banks' assets (Federal Deposit Insurance Corporation, 2014a, b), and the growing importance

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[4] There is a debate in the Austrian literature whether money market mutual funds should be considered money. Haymond (2000) argues that they are money substitutes, while Rothbard (1978), Salerno (1987) and Shostak (2000) disagree. Although the latter authors provide compelling arguments against treating money market mutual funds shares as money, they overlook that "money is what people consider as purchasing power, available at once or shortly" (Palyi, 1961, p. 137). Moreover, money market mutual funds filled the vacuum created by the cap on deposit insurance, which suggests that they act like demand deposits, hence they should be included in the money supply. A more detailed analysis of the definition of money supply is beyond the scope of this paper. Another example of demand deposit-like instruments, according to Huerta de Soto (2006, pp. 161–165 and 594–596), may be certain insurance companies that try to guarantee the immediate and complete availability of 'premiums' to the policyholder.

[5] However, please note that new rules in force from October 2016 fundamentally changed the way that money markets funds operate. For example, they require a floating net asset value for institutional (but not for retail) prime money market funds (SEC, 2014). However, the detailed impact of that reform on money market funds is beyond the scope of this paper.

[6] For discussion on the money market funds as the shadow banking institution and their connections with the securitization and collateral-intermediation, see Gorton, Metrick (2009) and Sanches (2014).

of shadow banks. Indeed, banking shifted "away from the traditional 'commercial' activities of loan origination and deposit issuing toward a 'securitized banking' business model, in which loans were distributed to entities that came to be known as 'shadow' banks" (Meeks et al., 2013, p. 5). This means that bank funding is based on capital markets to a larger extent than in the past and that banks are less dependent on traditional deposits (Loutskina, 2010).

According to the most common definition, shadow banking is "credit intermediation involving entities and activities outside the regular banking system" (Financial Stability Board, 2013, p. 1).[7] Shadow banking is similar to depository banking also in that it transforms maturity and risk. In other words, shadow banks provide credit like traditional banks. However, they do not take retail deposits, but rely on wholesale funding and repo market. And as they lack access to a formal safety net and central bank reserves, they lend against collateral.

The two most important functions of shadow banking are securitization and collateral-intermediation. Securitization is "a process that, through tranching, repackages cash flows from underlying loans and creates assets that are perceived by market participants as fully safe," while collateral-intermediation means "supporting collateral-based operations within the financial system, which involves the intensive re-use of scarce collateral" (Claessens et al., 2012, pp. 7, 14). Shadow banking is an empirically important topic because "in aggregate, the shadow banking system (non-bank credit intermediaries) seems to constitute some 25–30% of the total financial system and is around half the size of bank asset[s]" (Financial Stability Board, 2011, p. 8).[8]

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[7] Although the most common, this definition is far from being accurate, because not all entities with intermediate credit outside the banking system are shadow banks, and because many shadow banking activities operate within the regular banking system (Claessens, Ratnovski, 2014, p. 3).

[8] "The US has the largest shadow banking system, with assets of $25 trillion in 2007 and $24 trillion in 2010" (Financial Stability Board, 2011, p. 8). According to Pozsar et al. (2010, pp. 7–9), the gross measure of shadow bank liabilities amounted to nearly $22 trillion in June 2007, while total traditional banking liabilities were around $14 trillion. Netted liabilities of shadow banking also were greater in comparison to traditional banking liabilities.

Therefore, the Austrian business cycle theory should take into account the significant impact of shadow banking on the credit expansion and business cycle and changes in the banking system. The contemporary banking system is largely market-based, in which origination of loans is done mostly to convert them into securities (instead of holding them in banks' balance sheets). There is a growing literature in mainstream economics about shadow banking and macroeconomic instability. However, there is lack of interest in this subject among Austrian economists, with the only exceptions being Gertchev (2009), and Giménez Roche and Lermyte (2016). This omission is a bit puzzling, given the Austrian school's concerns about the macroeconomic stability under the current financial system. Moreover, as far back as in 1935, Hayek ([1935] 2008, pp. 411–412) stated that banking is a pervasive phenomenon and, thus, traditional banking may evolve into other and less easily controllable forms with new forms of money substitutes. The aim of this article is to fill this gap, by showing how shadow banking impacts the credit expansion and, thus, the business cycle. The main findings are that securitization increases the traditional banks' ability to expand credit,[9] while collateral-intermediation additionally enables shadow banks to create credit themselves. In both cases, shadow banks contribute to the credit expansion, further suppressing interest rates and exacerbating the business cycle.

The remainder of the paper is organized as follows. Section II analyzes the impact of securitization on the traditional banks' ability to create new loans and the course of the business cycle. Section III focuses on collateral-intermediation and examines how shadow banks can increase the supply of credit directly, by themselves. Section IV concludes.

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[9] Giménez Roche and Lermyte (2016) argue that only securitization within regulatory arbitrage exacerbates the business cycle, since "securitization *per se* as a simple 'originate and distribute' model does not display cycle amplifying effects in the Austrian sense," as "the scriptural credit that is securitized becomes a real credit through the transformation of deposits into investment." However, their conclusion depends on the assumption that purchasing securitized loans by the non-bank sector increases voluntary savings, while in reality it may merely change the composition of savings. A more detailed discussion of their interesting paper is, however, beyond the scope of this article.

II. THE IMPACT OF SHADOW BANKING ON THE
   TRADITIONAL BANKS' ABILITY TO EXPAND CREDIT

How does this securitization affect the credit expansion and business cycle? The first effect of securitization is to transfer the credit risk of the loans from the banks' balance sheets to the investors through asset-backed securities (Gertchev, 2009). This 'regulatory arbitrage' enables institutions to circumvent reserve and capital adequacy requirements and, consequently, to boost their credit expansion. This is because banks need to hold a minimum level of regulatory capital in relation to risk-weighted assets. When banks sell the pool of risky loans to a third entity, they decrease the amount of risky assets and improve their capital adequacy ratio. In that way, the transfer of loans increases banks' potential to create further loans without raising capital.[10]

The role of shadow banking in credit expansion may be illustrated by the fact that assets in the shadow banking system grew rapidly before the crisis, from $27 trillion in 2002 to $60 trillion in 2007, which coincided with sharp growth also in bank assets (Financial Stability Board, 2011, p. 8). Securitization creates, thus, the illusion that the activities of the commercial banks are less inflationary than they really are. In this way banks are able to grant as much in new loans as credits that have been securitized, which weakens the link between monetary base and credit supply, and, in consequence, the role of monetary policy. In other words, securitization expands the supply of credit by increasing the supply of pledgeable assets.

Second, securitization can be conducted for the purpose of using the securities created as collateral with the central bank to obtain funding (Financial Stability Board, 2013, pp. 17–18). Banks can also

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[10] Banks also decrease the credit risk by credit enhancement. A more detailed analysis of how securitization enables banks to reduce their regulatory capital requirement may be found in Jones (2000), Jablecki (2009), or Giménez Roche and Lermyte (2016). However, the regulatory arbitrage is not the only motive for securitization. Commercial banks also engage in such an activity because securitized assets are more pledgeable than the opaque and idiosyncratic loans they originally retain on the balance sheet. Securitization can, thus, transform risk faced by the commercial banks, but also fulfill demand by outside investors for good collateral. It can also be used to obtain funding from the central bank. I cover these motives in the main text.

use these securitized assets as collateral for repo funding from private institutions. In this way, they can get funds more cheaply and in larger volumes than if they relied on traditional liabilities such as deposits (Claessens et al., 2012, p. 12). With these funds, the creation of credit may expand.

Third, securitization enables banks to better satisfy financial institutions' demand for safe assets, because it transforms relatively risky, long-term, illiquid loans into safe, short-term and liquid 'money-like' claims. This feature also enables commercial banks to expand their credit creation to a greater extent.

Fourth, shadow banking increases the vulnerability of the financial system and makes the busts more severe. Undoubtedly, securitization may reduce idiosyncratic risk through diversification,[11] but simultaneously raises the systemic risk by exposing the system to spillovers in the event of large and negative shocks (Claessens et al., 2012, p. 27). This is because securitization expands banks' balance sheets, makes the portfolio of intermediaries more similar, reduces screening and increases financial links among banks, while a negative asset price shock tends to reduce shadow banks' net worth, constraining the supply of collateral for the commercial banks, leading them to deleverage, which further suppresses asset prices (Meeks et al., 2013, p. 8).[12] Moreover, shadow banks are subject to runs, because they have assets with longer maturities than liabilities, while they do not enjoy coverage under a formal regulatory safety net.[13] Additionally,

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[11] However, the financial crisis of 2007–2008 exposed a potential flaw in the securitization process, as the associated credit risk was not really diversified, but concentrated in certain segments of the financial market (Jablecki, 2009).

[12] On the other hand, it may be argued that shadow banks can, in a way, smooth the business cycle because they often expand credit when traditional banks contract it (Meeks et al., 2013, p. 5). In consequence, the correction and reallocation of resources are postponed.

[13] Although customers may be aware of this fact, it does not change the fact that shadow banks are subject to runs, which—through the fire sales—threatens the stability of the financial system. Actually, some economists believe that the maturity mismatch in the shadow banking was a key ingredient to the financial crisis of 2007–2008 (Brunnermeier, 2009). It may be argued that if shadow banks did not create money on the basis of fractional reserves, most runs would not happen. It is worth pointing out here that "Firms that finance themselves solely in the *capital* markets—with long-term (debt) or perpetual (equity) sources of

Adrian and Ashcraft (2012) cite the procyclical behavior of shadow bank leverage and countercyclical behavior of its equity. There is a positive relationship between leverage and asset prices, while negative between leverage and risk premium, contributing also to the instability of the financial system.

Fifth, shadow banking decreases the power of monetary policy (Estrella, 2002). This is partially because shadow banking is not regulated in the same way as traditional banks, but mainly because securitization insulates banks' lending activity from the funds obtained from the central bank (Gertchev, 2009). In other words, such banks' lending depends less on the funding from central banks or regulatory requirements on capital and more on the well-functioning capital markets, including shadow banking, and their demand for securitized assets. Therefore, securitization decouples the link between monetary base and retail deposits on the one hand and credit supply on the other, since credit creation shifts in a way from commercial banks to the market-based financial institutions that purchase banks' loans (Fawley and Wen, 2013).

Sixth, because banks transfer risks that they originated to other agents, securitization reduces banks' incentives to carefully monitor and screen borrowers (thanks to securitization, banks do not have to hold loans on their balance sheets). The laxer credit standards and looser screening of borrowers led to higher credit growth in the 2000s, exacerbating the subsequent financial crisis. The securitization may be also associated with adverse selection, as banks have superior knowledge about the quality of loans they originate. Thus, banks might take advantage of their information and securitize loans of lower quality. The separation of functions of a loan's originator and a bearer of the loan's default risks resulted in a lower average quality of borrowers and higher delinquency rates, following the collapse of the U.S. subprime bubble in 2007 (Keys et al., 2008; Purnanandam, 2010).

Finally, credit expansion with securitization entails a different pattern of income and wealth redistribution compared to traditional credit expansion because some loans are more welcomed by banks to be used in this process. This induces banks to grant

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financing—are not vulnerable to runs. Such firms can *default* of course, but the concept of a run implies something more than just a default" (Ricks, 2011, p. 84).

certain loans more often than without securitization. These loans are mostly mortgages, but also collateralized debt obligations and debt backed by credit cards, automobiles, and student loans.[14] It means that borrowers dependent on such credit benefit through this Cantillon effect (Cantillon, 1755). During the boom of the 2000s, issuance of non-traditional asset-backed securities (such as subprime mortgages and collateralized debt obligations) considerably outstripped the issuance of traditional asset-backed securities (such as auto, credit card and student loan-backed securities) (Stein, 2010, pp. 43–43). Thus, securitization contributed significantly to the housing bubble in the U.S., but also in Spain, prior to the financial crisis of 2007–2008 (Carbó-Valverde et al., 2011). In this respect, it is worth pointing out that real-estate lending lowers financial stability and typically leads to deeper recessions and slower recoveries (Jordà et al., 2014). Moreover, as financial sector is deeply involved in securitization, credit expansion with securitization seems to support this sector relative to the traditional credit expansion.

To sum up, securitization does not allow shadow banks to create money and credit, because in this process they only pool, tranche, and sell loans marketed by traditional banks to investors. But they still significantly affect the transmission mechanism of monetary policy, credit expansion and the business cycle by enabling traditional banks to expand credit activity and affect the related Cantillon effect. In other words, securitization changed banks' business model from "originate and hold" to "originate and distribute," affecting their capacity to supply new loans and the quality of these new loans. The widespread use of securitization prior to the financial crisis of 2007–2008 increased the ability of banks to transfer risk, leading to more risk-taking and contributing to the subprime crisis. In the next section, I will discuss whether the shadow banking can create new credit.

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[14] "At the end of 2004, the larger sectors of [ABS] market are credit card-backed securities (21 percent), home-equity backed securities (25 percent), automobile-backed securities (13 percent), and collateralized debt obligations (15 percent). Among the other market segments are student loan-backed securities (6 percent), equipment leases (4 percent), manufactured housing (2 percent), small business loans (such as loans to convenience stores and gas stations), and aircraft leases" (Sabarwal, 2006, p. 259).

III. CAN SHADOW BANKING CREATE NEW CREDIT?

I have already analyzed how the shadow banks can indirectly affect the creation of new credit through securitization. Transferring loans from the traditional banks' books enables them to increase credit expansion, even with a constant monetary base. But shadow banks can also create credit directly through collateral-intermediation, which consists in multiple re-using collaterals.

As Singh and Stella (2012b) explain, "collateral that backs one loan can in turn be used as collateral against further loans, so the same underlying asset ends up as securing loans worth multiples of its value." In other words, thanks to rehypothecation, which means re-using the collateral pledged by the counterparty for its own use, collaterals can be re-used many times (Andolfatto et al., 2014, p. 2).[15]

The resemblance to fractional reserve banking is striking. Shadow banks have no access to central bank reserves, but they use collateral instead. Just as bank loans are a multiple of reserves, so, too, shadow bank loans are a multiple of collateral.[16] At each round of bank lending, the ratio of broad money to reserves increases, although at a diminishing rate, based on the reserve ratio. Similarly, at each round of shadow bank lending, the ratio of loans to collateral increases, at a diminishing rate, based on the haircut. In both cases, deleveraging (and also runs) is possible. With traditional banks, this happens when loans are repaid, reserve diminishes, or the reserve ratio increases. With shadow banks, it occurs when collateral falls in value, the collateral chain shortens, or haircuts rise (Steele, 2014). One simply lends out the securities at the call for cash, and then makes loans or buys financial assets with a longer maturity (Tucker, 2012, p. 6).

Further, "if rehypothecation has occurred, the collateral taker is expected to return *equivalent* securities and not *exactly* the same

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[15] Therefore, rehypothecation should be differentiated from credit chains, which can be described as a "network of firms who borrow from, and lend to, each other" (Kiyotaki and Moore, 1997).

[16] At the end of 2007, the *velocity of collateral*, i.e. the ratio of pledged collateral to underlying assets, was 3. This means that shadow banking system granted credit three times larger than underlying collateral (Singh, 2011, p. 15).

property initially received as collateral" (Singh, 2012, p. 6 n5). As with all deposits of fungible goods (also called irregular deposits), shadow banks are tempted to re-lend their clients' assets.[17] Indeed, brokers and dealers, who should act as custodians by segregating securities in a client's account, repo securities for cash, and use the proceeds to finance their own businesses (Tucker, 2012, pp. 5–6). This is why multiple re-using of collateral does not merely facilitate the transfer of ownership of money, but instead increases the supply of credit.

Therefore, when the securities one party can call on demand are used to finance his broker's business, it is akin to the fractional-reserve banking and can explain why there are runs on shadow banks.[18] Such activities of shadow banks were the source of instability for dealer banks in 2008, such as Bear Sterns, Merrill Lynch, and Lehman Brothers, contributing to the outbreak of the crisis (Claessens et al., 2012, pp. 16–17). Hedge funds that pledged collateral to Lehman Brothers were not able to retrieve it when Lehman went bankrupt because it had re-used it as its own collateral (Fender and Gyntelberg, 2008, p. 7).[19]

Perhaps the multiple re-using of collateral can be best understood by looking at institutions' financial statements: "Off-balance sheet item(s) like 'pledged-collateral that is permitted to be re-used,' are shown in footnotes simultaneously by several entities, i.e., the pledged collateral is not owned by these firms, but due to rehypothecation rights, these firms are legally allowed to use the collateral in their own name" (Singh, Aitken, 2010, p. 9). Importantly, this practice is legal and often, as in repo contracts, includes title transfer (Singh, 2012, p. 6 n5).[20] Andolfatto et al. (2014, p. 2)

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[17] Tangible assets, such as houses, cannot be rehypothecated because contractual rights limit third parties' appropriation of various assets such as residential property. However, securities can be repledged (Luttrell et al., 2012, pp. 35–36).

[18] As in the so-called crisis of confidence that occurred after Lehman Brothers went bankrupt, confidence is so important in the modern banking system because it operates on fractional reserves, which simply cannot guarantee the fulfillment of the bank's commitments at all times. The same, perhaps, applies to re-using collateral.

[19] It confirms the key role of the properly protected private property in the appropriate functioning of the market.

[20] According to the law, "in the United Kingdom, an unlimited amount of the customer's assets can be rehypothecated and there are no customer protection

write that the rehypothecation right is explicitly stated in most brokerage agreements and is beneficial for clients who can pay lower interest rates on their cash loans. Thus, the debate between supporters and opponents of rehypothecation resembles the debate between supporters and opponents of fractional-reserve banking.

Regardless, credit creation via collateral chains is a major source of credit in today's financial system, contributing to the business cycle (Brown, 2013). At the end of 2007, about $3.4 trillion in "primary source" collateral was turned into about $10 trillion in pledged collateral—a multiplier of about three. By comparison, M2 (including the credit money created by banks) amounted to about $7 trillion in 2007 (Brown, 2013; Singh, 2012). In consequence, rehypothecation has been one of the dominant drivers of the financial crisis of 2007–2008 and the 2011 failure of MF Global (Maurin, 2015).

One can doubt whether rehypothecation affects the quantity of circulation credit and, thus, the level of the interest rate and the business cycle. It can be argued that collateral used in this process is not equivalent to money and that its re-use, although it may cause financial instability, does not lead to the creation of money.[21] These are important concerns I will discuss now.

My point is that the textbook view, in which banks mainly take deposits from households and create credit upon them, is no longer valid. In my previous article (Sieroń, 2015), I showed that banks can conduct credit expansion not only by granting loans, but also by purchasing assets. Following this logic, banks can also create short-term wholesale deposits by using repo transactions and rehypothecation. If Bank A pledges collateral with Bank B to

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rules. By contrast, in the United States, Rule 15c3–3 limits a broker-dealer from using its customer's securities to finance its proprietary activities. Under Regulation T, the broker-dealer may use/rehypothecate an amount up to 140 percent of the customer's debit balance. The EU law does not establish a quantitative cap on the rehypothecation of collateral pledged to broker-dealers akin to that found in the U.S. SEC Rule 15c3–3 … [In Continental Europe,] law permits the parties to strike their own bargain as to how much (if any) collateral may be subject to rights of reuse" (Singh, Aitken, 2010, pp. 4–5). On different types of rehypothecation contracts, see Monnet (2012, pp. 20–12).

[21] I would like to thank both referees for pointing out the apparent need to be clearer in this matter.

borrow a collateralized deposit, then Bank B can re-pledge collateral with Bank C to borrow another collateralized deposit (Sławiński, 2015).[22] In other words, rehypothecation enables banks to obtain and provide funding from borrowed securities, which widens the set of assets against that credit can be granted, increasing the potential of credit expansion (von der Becke and Sornette, 2014).[23]

I do not argue that these wholesale deposits, or repo transactions, are money proper. However, the key is here to notice that in the contemporary economies there are many money-like assets (and distinct forms of money for different economic agents). I agree that short-term liabilities issued by shadow banks may not be imme-diately used as means of payment, but they may be converted on demand at par to money proper, hence they are a close substitute (Michell, 2016).[24] As Ricks (2011, pp. 79–80) pointed out,

> For practical purposes, most money market instruments can be instantly converted into the 'medium of exchange' at virtually no cost. The combi-nation of these instruments' liquidity and their negligible price fluctuation makes them a close substitute for deposits from the standpoint of their holders. Tellingly, financial managers usually refer to these instruments, together with deposits, simply as 'cash,' and money market investors are referred to in the industry as 'cash investors.' Nor is this terminology just a matter of market convention. Unlike other debt instruments, money market instruments are designated as 'cash equivalents' under generally accepted accounting principles.[25]

Moreover, these near monies indirectly add to the money supply, as they economize on money proper and are now the most significant source of market funding for banks.[26]

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[22] Please note that banks can first create deposits by purchasing securities, which they can later use (and re-use) as collateral for repo funding.

[23] This is because "potential credit creation depends on the availability of assets qualifying as collaterals for loans" (von der Becke, Sornette, 2014, p. 19).

[24] As Sławiński (2015, p. 196 n.5) pointed out, "wholesale deposits are easily convertible into central bank money (cash and liquid reserves) because large investment and universal banks are among central banks' primary dealers."

[25] Indeed, according to Sunderam's empirical analysis, investors treat short-term debt issued by shadow banks as a money-like claim (Sunderam, 2015).

[26] As Hayek (1935, p. 290) noted, "it is necessary to take account of certain forms of credit not connected with banks which help, as is commonly said, to economize

Among such near monies are repos, which are "a kind of money used by institutional investors and nonfinancial firms that need a way to safely store cash, earn some interest, and have ready access to the cash should the need arise" (Gorton and Metrick, 2010). They act like bank deposits, but are secured (they are limits on deposit guarantees which would mean unsecured exposure to the bank for large depositors). The bank takes the client's funds and issues a collateralized promise to give them back in the future.[27] Now, it should be clear that since repos are collateralized, multiple re-use of collateral increases the liquidity and the supply of credit. In other words, credit creation in a "securitized banking" increases money supply not by issuing deposits, but by short-term loans among institutional investors (von der Becke and Sornette, 2014).

Now, one would ask whether the credit supplied by the shadow banking is backed by voluntary savings. I argue that not, since in rehypothecation the same collateral backs several transactions (each loan is backed only up to certain fraction of collateral's worth), which leads to the disequilibrium between savings and investments. This is exactly the case of retail deposits under the fractional banking when the same amount of reserves backs several deposits (each deposit is backed only up to a small fraction).[28]

IV. CONCLUSION

The identity of who injects new money into and creates credit in the economy really matters. Regardless of whether these differences are large, they exist and lead to different manifestations of the Cantillon effect. What is important is that not only commercial banks can conduct credit expansion, but also non-bank financial institutions, such as shadow banks. The effect of shadow banking is extremely substantial, because it significantly affects the volume

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money, or to do the work for which, if they did not exist, money in the narrower sense would be required."

[27] A more detailed analysis of how repos work can be found in Gorton and Metrick (2010) or Gabor and Vestergaard (2016).

[28] Indeed, we can say that almost all money on retail deposit is effectively rehypothecated to other entities. Alternatively, if gold warehouses lend out deposited gold, we may say that they rehypothecate bullion.

and quality of credit and, thus, the course of the business cycle. Securitization enables traditional banks to expand their credit activity thanks to bypassing capital requirements and to broadening the sources of funding. In particular, securitization of loans enables banks to expand credit as securities can be posted as collateral. Here is where securitization and collateral-intermediation connect with each other. Importantly, the latter activity allows also shadow banks for expanding credit by themselves. This is because they can create liquid IOUs that function as near monies and are used as collateral against credit. The re-use of this collateral amplifies the credit creation.

Therefore, it seems that the Austrian business cycle theory should be extended, to incorporate changes in the banking system since the time it was formulated. In the contemporary banking, origination of loans is done mostly to convert them into securities, thus commercial banks are less dependent on retail deposits or central bank funding. Moreover, commercial banks are no longer practically the only institutions that can create credit. All these developments affect the transmission mechanism of monetary policy, weakening the relationship between monetary base and supply of credit, emphasized by the Austrian school.

The analysis of shadow banking and its impact on credit creation and business cycle shows one more thing. The current definition of money supply is too narrow and not sufficient to understand the contemporary economy (Pozsar, 2014). According to Pozsar (2014), the monetary aggregates do not include the instruments that asset managers use as money, particularly repos. As far back as 1935, Hayek (1935, pp. 411–412) doubted whether is it possible to draw a sharp line between what is money and what is not, and noted that all sorts of 'near-money' had already existed in his time. Hence, economists should, perhaps, also include in their monetary analysis 'shadow' money and re-use of collateral (Singh, 2012, p. 14–16).[29]

The importance of collateral for the shadow banking system is, perhaps, best illustrated by the growing importance of

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[29] Adrian and Shin (2009) even argue that because the role of commercial banks diminished in favor of market-based institutions, market-based liabilities, such as repos and commercial paper, may be better indicators of credit conditions than traditional monetary aggregates.

securitization in the 2000s. Sanches (2014, p. 10) argues that decision to reduce fiscal deficits in the United States in the 1990s and early 2000s caused the shortage of government bonds, i.e., the standard collateral, and led to mortgage-backed securitization, which supported the real-estate boom, but aggravated the following crisis. This significance of collateral for the shadow banking system also explains, perhaps, why the quantitative easing did not significantly stimulate the economy. This program consisted in purchasing securities from the banking sector. In this way, the quantitative easing removed part of the collateral needed by the shadow banking system to create credit (Singh, Stella, 2012a).[30]

Hence, the history of shadow banking development confirms Mises's thesis that each government intervention leads to some unintended consequences (Mises, 1949).[31] Regulation Q led to the emergence of alternatives to bank deposits, such as money market funds and repos, while reserve and capital adequacy requirements encouraged the regulatory arbitrage through securitization. Later, the Fed's purchases of treasuries aimed to stimulate economy created a shortage of safe collateral, the very thing needed to create credit in the shadow banking system (Kessler, 2013).

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[30] It is illustrated by the simultaneous growth of the money supply measured by the M2 and decline in the volume of private broad money (Pozsar, 2011, pp. 10–11). It confirms that monetary inflation does not neutralize monetary deflation, because it is highly unlikely that new money flows directly into the hands that lost it.

[31] US inflationary policy in general leads to unintended consequences and is self-defeating, at least in regard to collateral, because increasing the money supply by the Fed causes the reserve accumulation by the foreign central banks, mostly in the form of US government guaranteed securities, leading to a lack of collateral (Pozsar, 2011, p. 17). Finally, we should not forget that "MBSs developed in the United States under the patronage of government-sponsored enterprises (GSEs) such as Fannie Mae and Freddie Mac that aim at creating a secondary market for home mortgage loans" (Gertchev, 2009). Indeed, the government-sponsored enterprises were the major contributors to the expansion of bank loan securitization (Loutskina, 2010), which shows that the development of shadow banks resulted partially from the government intervention in the financial sector.

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THE PRAXEOLOGY OF COERCION: A NEW THEORY OF VIOLENCE CYCLES

RAHIM TAGHIZADEGAN AND MARC-FELIX OTTO

ABSTRACT: As the first application of the praxeological discipline of "Cratics" (Taghizadegan and Otto, 2015), a theory of the supply and demand of bads is developed. On this foundation, a violence cycle theory will be introduced in analogy to the praxeological business cycle theory (according to Ludwig von Mises). Central to this approach are the subjective perceptions of threats and possible bluffs regarding the backing of those threats. Such a violence cycle theory can explain the stability of structures of violence and reveal new interpretations of the "long peace" hypothesis.

KEYWORDS: Austrian school, praxeology, catallactics, coercion

JEL CLASSIFICATION: B53

Those actions and things which render a marginal utility to men can be described as goods. In analogy, those actions and things which cause to expect a "marginal disutility" can be described as *bads*. Catallactics, i.e., the economics of direct and indirect

Rahim Taghizadegan (info@scholarium.at) is director of the academic research institute Scholarium (scholarium.at) in Vienna, Austria, lecturer at several universities and faculty member at the International Academy of Philosophy in Liechtenstein. Marc-Felix Otto (marc-felix.otto@advisoryhouse.com) is equity partner at the consulting firm The Advisory House in Zürich, Switzerland. Both authors would like to thank the research staff at the Scholarium for their help and input.

exchange, can describe the process of the interaction of men who mutually promise and transfer goods to each other. In this case, concrete exchange relations are documented in the form of prices, reflecting subjective preferences and promises. The supplier of a good communicates the following promise:

> I promise to give the good A to a person who offers me, at least, X in return.

A potential counterparty, however, communicates:

> I promise to give, at most, X to a person who offers me the good A.

The exchange, i.e. the contracting, follows as the implementation of the given promises.

Similarly, coercive interactions as described by the discipline of cratics (cf. Taghizadegan and Otto, 2015), contain promises as an essential element. In analogy to catallactics, we can distinguish suppliers and counterparties regarding bads. The supplier of a bad pursues a marginal utility on his part by making the counterparty act in a certain way through promising a bad in case of that counterparty's refusal. Critical herein is the specific and subjective expectation of the ensuing damage, the marginal disutility, rather than some objectively quantifiable harm. In particular, the expected disutility depends on the counterparty's situation. The promise, i.e. the threat, to kick a paraplegic's leg might lead to a smaller expectation of disutility than is the case with a non-paraplegic person.

A threat can be considered as an "offer" of a bad. It is an offer only in an extended sense, since it can be rejected by the counterparty—but not without incurring costs. The actual interaction, however, runs contrary to a catallactic process: In catallactics, the offering party endeavors to contract in order to obtain a certain good in exchange for another good. In cratics, contracting implies the unilateral transfer of the good in order to avoid the bad. Non-contracting on the part of the counterparty implies to keep the good and to "test" the validity of the threat to execute the bad. The "supplier" of the bad makes the following promise:

> I promise to not execute the bad B on those who, at least, provide me with good G in return.

The "consumer" of a bad is a party that acknowledges the validity of the threat and therefore gives in to it. Thus, the term "bad" might be somewhat counterintuitive, however, it helps to establish the mirror-inverted analogy to catallactics. The consumer of a good ascribes a higher marginal utility to this good than to the asked exchange good and therefore wishes to transact. The "consumer" of a bad expects a higher marginal disutility from the bad than from giving up the demanded good. Herein, the "consumer" confirms the (validity of the) bad and encourages the "supplier" of the bad to provide more thereof, much like a catallactic consumer encourages a supplier to offer more of the same good. In effect, the "consumer" of the bad communicates the following promise:

> I promise to give G if the bad B is not done to me.

Goods are offered in the hope of meeting demand—meaning, a willingness to pay more than the costs, i.e. the marginal disutility from employing the factors of production. Bads are offered based on the expectation that, for the "consumer," the willingness to evade the bad is inferior to the marginal utility of the good. The willingness to evade therein denotes the amount of utility or value that the counterparty is willing to risk in order to evade the respective bad. Namely, the "consumer" risks that his costs to evade the bad exceed the costs of the bad itself. In effect, a high willingness to pay implies a large demand for goods, or a large willingness to contract, whereas high willingness to evade implies low demand for bads, or a low willingness to contract. In catallactics, the willingness to evade is irrelevant, since evasion costs are typically zero. In cratics, the willingness to pay—i.e., the readiness to contract—amounts to a willingness to obey, to give in to threats.

In analogy to the turnover of goods, the turnover of bads can be illustrated with analytical functions. Such supply and demand functions, to be sure, do not reflect reality in an exact manner, but rather serve to illustrate certain mechanisms: the higher the willingness to pay for a certain good, the more suppliers can expect turnover and will therefore join the market. In the case of bads, the tendency is the same: The higher the willingness to pay

(willingness to obey), the more bads will be offered, whereas the higher the willingness to evade, the less bads remain as effective threats on the "market."

Needless to say that this analogy must not be misunderstood. The "market" for bads is no market at all. At this point another analogous term would be necessary. The term "market" is derived from the Latin word *mercatus*, which in turn stems from *merx*: a product or good. Bads in Latin would be *malae merces*, so that one could form the concept of a malmarket, but that would probably be too much of a play of words. Let us stay with the Greek language: catallactic for a market order, cratic for a coercive order, whereby the study of the first is called *catallactics* while the study of the second is denoted as *cratics*. This contrast resembles Franz Oppenheimer's (1924) juxtaposition of the political and the economic means—the former would be cratic, the latter would be catallactic.

Back to the dynamics of the willingness to evade, where we can observe two extreme cases: A zero willingness to evade would mean to give up all values without resistance. There would be a maximum of bads, but a minimum of actual violence. As soon as "buyers" with a zero willingness to evade are discovered by "producers" of bads, the former—reluctantly—nurture the production of bads, which may entirely drive out the production of goods.

Let us clarify that example conceptually: "Production" of bads means the intention, preparation and propagation of harm to other people to the benefit of the "producer" at the lowest cost possible. In this case, a threatening appearance could constitute a "factor of production." When a bully runs into a classmate who has no willingness to evade, an angry look alone could be enough to be recognized as the offer of a bad, whereupon the transfer of snacks may follow without resistance, amounting to the immediate contracting in this coercive exchange. This would typically lead to a marginal rise of the production of bads, both because the producer of bads will be encouraged to further employ his "production factor," and because successors may appear who recognize how easy it is to obtain other people's goods. If, in a given "market," all the "buyers of the bads," i.e., those who give away the demanded goods, exhibited zero willingness to evade, the production of goods would not be profitable anymore, because even the smallest bads would lead to their uncompensated transfer.

Such a society would break apart very quickly, because all those "buyers" would run out of resources. A short period of absolute non-violence—during which violence was not necessary to break the will of the "buyers"—would yield to a period of violence among the producers of bads.

In contrast, a maximum willingness to evade would require the highest degree of violence for coercive exchange. Every threat would immediately be checked for its "backing." The "demand" for bads would be reduced to a minimum because the potential "buyers" preferred to risk the bad. A maximum willingness to evade may have two reasons: A maximum distrust in threats, and/or an absolute firmness with regard to one's principles, whereby one would risk everything in order to avoid giving up one's principles and values. In catallactics, analogous reasons would explain a minimum willingness to pay for offered goods: A maximum distrust in promises on the market, and/or an absolute firmness with regard to one's principles, which do not allow for a gain in utility through exchange (hostility against trade, defeatism etc.).

A cratic "buyer" expects that the cost of the evasion is higher than the demanded payment (buying into the threat). A catallactic buyer expects that the gain in utility through the offered goods is higher than the loss in utility through the demanded payment. The cratic "price" amounts to the demanded payment (loss of utility) to evade the threatened bads. The higher the demanded price and the higher the willingness to evade, the less the "demand."

In the field of catallactics, interventions in prices and quantities are known that have a cratic character by themselves. Namely, they are efforts to replace particular exchange relations of goods by means of the threat of bads. Every imperative or prohibition represents a cratic exchange: An "offer" (the threat) of bads is linked to an action or non-action preferred by the coercive party. At first sight, again, the analogy between omissions (caused by prohibitions) and services (preferred actions as goods) might seem overstretched. However, the objective character of the action to be performed or refrained from is a technical, not an economic question. An economic judgment of actions according to their technical content would violate the value neutrality principle, and amount to an arrogation of knowledge, respectively. In contrast, in the disciplines of medicine and religion, to name only two striking examples, action

cannot easily be distinguished from non-action. In addition, catal-lactic offers can aim at a non-action, such as an offer of money to a street musician in exchange to stopping the performance.

Following these introductory remarks, let us now proceed to the core of this work, the analogy to business cycle theory. Namely, broadly speaking, the cratic character of offers or threats is not always obvious. Bluffs (or deceptions) might have the same effect as price and quantity interventions. A particularly important field of such deceptive interventions is described by the business cycle theory according to the Austrian school of economics (see Mises, 1912). It describes the periodical emergence of an economic boom, followed by a bust. The reason for this typical pattern is a credit expansion beyond the level of real savings, which is revealed in suppressed interest rates. Such interest rates would be untenable and, in particular, would cause illiquidity, were they not enabled by cratic interventions (compulsory wealth transfers, privileges such as those arising from central banking, contract breaches without consequences, etc.).

This distortion of interest rates is, on the one hand, a price inter-vention, and, on the other hand, a deception. The lowered interest rate has a similar effect as a maximum price coercively set at a level below the market price. In this case, demand is higher than supply. The interest rate is the price for savings; the demand for savings—thus indebtedness—rises; the supply of real savings—the propensity to save—decreases. This would cause a supply gap, if the created circulatory credit had not filled that gap. But since the circulatory credit is based on the assumption that bank deposits will not be withdrawn, it is a *deception regarding the true extent of available savings*. During phases of credit expansion arising from artificially low interest rates (a "maximum rate of interest fixed below the market rate"), consumption and investment are booming at the same time. The overestimated savings and thus resources considered as disposable are unbacked promises. The insufficient backing within the financial system will be uncovered through a bank run, a run on illiquid banks, which without bailouts would have to default on their depositors. In the economy, an insufficient backing of promises with resources will be visible through unex-pected price increases, which cause the illiquidity of entrepreneurs who are now unable to finish their projects.

An analogous, systematic discrepancy between promise and backing—namely, between threat and capability to execute—exists in the field of cratics. An actor can, very easily, issue threats that exceed what he himself is capable and willing to execute. In the same way, entrepreneurs can make incorrect estimations about their own liquidity. Whenever such miscalculations accumulate, cycle patterns appear. In his "General Theory of Error Cycles," Jörg-Guido Hülsmann describes such accumulations of errors as illusions of legitimacy (Hülsmann, 1998). When, in the above schoolyard example, at some point in time it becomes common practice to hand over one's snacks to the bully, the need to "back" his threat disappears. One day he could lose his physical ability to supply the bads—punching disobedient schoolmates. As long as this ability is not checked, the bully can still collect the goods—until the day when a person again takes a risk and the illusion of the powerful bully bursts.

This pattern of deceptions and bursting illusions resembles the business cycle. The illusion starts a phase of apparent stability that actually appears to be particularly peaceful and free from violence: the *threat boom*. The issuer of threats is peaceful at this stage—he might even thank the classmates for handing over their snacks and return half of them. At this stage, the contracting of bads is high. Let us remember: The contracting of bads does not imply a preference for such bads (they are, after all, bad). However, it does imply the willingness to engage in cratic exchange, which consists of the delivery of goods or the execution or omission of actions in exchange for the non-execution of the threat. After the revelation of the incapacity to execute the threats, the stage of apparent voluntariness is followed by an explosive correction: The willingness to contract falls extremely rapidly. Even if the bully seeks rapid execution, he now detects that his power is "illiquid": it does not suffice to meet the suddenly accumulating challenges. While, during the boom, the physical overpowering of an individual was sufficient, now the physical overpowering of larger groups becomes necessary. The threat boom ends with a correction of the level of coercion, in which the power of the aggressor competes directly with the resistance of the victims. Now the schoolyard exhibits a high level of violence. Actually, it is a period of the reduction of (implicit) violence in which unsustainable cratic relations finally

yield to catallactic relations. Clueless teachers might intervene to stop the violence, by sanctioning the challenging pupils. Thereby, the correction might be postponed, creating the impression that the bully stood up against the challenges to the backing of his threats. In the worst case, the teachers intervene for the purpose of a superficial reduction of violence by artificially legitimizing the bully's claim: "The wiser head gives in!" Through this, another threat boom could follow, where the bully could increase his demands even more—after all, the wiser head has to give in! Apparent peacefulness would increase again, up to the point where someone decides to challenge the bully again.

Coercive rule as a systematic implementation of cratic exchange is possible either through a physical superiority of the rulers or through the illusion of superiority, as De la Boëtie observed a long time ago:

> He who thus domineers over you has only two eyes, only two hands, only one body, no more than is possessed by the least man among the infinite numbers dwelling in your cities; he has indeed nothing more than the power that you confer upon him to destroy you. (La Boëtie, 1550)

The paradox of prolonged apparent peacefulness of coercive rule can thus be explained through the violence cycle theory presented here. That puts the observation in its true light—that open violence may have decreased throughout the last centuries. One of the most detailed expositions of this development is Steven Pinker's (2011). He reasoned that in the course of history the "better angels" within human nature have prevailed against the "inner demons"—leading to modern man being more civilized. The presented empirical evidence seems conclusive: The violence among individuals as well as between states (wars) seems to have decreased.

Two of the many reasons that Pinker proposes for this development are of direct concern to the field of cratics: On the one hand, he argues, the growth of Leviathan—the centralized state monopoly on the use of force—has displaced the violence between smaller units, while on the other hand, commercialization has made people more peaceful. The latter argument finds confirmation in the fact that catallactic transactions are able to replace cratic transactions: After all, for each bilateral action he envisions, man can choose whether to employ the

cratic or the catallactic mode. The former argument finds, at best, partial confirmation. Phases of cratic legitimacy may indeed have a pacifying effect. This idea goes back to Thomas Hobbes and can be confirmed by praxeological analysis—but with serious reservations that lead to conclusions which differ completely from those drawn by Hobbes and Pinker.

Indeed, the violence cycle has a paradoxical effect which complicates its quantitative assessment—just like the business cycle. The possible "evaluation of the backing" of promises of violence can lead to violent corrections after peaceful periods, a *cratic recession*, during which the violence is bid up dramatically. This explains the conclusion of Hobbes that such "evaluations of the backing" should be completely avoided, which can only succeed through the subjects' complete renunciation to challenge the government. Otherwise a civil war would be imminent:

> For those men that are so remissly governed that they dare take up arms to defend or introduce an opinion are still at war; and their condition, not peace, but only a cessation of arms for fear of one another; and they live, as it were, in the procincts of battle continually. It belonged therefore to him that hath the sovereign power to be judge, or constitute all judges of opinions and doctrines, as a thing necessary to peace; thereby to prevent discord and civil war." (Hobbes, 1651, chapter XVIII)

The fallacy lies in considering the high potential of violence during the cratic recession as the natural state—just like the fear of the high "clean-up costs" of economic recessions, which usually show a steep rise in unemployment and insolvencies. In fact, however, the recession is a corrective process, revealing the discrepancies between economic actions and economic realities which had accumulated during the artificial boom. Hobbes sees fear of violence as the only chance for pacification and dismisses catallactic alternatives, the possibility for people to reach complementary or inverse goals by peaceful means without harming each other. This leads to an interventionist perspective on politics, seeking a monopoly of fear, analogous to economic policy claiming the monopoly of trust for the state, as the supposed guardian of money and contracts. Hobbes' concept of man is, accordingly, biased:

> Of all passions, that which inclineth men least to break the laws is fear.
> Nay, excepting some generous natures, it is the only thing (when there is
> appearance of profit or pleasure by breaking the laws) that makes men
> keep them. (Hobbes, 1651, chapter XXVII)

If fear were really the main reason for rule-consistent behavior, the costs of violence would be uneconomically high for Leviathan: The sanctions for breaches of law would have to be backed to a degree where the related costs would reach the level of income from cratic action. In the short term, it may be possible to compensate for a lower likelihood of revelation of violence with more draconian penalties. But in this way the legitimacy further decreases and thereby also the subjects' "willingness to contract" (willingness to obey). These dynamics are missed by Hobbes, as well as the observation that in times of long and far-reaching peace obtained through a highly stable coercive setup (i.e, a high level of implicit fear and obedience), the probability of a "black swan" of massive violent corrections—or, more generally, reactions—is growing: in particular, our violence cycle theory suggests a correlation between the intensity of violent reactions and the lengths and intensities of the respective preceding coercive periods, that is of those periods within a certain culture or society that are characterized by a stable coercive setup. Following Nassim Taleb, the distribution of the intensity of violent outbursts indicates a fat tail (Taleb, 2012); accordingly, we assume a fat-tail distribution regarding the length (and intensity) of preceding *coercive periods*. Hence, we also agree with Taleb's criticism of Pinker, particularly regarding the evaluation of our present-day situation. On a side note, to be sure, Taleb's analysis does not distinguish between the internal and external type of a violent outburst (civil war versus interstate war). Indeed, we argue that a violent reaction does not necessarily have to affect the coercing party or institution, as would typically be the case in a civil war. Rather, we hold that interstate wars have consistently been employed by coercing institutions as a means to divert internal backlashes.

With threat boom and *threat bust* as the two elements of a cycle, the total enacted violence across such a cycle—or in economically more precise terms: the total volume of contracted and enacted bads—may be considerably higher than it would be without the cycle, or with a less pronounced one. Analogously, the growth in

prosperity over the entire economic cycle is lower than it would be without boom-and-bust sequences. This is so both because the boom constitutes a distortion in which goods are misallocated—meaning, allocated not in accordance with the preferences and plans of the people—and because the bust, while it might correct this distortion, typically produces highly damaging side effects in the process, which would not have been "required" with a less pronounced or non-existing cycle.

However, this perspective does not only apply for archaic or low-level regimes of fear but also for modern regimes of legitimacy. Indeed, Hobbes praised fear, which he correctly recognized as a stabilizing element of cratic structures, as a corollary of freedom:

> Fear and liberty are consistent: as when a man throweth his goods into the sea for fear the ship should sink, he doth it nevertheless very willingly, and may refuse to do it if he will; it is therefore the action of one that was free: so a man sometimes pays his debt, only for fear of imprisonment, which, because nobody hindered him from. (Hobbes, 1651, chapter XXI)

Similaly, legitimacy is used as a synonym for freedom in modern cratic systems, for example under the terms "rule of law" and "democracy." However, whereas in catallactics unbacked promises can be corrected sooner and on a smaller scale, because the self-interest of the people serves as a corrective, cratic promises can expand to a higher degree. The potential "black swan" consists in a sudden implosion of legitimacy. In effect, the legitimization of cratic exchange reduces its costs below the otherwise necessary level and leads to the preponderance of the political (cratic) means over the economic (catallactic) means. The resulting preponderance of supply and contracting of bads leads to an allocation of means which, on average, corresponds less to the preferences and plans of the people than would be the case without such legitimization and the resulting violence cycle.

There is a similar problem in case of interstate violence. Peaceful coexistence is not only stabilized by mutual threat potential, but also by perceived legitimacy of predominance, respectively transfer of sovereignty. Praxeological analysis, however, shows that these seemingly stable arrangements are more fragile than is generally perceived, because these arrangements themselves sow the seeds of "corrective catastrophes."

The problem of "black swans" in case of the threat potential through weapons of mass destruction is a matter of common knowledge. Nassim Taleb probably had precisely this in mind when criticizing Pinker:

> Ancestral man had no nuclear weapons, so it is downright foolish to assume the statistics of conflicts in the 14th century can apply to the 21st. A mean person with a stick is categorically different from a mean person with a nuclear weapon, so the emphasis should be on the weapon and not exclusively on the psychological make-up of the person. (Taleb, 2012)

Let us translate this into the language of cratics: Frequent evaluations of the backings of geopolitical arrangements through small scale skirmishes may at first exhibit a higher rate of violence, while in the long term they could harbor a lower potential of violence than a peace order (or the order of a cold war), the backing of which can only be evaluated through the use of nuclear weapons. We have survived the 20th century without mutual destruction, but to deduce therefrom the superiority of a peace order based on massive threat potential would be a statistical fallacy, as Taleb observed. The fallacy of the "survivor bias" fits in every sense of the word: The world has frequently been on the brink of catastrophe. We have survived; that is why we can praise modernity as the best of all worlds, which, as Pinker empirically claims, may show less violence and war than earlier epochs. If that lottery had turned out differently, there would be hardly anyone left to sing such praises. A mere 100 years ago, a similar analysis would also have praised an apparent age of peace:

> Panelists in 1912 could have produced compelling evidence documenting the decline of great power war. The previous century had been the most peaceful on record, continuing the decline in great power war over the previous three centuries. There had been zero great power wars for nearly four decades, a 50% decline over the last two centuries, and zero general wars involving all of the great powers for 97 years. This was the longest period of great power peace in the last four centuries of the modern European system." (Levy and Thompson, 2013, p. 412)

As well, in the case of interpersonal violence, a low level of violence can have causes other than the development of so-called angelic behavior—unless one praises obedience as an angelic

virtue and condemns human freedom as a satanic temptation. Cratic structures which enforce obedience through physical superiority, rather than through habit and legitimization, correspond to the phenomenon of stationary bandits, which Mancur Olsen (1993) analyzed economically. Olson concludes that the monopolization of the use of violence should minimize such violence. The stationary bandit replaces non-stationary bandits and contents himself with less, though continuous, prey. Our analysis, however, indicates that this compensation is not certain: The same rationality leads to a lower and thus cheaper backing of threats for a stationary bandit. On the one hand, this enables, *ceteris paribus*, a higher level of exploitation. On the other hand, since criminals (who also operate cratically) are the first ones who evaluate the backing of threats, a lower degree of backing by the "primary, stationary bandit" may imply that the quality of his "service" (security) relates very poorly to his cost level (appropriation of goods). In extreme cases, the population may be harassed to an insupportable degree through unbacked threats, while at the same time left completely and utterly at the mercy of criminals who operate with backed threats. In such a setup, peacefulness may purely result from defenselessness. The officials seem to get along with forms and stamps; weapons are hardly used. But behind this facade of peacefulness grows a black swan of cognitive dissonance that is expressed at first through declining trust and increasing resentment. It is difficult to predict the behavior of people who have been peaceful only due to apathy and blindness, when they suddenly fear for their survival. Explosions of violence at the end of such a cycle cannot be excluded. In effect, this is the risk of pacification through fear or legitimization of cratic threats. Ultimately, a level of violence at which threats are challenged and thus evaluated more often might be higher in the short term, but should be lower in the long term—even in the case where, during a long threat boom, people get accustomed to "angelic peacefulness."

The threat boom is not only characterized by the fact that one day a correction is due, which can lead to an explosion of violence (revolutions, civil wars, uprisings), but also by the fact that it leads to a systematic overestimation regarding how well the existing order corresponds to the preferences of the people. It is similar to an economic boom: The order books and supermarkets are full, the

companies are flourishing, but the markets are distorted—less and less of what the people intrinsically demand is produced while, rather, value destruction takes place. Scarce and therefore valuable resources are transformed into less valuable things. Similarly, during a threat boom, behind a facade of legitimacy, hidden exploitation takes place. Of course, "value" and "exploitation" are normative concepts. Expressed in a value neutral way, it boils down to a situation in which actions are legitimized as valuable and just, and are thus encouraged, which, after revelation of the consequences, are regarded as destructive and exploitive in hindsight. The problem lies precisely in this encouragement, thus in the dynamics: A hidden tension between aspirations and reality is growing.

The violence cycle theory facilitates a critical analysis of the succession of periods of war and peace. Furthermore, it allows a new interpretation of the prevailing civilization and reduction of inter-personal violence in large parts of the world throughout modernity. Cratic analysis also nourishes the debate about an ethical justification of state violence with new insights, e.g., through a critical examination of the possibilities and conditions for a minimization of violence.

The violence cycle theory is more than a mere analogy to the business cycle theory. The business cycle is not a necessary result of monetary expansion, as Hülsmann has shown. Monetary expansion is usually linked to a cycle of erroneous trust by entrepreneurs in the institutional framework and distorted market signals. Hülsmann argues:

> The mere fact that the quantity of money changes does not prevent the entrepreneurs from judging correctly what influence it will exercise on market prices. (Hülsmann, 1998, p. 4)

He concludes that the business cycle theory is "not generally and apodictically valid." Thus, a more general theory is needed, even to explain the business cycle in the first place—the business cycle is not an *explicans*, but an *explicandum*, on which the cratic cycle theory may shed additional light. Trust in unbacked promises, misled by coercion, may play a larger role than previously thought. Of course, trust is a subjective category and does not allow for deterministic or quantitative predictions. Misguided

booms, based on unbacked promises or threats, are not necessarily corrected; if gullibility increases at the same pace, they may go on forever. If they are corrected, they tend to collapse; disillusionment is self-reinforcing.

Hopefully, these introductory considerations help to show the potential of further application of "cratics," i.e., the praxeology of coercion and violence, in the fields of ethics, political science and history.

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THE INTEREST RATE AND THE LENGTH OF PRODUCTION: A COMMENT

DAVID HOWDEN

ABSTRACT: Machaj (2015) does a great service in pointing out a key assumption, heretofore unaddressed, in Filleule (2007) and Hülsmann (2010). Machaj errs, however, in stating that *who* saves will have an ambiguous effect on the interest rate and that *where* savings are directed can have ambiguous effects on the length of production. In this brief comment I will first show that who saves will have no effect on the interest rate. I then turn my attention to what it means to "lengthen" the structure of production. Although extended production time or additional "stages" of production make convenient placeholders for increased roundaboutness, they fail to grasp the core concept as it pertains to capital theory: what is it about production processes that makes more or better consumer goods?

KEYWORDS: capital theory, interest, production structure, roundaboutness, labor intensity

JEL CLASSIFICATION: B13, B53, D24, E43

What is the relationship between the rate of interest and the length of the structure of production? Austrian School economists often claim an unambiguous negative relationship between these two variables. Indeed, the assertion that artificial

David Howden (dhowden@slu.edu) is professor of economics at Saint Louis University – Madrid Campus. In addition to Jeffrey Herbener and Shawn Ritenour, I would also like to thank, without implicating, an especially insightful referee.

reductions to the interest rate cause an unsustainable lengthening in the structure of production is the central tenet of the Austrian theory of the business cycle.

Recently, Fillieule (2007) and Hülsmann (2010) have challenged this claim by deriving the logical outcome of a drop in the interest rate given a fixed stream of aggregate expenditure. As the rate of interest falls, current consumption is discounted at a lower rate. The result is a shorter production structure, with production activities moved closer to final consumption, or to what Menger (1871, ch. 1) referred to as goods of the first order. While such an outcome is opposed to traditional analysis, it is the logical consequence of a reduced interest rate on a constant expenditure stream.

While such reasoning is correct, bypassing an important causal relationship creates an outcome more apparent than real. Within a fixed expenditure stream, the interest rate can only decrease if consumption falls or savings increase. Both of these outcomes represent different sides of the same coin, as the market rate of interest is the intertemporal price differential between present and future goods, i.e., between consumption and investment expenditures.[1] Machaj (2015, p. 279) is quite correct in challenging Fillieule's and Hülsmann's novel conclusion that a lower interest rate will shorten the structure of production since they give no cause as to why the interest rate would fall. Realizing that a decrease in the level of consumption is a necessary precondition for a falling interest rate goes far in illustrating the traditional negative relationship between the interest rate and the length of production.

Machaj overreaches with this conclusion, however, in then positing that *who* increases his savings will have an ambiguous effect on the interest rate. He does so by describing scenarios where the interest rate decreases without decreases in total consumption. This outcome gives the seeming result of "total savings increasing without total consumption going down" (Machaj, 2015, p. 279).

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[1] Technically the pure rate of interest is the intertemporal price differential between equivalent satisfactions, as provided for by the use values embodied in goods. To the extent that financial assets, such as money, circulate according to their exchange and not use value (Howden 2015: 17; 2016a), the intertemporal price differential of the physical goods will be the same as that of their satisfactions.

> Imagine a simple scenario of capitalists decreasing their consumption by X units (total savings increase). Imagine that this additionally saved money is being spent only on higher wages. Under the framework—for the purpose of simplicity—workers are being treated as pure consumers, so that wages are fully spent on consumption. Hence a decrease in capitalists' consumption by X units is fully (under such scenario) counterbalanced by an increase in X units of laborers' consumption. At the same time, total savings are increased (because capitalists are saving more), and the interest rate can fall with total consumption unaltered. (Machaj, 2015, pp. 279–280)

The belief that the relationship between consumption and the rate of interest depends on *who* saves, lower time preference capitalists or higher time preference workers, is attractive but misplaced. What matters is the aggregate level of savings and not its composition amongst individuals.[2]

Assume a closed economy in a no-profit equilibrium. Aggregate income Y accrues to factor owners in the following manner (Rothbard, 1962, p. 334): workers in the form of wages w, capitalists in the form of a return r on their investment, and landowners by payments l for the use of land. Workers consume C_W, capitalists consume C_K, and landowners consume C_L, with total consumption C being the sum of worker, capitalist and landowner consumption. There is no income hoarded in the form of money.

Workers' savings S_W are given as:

$$S_W = w - C_W$$

Capitalist savings S_K are given as:

$$S_K = r - C_K$$

And landowners' savings S_L are given as:

$$S_L = l - C_L$$

Since savings in the closed economy can only come from workers, capitalists and landowners, total savings S simplifies to the standard expression:

$$S = Y - C$$

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[2] Indeed, the stock of savings has only a value dimension and does not acquire a temporal aspect until it is invested (Braun, 2014, p. 55)

Since the interest rate is negatively related to the savings-consumption ratio, and since aggregate savings and aggregate consumption are two sides of the same coin, we find the standard result that increases in consumption must drive savings lower and thus increase the rate of interest.

In this scenario, all income flows to the factor owners in the form of wages, a return on capital and rental payments for land use, and these groups then decide whether to save or consume this income according to their own preferences. Taken together, it is clear that aggregate savings cannot increase except by either 1) an increase in income, or 2) a decrease in aggregate consumption expenditures. The composition of the originators of the savings, however, has no bearing on the rate of interest.

Machaj's example aims to show that savings can decrease even if total consumption is unchanged. Since he assumes explicitly that the expenditure stream Y is constant, the inconsistency between a falling interest rate with unchanged consumption must be explained through other means. Machaj assumes the worker is a pure consumer with no savings ($C_W = w$). He then proceeds to shift the income distribution so that r increases by the same amount as w decreases. It is here that he states that savings must rise since workers save less than capitalists. However, the total sum of consumption expenditures will also have decreased by the same amount and not remain constant as Machaj states.

To summarize, the redistribution of income will decrease consumption by the same amount as savings have increased, resulting in a lower interest rate. Consequently, Machaj has not demonstrated that a decline in saving need not be offset by a commensurate increase in consumption expenditures.[3]

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[3] Before moving on I must point out one more quibble with Machaj's presentation of the relationship between the length of the structure of production and changes of the consumption-savings ratio. He (2015, p. 279) points out correctly that what is relevant is the interest-rate elasticity to the consumption-savings ratio, though he comments that a sufficiently high elasticity would shorten the structure of production. Actually, the sign on the elasticity is the only relevant determinant of whether the structure of production shortens, lengthens or is neutral with respect to changes in the consumption-savings ratio. As we will see, the answer to this question hinges critically on what one means by changes to the "length" of the structure of production.

Still, the second part of Machaj's paper focusing on intertemporal labor intensity (ILI) has great merit, though not because it pertains to the consumption-savings relationship. Instead, it helps to answer the question of "*where does the saved money go*?" (Machaj, 2015, p. 280). This question has heretofore been answered in peculiar ways, e.g., Fillieule (2007) sees any change in savings as being distributed evenly across the stages of production, and Hülsmann (2010) assumes all savings are directed to the first stage of production. Machaj's contribution is in relaxing these assumptions.

Machaj gives a series of three examples where a lowering of the equilibrium rate of interest induces either no change, a lengthening or a shortening of the number of stages of production. All three examples share a common interest rate and the only differentiating factor is the ILI. The ILI is the degree to which labor is employed in production and, more importantly, where within the production process this takes place. Machaj's examples illustrate that labor employed at the later stages of production will have the intuitive (and standard) effect of lengthening the structure of production. If, however, capitalists employ laborers at the earlier stages of production, the result will be a reduction in the number of stages of production.

Machaj uses this insight to question Hülsmann's central conclusion that a shortening of the production structure will result from a lower interest rate. Effectively, Machaj demonstrates that this result has nothing to do with the rate of interest but rather depends on where labor expenditures are directed.

Machaj sheds light on what Howden and Yang (2016; forth-coming) refer to as the "structure of labor" by which they mean the temporal and qualitative ordering of labor that complements capital along the structure of production. Superficially, one could believe that Machaj's example relies on an adequate answer to whether human capital is indeed capital in the same sense that physical capital is. I claim only a "superficial" relevance to that question since the labor/capital ratio of 85/200 is constant in all of his examples and thus the relationship between the length of the production structure must be contingent on some factor other than the relationship between any definition of human capital and physical capital. Freed from commenting on controversies concerning the quality of labor, I will point out two deficiencies with the problem as it is structured.

The first is that, as in Fillieule (2007) and Hülsmann (2010), Machaj has no causal explanation for why the interest rate falls. The interest rate decreases from an equilibrium level of 1/9 to 1/19 in all three of Machaj's examples, though this is not caused by a change in the consumption-savings ratio, which remains constant at 1/2. Nor does a change to the money supply or its velocity affect the interest rate, as the expenditure stream (MV) is fixed at 300 in all examples. Given no causal reason to explain why the interest rate was more than halved, it is difficult to treat Machaj's conclusion as anything more than a theoretical example of passing curiosity, but which has no bearing on the real world.

More seriously, attempts to show paradoxical changes in the production structure due to changes in the interest rate without giving a reason why the rate changed are analogous to reasoning from a price change. Although they represent seemingly plausible and logically consistent examples, they lead to vacuous results. To give an analogy, the physicist could, e.g., wonder what the effect would be on a 120-mile journey that takes two hours at 60 miles per hour if we increased the speed to 90 miles an hour. If our travel time remained constant it would be obvious that the distance magically lengthened to 180 miles. Of course, the correct answer would lie in identifying that travel time is the result of speed and distance, notwithstanding that the three variables are all defined tautologically in terms of each other. The journey cannot take on multiple lengths, and the time must change to equate the new speed with the existing distance.

Likewise, attempts to derive changes to the length of production when the interest rate changes and the consumption-savings ratio and aggregate level of expenditure remain constant suffer the same deficiency. The rate of interest is not *sui generis*. It is determined first and foremost by the savings-consumption ratio. Thus the interest rate is the dependent variable that changes in response to the savings-consumption ratio and cannot be treated as the inde-pendent variable affecting savings or consumption.

Still, we can let this objection pass and question whether there is something else of interest in his result. Implicit in the statement that the structure of production changes length according to changes in the interest rate, or dependent on the degree of ILI for that matter, is that we share a common understanding of what

units the production structure is measured in. Machaj uses two units interchangeably. On the one hand, the production structure is reckoned in "stages" and to lengthen the structure means to add a new stage. On the other hand, each stage is defined as having a duration of one year. To lengthen the structure thus implies a greater amount of temporal units necessary to produce a given amount of output.

Such beliefs about how best to measure the structure of production are common. Fillieule (2007, p. 201) makes the same assumption, as does Hülsmann (2010). The use of "stages" is deficient, however, in that adding more stages is analogous to a lengthened production structure but gives no reference to whether the stage is added closer or further from consumption. In other words, the temporal ordering of stages does not affect the length of the production structure, provided that somewhere in the structure there is productive activity.[4]

If stages or time are deficient units, when the Austrian-school economist refers to the "length" of the structure of production, in what units must he measure this dimension? Although increased production time is the conventional usage of the term "lengthening," there are good reasons to doubt its applicability.

The most obvious doubt should come from the apparent, if contrived, examples that show an ambiguous relationship between the rate of interest and the temporal length of the capital structure. One of Machaj's great contributions is in demonstrating that where savings (signaled as they are by a lower interest rate) are invested is more complicated a question than was once thought. Of course we know that savings will be directed more profitably at a temporal stage further from final consumption as the interest rate falls due to the discount effect. At the same time if, as is the case in an Austrian business cycle, consumers increase their demand for consumption goods, entrepreneurs will be enticed to invest resources closer to final output to take advantage of the derived demand at these lower stages. Garrison (2001, p. 72) refers to the "tug-of-war" that occurs at both ends of the structure of production, but doesn't have

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[4] One could quibble that defining each stages as a fixed temporal length, e.g., one year, is ad hoc though as an assumption there is nothing unmeritorious about doing so.

a clear way to answer whether the strain at the higher and lower stages is "lengthening" the production structure.

Results that show an ambiguous relationship between the length of the production structure and the interest rate do so by defining the length in terms of "stages," or what is analogous, time. There is great ambiguity in the Austrian literature as to what a "lengthening" of the structure actually means. Examples abound of the lengthening being the addition of more stages (e.g., Garrison, 2001, p. 82; Rothbard, 1962, pp. 519, 996; Huerta de Soto, 2006, p. 280; Hayek, 1935, p. 156).[5] Other authors stress the lengthening of the time element of production (Böhm-Bawerk, 1889, p. 82; Strigl, 1934, pp. 3–4; Rothbard, 1962, p. 423; Reisman, 1990, p. 460; Mises, 1912, p. 360; 1949, p. 556; Hayek, 1935, p. 150).

Both views on lengthening are consistent with the approach used by Machaj, which he uses to illustrate his counter-intuitive result. One could also point to more nuanced views that *could* be consistent with Machaj's examples of a lengthened structure of production. Rothbard (1962, p. 1006 n113; 1963, p. 10), Huerta de Soto (2006, pp. 337, 365, 369), and Hayek (1935, p. 310) all allude to the weighting of investment according to what stage it is directed to. Under this chain of thought, it is possible to conceptualize an investment made in a higher stage as lengthening the structure of production more than an equivalent investment in a lower stage since the investment is further from final consumption.

Equating additional stages with a lengthened period of production is not without its drawbacks. Böhm-Bawerk (1889, p. 82) first noted that there was no strict proportionality between the number of stages and the length of production time, and Hayek developed this chain of reasoning more fully (Hayek, 1941, pp. 73–74). In a section devoted to "Capital Accumulation and the Length of the Structure of Production," Rothbard gives an example where there is an ambiguous relationship between Robinson Crusoe's investments, total consumable output produced and the temporal period of production of this output (1962 p. 543). Hayek gives the most comprehensive examination of this point:

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[5] Of these authors, only Hayek (1941, p. 73) has paid attention to defining what a "stage" of production actually means: separate operations performed by distinct firms. I doubt this definition is readily shared by others using the concept.

> It is frequently supposed that all increases in the quantity of capital per head (at least when they do not involve changes in the quantities of durable goods) must mean that some commodities will now be produced by longer processes than before. But so long as the processes used in different industries are of different lengths, this is by no means a necessary consequence of a change in the investment periods of particular units of input. If input is transferred from industries using shorter processes to industries using longer processes, there will be no change in the length of the period of production in any industry, nor any change in the methods of production of any particular commodity, but merely an increase in the periods for which particular units of input are invested. The significance of these changes in the investment periods of particular units of input will, however, be exactly the same as it would be if they were the consequence of a change in the length of particular processes of production. (Hayek, 1941, pp. 77–78)

Machaj relies on labor reallocations to show scenarios in which the structure of production is temporally lengthened or shortened given the same interest rate, but Hayek was critical of any approach to understanding the lengthening of the structure of production by means of looking at shifts in labor instead of capital (1936, p. 496, n16). This stemmed from his belief that focusing narrowly on labor shifts would not explain why an increase in that specific factor was being pursued, something which he believed could take place only after a capital investment had increased the marginal productivity of labor. Thus the term "period of production" (including capital *and* labor) was an unfortunate term to describe the intended phenomenon, i.e., more roundabout production processes. (One alternative offered by Hayek was to measure roundaboutness by way of the "period of investment" [Hayek, 1936, p. 496].)

By providing multiple production structures differing only by the stages at which payments to an originary factor are made and in what magnitude, Machaj gives no explanation for why the rearrangement of the structure of production should occur. Capitalists will not rearrange deliberately the input factors along the structure of production unless the consequence is greater productivity or decreased costs. In Machaj's examples, the total amount of expenditure directed to labor relative to aggregate expenditures (actually to the originary factors in general, but he focuses on labor) increases from 70/300 to 85/300. This bidding for labor, either in terms of higher wages or more workers, only occurs if labor productivity is enhanced. The only way for labor productivity to increase is by

increasing the capital stock per worker. Note that this final point is a not just an empirical tendency, but rather a praxeological law. Contriving examples to illustrate where labor will be reallocated to within the production structure without making reference to the reasons *why* labor will command a higher wage or be demanded in greater quantities are technical questions that do not fall within the scope of economic theory. Any consequent discussion of changes to the length of the structure of production that starts by assuming away the reasons why the length would change provide answers to questions that do not concern the economic theorist.[6]

If lengthening the structure of production has any relevance for capital theory, it is only as a placeholder for roundaboutness. After all, it was the more roundabout methods of production that Böhm-Bawerk stressed as the cause of economic growth (1889, pp. 10–15). (Economic growth is here understood to mean more or better consumer goods.) A greater amount or more highly valued output could be produced for a given amount of inputs only if the inputs were arranged in such a way that coincided with more capital intensive means of production.[7] In this way roundabout production processes are those that are more capital intensive. Consequently, when the Austrian-school economist discusses lengthening the structure of production, he must not entertain notions that it is a temporal extension (although it could be). Nor must he consider the addition of more stages or operations in the productive process (although this too will likely occur). Instead he must reckon lengthening in physical terms—an increase in the capital intensity of the production process.

That conclusion only pushes the problem one step further back: what is the best measure of capital intensity? There are only two ways that the production structure could be said to become more capital intensive (Howden, 2016b, c). The first is through the production of a greater amount of durable capital goods. Thus if the output mix between capital goods and consumption goods shifted in favor of the former, the result would be a greater

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[6] I thank an astute referee for this point.

[7] I ignore here technological advances.

intensity of the capital stock.[8] This increase in capital intensity of the overall production process can be achieved by 1) substituting more capital-intensive production processes for shorter labor-intensive processes, 2) shifting production to existing goods that entail a more capital-intensive production process, 3) producing new goods in a capital-intensive way without changing the production plans of existing goods, or 4) increasing production of existing goods in less capital-intensive industries (e.g., oranges) while not retrenching production of goods in more capital-intensive industries (e.g., heavy machinery). All of these examples increase the capital intensity of the structure of production, and in a roundabout way they will also result in temporally lengthened production processes since the capital goods themselves embody not just the originary factors of production, but also "time stored up" (Mises, 1949, p. 492). Furthermore, method 4 would result in an increase in the ratio of temporally shorter to longer production processes but would still require additional capital, which is consistent with the goal of increasing the roundaboutness of a production process.

The depreciable nature of durable capital goods leads us to the second method to increase the capital intensity of the production structure. Production of more durable capital implies that less future output will be needed to keep the existing stock intact. Thus, capital intensity can be increased if the durability of the newly produced capital goods is greater than previously was the case.

While these two definitions of increased roundaboutness concern the production of capital exclusively there is also a third, less explored, way. Roundaboutness is undertaken to produce more or better consumer goods. If the average duration of serviceableness, i.e., durability, of such goods were increased with no change in the aggregate production methods, one could still say an increase in roundaboutness had occurred. Böhm-Bawerk (1888, pp. 89–94) discusses this outcome though is hesitant to include changes to the durability of consumer goods as a type of

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[8] This is subject to a minimum threshold. Capital suffers depreciation and a portion of the newly produced capital goods in any given period will be necessary to replace the lost productivity of the existing stock. Thus, the structure of production can only be said to become more capital intensive if a sufficient amount of capital goods are produced to replenish the depreciation of the existing stock.

roundaboutness in production, but rather as a "parallel" process that augments the phenomenon.[9]

Machaj abstracts from the output mix in his examples, and thus we cannot be sure whether any of them represent a lengthened structure of production, notwithstanding the appearance that this has happened by focusing on the temporal aspect of production. In conclusion, changes to savings preferences alter the "length" of the structure of production, which is reflected in the interest rate. In the unhampered economy, the interest rate does not change the structure of production but rather it is through preference shifts between present and future goods on the structure of production in conjunction with the credit market that the interest rate obtains. Of course, the role of the production structure in determining the rate of interest on the loan market has been discussed already and at length in Rothbard (1962, ch. 6 and esp. p. 378).

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[9] I have noted elsewhere the relationship between the durability of consumer goods and the term structure of interest (Howden, forthcoming), but Böhm-Bawerk focuses here on the relationship between the durability of consumer goods and the demand for future goods, which then affects the pure rate of interest.

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A Comparison of Direct Investment of Savings and Cash Building of Savings: A Response to Alexandru Pătruți

Philipp Bagus

ABSTRACT: When individuals save more and invest directly in projects there results capital accumulation and growth. When individuals save more in order to add to their cash holdings, consumer goods are liberated that can be used for capital accumulation causing also economic growth. At first sight, the processes seem similar. But are there differences? And if so, what are they? In this article and responding to Pătruți (2016), we will first emphasize that cash building does not necessarily stem from saving. Second, we will argue that cash building by saving does not necessarily imply a longer time period for capital accumulation to materialize. Third, we will criticize the argument that hoarding would be suboptimal vis-à-vis direct investment. Finally, we will analyze the differences between cash building by saving and saving through investing.

KEYWORDS: Austrian school, capital theory, structure of production, investment, interest, hoarding

JEL CLASSIFICATION: B13, B53, E14, E22, E31, E41, E43, O40

Philipp Bagus (philipp.bagus@urjc.es) is Professor of Economics at the Universidad Rey Juan Carlos, Madrid, Spain.

INTRODUCTION

Pătruți in "An Analysis on the Relationship between Hoarding, Investment, and Economic Growth" (2016) delves into the complex relationship between investment, cash building and capital accumulation. When individuals save more and invest directly in projects, there results capital accumulation and economic growth. When individuals save more in order to add to their cash holdings, consumer goods are liberated that can be used for capital accumulation, causing also economic growth. At first sight, the processes seem similar. But are there differences? And if so, what are they? It appears that a detailed analysis of the difference is still missing.

I am very grateful for Pătruți's article for raising these questions, and agree with Pătruți's assessment that "there seems to be a lack of economic literature which comparatively analyzes whether in a monetary economy hoarding is in any way different from investment with regards to economic growth." (p. 252)

Yet, and not mentioned by Pătruți, there have been some (albeit scarce) discussions in the literature on the effects of saving in form of cash building, comparing them with the direct investment of savings.

The authors agree that cash building by saving allows for capital accumulation and economic growth, and that its effects are similar to those of a direct investment of savings. For instance, Mises states (1998, pp. 518–519):

> If an individual employs a sum of money not for consumption but for the purchase of factors of production, saving is directly turned into capital accumulation. If the individual saver employs his additional savings for increasing his cash holding because this is in his eyes the most advantageous mode of using them, he brings about a tendency toward a fall in commodity prices and a rise in the monetary unit´s purchasing power…. If nobody employs the goods—the nonconsumption of which brought about the additional saving—for an expansion of his consumptive spending, they remain as in increment in the account of capital goods available, whatever their prices may be. The two processes—increased cash holding and increased capital accumulation—take place side by side.

Thus, Mises notes that saving and cash building is a more indirect way than direct investing. Both lead to capital accumulation. He does not say anything on the comparative speed of the processes.

Similarly, I have argued elsewhere (Bagus [2015a, pp. 65–66])

> that an increased demand for money (hoarding) by a reduction of consumption has the same effects on the structure of production as in the case of an increase in savings and direct investment: the structure of production becomes more capital intensive. In both cases, consumer goods are liberated to enlarge and widen the structure of production. The difference to an increase in savings and direct investment is, that in the case of an increase in cash holding by an abstention from consumption, the funds are not directly invested in an enlargement of the structure of production, but they are directed to this effect indirectly by a change of relative prices.

Huerta de Soto (2009, p. 449) also regards the two situations as quite similar and remarks,

> [t]he only difference between this situation [refraining from consumption in order to increase cash balances] and that of an increase in voluntary saving which is immediately and directly invested in the productive structure or capital markets is as follows: when saving manifests itself as a rise in cash balances, there is a necessary decline in the price of consumer goods and services and in the price of products in the intermediate stages, as well as an inevitable reduction in the nominal income of the original means of production and in wages, all of which adapt to the increase purchasing power of money.

While Pătruți agrees that both direct investment of saving and cash building through saving cause growth in the long run, Pătruți is confident to have found one important difference, claiming that

> hoarding necessarily implies a longer period of time between the moment when resources are saved and the moment when new consumer goods reach the market (economic growth), as opposed to the case in which the same amount of resources would be invested through the banking system. (p. 248)

In short, in the case of cash building by saving we would have to wait longer for beneficial economic growth. Therefore, Pătruți

concludes that "increasing monetary cash balances does not represent the optimal growth promoting tool." (p. 253)

In our response, we will first clarify that cash building does not necessarily lead to growth as it can stem from disinvestment. Second, we will argue that cash building by saving does not necessarily imply a longer time period for capital accumulation to materialize. Third, we will criticize the argument that cash building ("hoarding") is suboptimal. Finally, we will analyze the true differences between cash building by saving and investing by saving.

THE INFLUENCE OF CASH BUILDING ON THE STRUCTURE OF PRODUCTION

Pătruți claims that "[w]hen people hoard, they normally [fn. omitted] withdraw a certain sum of money from their present income, a sum which they would have previously used for consumption purposes, and hold on to it for future use." (p. 254)

Yet, cash building, i.e. the increase of cash holdings, does not imply a simultaneous increase in saving. A person can increase her cash holdings by abstaining from consuming or from investing funds, by selling consumer or capital goods. As Rothbard (2001, p. 690) puts it:

> A greater proportion of funds hoarded can be drawn from three alternative sources: (a) from funds that formerly went into consumption, (b) from funds that went into investment, and (c) from a mixture of both that leaves the old consumption-investment proportion unchanged.

Consequently, Rothbard claims that when people "hoard" real cash balances increase but "no other significant economic relation—real income, capital structure, etc.—need be changed at all." (2001, p. 680).[1] Rothbard simply does not share Pătruți's assumption on the origin of cash building.

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[1] Pătruți criticizes Rothbard for this statement, because Pătruți assumes that cash building stems always from additional saving. Yet, there is no need at all that cash building must stem from an abstention from consumption. For this reason, we cannot say cash building necessarily results in capital accumulation. It all depends on the consumption-investment proportion that may not be affected by cash building.

Pătruți assumes that cash building comes from saving. He justifies this assumption by stating that cash building coming from disinvestment is very unlikely. Yet, there are important reasons that an investor may disinvest and hold on to the money. One of the main reasons to hold money is that it reduces uncertainty.

There are plenty of situations where individuals may want to be more liquid, hold a higher cash balance, and at the same time disinvest. Take the example of a looming banking crisis, where investors withdraw their time deposits (i.e., fail to renew their short-term loans to the banking system) increasing their cash balances. Similarly, in times of looming war, internal riots, or greater chances of natural catastrophes, individuals may cut back on their investments, increasing their cash balances. Indeed, it would not make much sense to maintain and reinvest into a factory that is close to a battlefield. Disinvestment and cash building seems to be wiser in such a case.

Moreover, cash building in a recession can be a response to and a protest against a distorted structure of production.[2] A distorted structure of production offers consumer and capital goods that do not adjust to actors' most urgent needs. If governments prop up (via fiscal and monetary policies) struggling companies producing these goods, people may simply abstain from buying consumer and capital goods at all and increase their cash holdings until the structure of production is adjusted and starts to produce the consumer and capital goods they most urgently demand.

THE ALLEGED LOSS OF TIME WHEN CAPITAL ACCUMULATION STEMS FROM CASH BUILDING

Pătruți maintains that it will take longer for economic growth to materialize when savings are not invested but used to increase cash holdings. He writes:

> I argue that increasing a society's cash balances will generate economic growth, but at a later date as compared to the situation in which the same amount of money would be directly invested…. Output growth will lag behind its potential rate in the short run if people increase their

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[2] See Rallo (2011).

> cash balances because of the inability of factors' costs, especially the market rate of interest, to rapidly adjust to the variations in the demand for money. (p. 249)

I beg to differ. Both investment of savings in capital markets and cash building by saving (investing in money balances) lead to capital accumulation. We simply cannot say with certainty which of the two processes is faster.

Let us examine the two scenarios that Pătruți offers to make his point. In his first scenario, actors save more and invest the money through the banking system. Market interest rates fall, signaling the greater availability of present goods. In a response to the fall of the market interest rate, entrepreneurs invest in longer production processes, resulting in economic growth. The main focus in the adjustment process is on the interest rate.

In Pătruți's second scenario, i.e., in the case of cash building (hoarding), the market rate of interest does not fall in the short run according to Pătruți because the saved money is not injected into credit markets.

Pătruți argues "[h]owever, in order for this increase in the structure of production to take place in real life, there must be a prior decrease in the *market rate of interest*." (p. 260) Yet, in the second scenario, according to Pătruți, the market rate of interest takes some time to fall. There would be a "short run discrepancy between the *market rate of interest* and the *pure rate of interest*." (p. 261)

The discrepancy would be eliminated since "the market has a natural tendency to eliminate such discrepancies." Yet, this takes time and explains why, in Pătruți's eyes, it takes longer for the increase in the structure of production to take place in the case of cash building by saving.

The real adjustment process in Pătruți's second scenario, leading to an expanded structure of production, remains vague. The adjustment is summed up in the following way: "For every penny saved, there will be, in the long run, an entrepreneur who will marginally alter the structure of production, in the sense of making it more *roundabout*, and thus, more productive." (p. 261)

In both of Pătruți's scenarios, the variable that triggers the adjustment toward the new equilibrium point is the interest rate.

The change of the market rate of interest just takes longer in the second scenario. In his view, the expansion of the structure of production depends on a reduction the market rate of interest. It is Pătruți's undue focus on the market rate of interest that is responsible for his belief that cash building by saving takes longer to expand the structure of production than direct investment.

Let us illustrate with a third scenario that the market interest rate does not need to change first before the structure of production adapts to changes in time preference rates. Let us assume that capitalists reduce their consumption spending and invest directly into their own projects. In this scenario, capitalists do not invest through the banking system or capital markets but directly into the expansion of their own companies.

Due to the reduction of consumption spending, the accounting profits of the consumption stage and the stages closest to consumption will fall. Accounting profits in the stages furthest from consumption will remain comparatively higher. Entre-preneurs will consequently invest in the stages furthest from consumption. A lengthening and widening of the structure of production takes place. Accounting profits in the higher stages of production will fall due to the additional investments there. Once the adjustment process has been completed, accounting profits on all stages will be equal and at a lower level than before the increase in saving took place and consumer goods prices fell.

These lower accounting profits reflect the lower time preference rate. Once entrepreneurial profit is eliminated, the spreads between buying and selling prices in the stages of production reflect the interest rate. The price differentials between the stages are determined by the social time preference rate. These spreads between buying and selling prices are the most fundamental phenomenon.[3] The market rate of interest is just a derivative of this phenomenon.

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[3] As Rothbard (2001, p. 317) puts it: "It is important to realize that the *interest rate is equal to the rate of price spread in the various stages*. Too many writers consider the rate of interest as only the price of loans on the loan market. In reality... the rate of interest pervades all time markets, and the productive loan market is a strictly subsidiary time market of only derivative importance."

In the words of Huerta de Soto (2009, p. 323):

> Consequently growth in saving gives rise to a disparity between the "rates of profit" in the different stages of the productive structure. This leads entrepreneurs to reduce immediate production of consumer goods and to increase production in the stages furthest from consumption. A *lengthening* of production processes tends to ensue, lasting until the new social rate of time preference or interest rate, in the form of differentials between accounting income and expenditures in each stage, now appreciably lower as a result of the substantial increase in saving, spreads uniformly, throughout the entire productive structure.

Thus, we do not need the market interest rate to decrease before an expansion of the structure of production can take place. The market rate of interest is only a derivative of the interest rate prevailing in the time market. In our third scenario, a banking sector may not even exist. Nevertheless, the savings and direct investments of capitalists lengthen immediately the structure of production. The adjustment process does not depend on a prior fall in the market rate of interest.

The process in this third scenario may be even faster than the one of the first scenario. If individuals save and do not invest in their projects directly but through financial markets, they have to find an intermediary such as a bank first. The intermediary in turn must find entrepreneurs with guarantees and promising projects. All this takes time. The direct investment is faster even though it does not imply "a prior decrease in the *market rate of interest*."

Let us go back to the second scenario, where individuals save and increase their cash holding to see if we can say anything on the length of the adjustment process. As individuals abstain from consumption, consumer goods prices will fall immediately. More specifically, consumer goods prices will fall relative to producer goods prices, which makes the production of the latter comparatively more attractive.

As the consumption sector and stages closest to consumption shrink, factors of production are liberated. These factors of production may be used to expand stages further from consumption where accounting profits are still higher. Due to the reduction of consumption, factors of production are transferred from stages close to consumption to stages further from consumption. Price

spreads will tend to become equal in all stages with a smaller spread than before the increase in saving. The new rate of price spreads reflects the lower time preference rate.

The main difference between the second and the third scenario is, that in the second one, savers do not invest themselves but enable third parties to do so thanks to their abstention from consumption. But how fast is this? The abstention from consumption makes consumer goods prices to fall in comparison to producer goods prices (i.e. prices of the goods produced in stages furthest from consumption) directly. It is hard to see why this immediate price signal would necessarily trigger a slower adjustment process than the fall of the market rate of interest, i.e., the exclusive price signal in Pătruți's scenario 1.

Let us come back to Pătruți's reasoning for why capital accumulation due to cash building by saving takes longer than investment through intermediaries. For Pătruți, the important variable that triggers the adjustment is the interest rate. In scenario 1 the market interest rate falls almost immediately due to the additional saving. In contrast, Pătruți maintains that in the second scenario there is a lag in the adjustment of the market rate of interest (MRI) that only slowly adapts to the pure rate of interest (PRI). Due to the cash building up, prices tend to fall. According to Pătruți a negative price premium will be incorporated in the market rate of interest only later, indicating entrepreneurs to lengthen the structure of production. In Pătruți's words:

> However, in the second scenario, there will be a short run deviation between the MRI and the PRI. This deviation *will be* corrected through the purchasing power component. When people hoard money, the purchasing power of the monetary unit *steadily* increases and the price structure *gradually* changes. However, this is a complicated process through which every price in the economy must be altered, and the adjustment of the MRI through the purchasing power component *will always lag behind the price movements*. (p. 262)

But why must the price premium always lag behind prices?[4] The price premium that is bid into the market rate of interest

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[4] We use price premium here, which is the term that Mises uses, and assume that price premium and purchasing power component are synonyms.

depends on the expectations regarding the future evolution of the purchasing power, i.e. the price premium does not depend on the past evolution of money's purchasing power. As Mises (1949, p. 541) puts it: "It is necessary to realize that the price premium is the outgrowth of speculations having regard for anticipated changes in the money relation."[5] Market participants can anticipate effects of cash building on prices and bid a negative price premium into the market rate of interest. Therefore, there is no necessary time lag. In the case of cash building through an increase in saving, the market rate of interest rate can fall immediately if the increase in purchasing power is correctly anticipated.[6]

IS HOARDING SUB-OPTIMAL VIS-À-VIS INVESTMENT?

Pătruți states that "…both hoarding and investments are growth promoting tools in the long run, but the latter appears to be the

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[5] Pătruți cites also Mises on the price premium to support his case. Yet, we believe that he cites Mises out of context, when he is citing him in the following way (Mises, 1998, p. 542):

> The price premium always lags behind the changes in purchasing power because what generates it is not the change in the supply of money […] but the—necessarily later-occurring—effects of these changes upon the price structure.

Here Mises seems to talk not about price deflation, but about the specific case of price inflation in the early stages of a monetary inflation. Indeed Mises continues (uncited by Pătruți):

> Only in the final state of a ceaseless inflation do things become different. The panic of the currency catastrophe, the crack-up, boom, is not only characterized by a tendency for prices to rise beyond all measure, but also by a rise beyond all measure of the positive price premium. No gross rate of interest, however great, appears to a prospective lender high enough to compensate for the losses expected from the progressing drop in the monetary unit´s purchasing power.

In other words, in Mises's view it is possible that the price premium rises faster than actual prices. Then, it is also possible that the negative price premium falls faster than prices and is included in the market rate of interest even before prices fall.

[6] It is another question if the price premium is likely to be anticipated correctly. In any case, Pătruți maintains that there is always a time lag, which is not necessarily the case.

optimal one because of its additional short run positive effects." (p. 256) As he thinks that investments cause growth to materialize faster than cash building by saving, he identifies a "'time-efficiency' problem." (p. 262)

But who is to say what is optimal and what is not? From whose perspective is an action optimal? If actors save and do not invest but prefer to add to their cash balance, they have a reason for this. Money is the most liquid good.[7] Cash holdings are a protection against uncertainty.[8] The money held is, therefore, not idle but provides important services.[9] To hold money makes it easier to acquire goods and services when needed.

Strictly speaking, cash building is also an investment. It is an investment in the most liquid good. Obliging savers to invest into projects instead of cash building certainly reduces their utility. From the savers point of view, the forced investment is sub-optimal, otherwise they would have invested themselves.

As indicated above, in a recession hoarding may be a protest against a distorted structure of production. Companies must be liquidated in order to make room for new ones. Obliging savers to invest in existing companies maintains the distortion. Similarly, in the case of a looming banking crisis, a looming natural catastrophe, internal or external violence, it is prudent to increase one's cash balance and not to invest. Waiting for uncertainty to fall again is the optimal decision from the point of view of voluntarily interacting people. Imagine that the "hoarder" is obliged to invest in a new factory that is destroyed shortly after by a natural catastrophe or war.

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[7] Cash building also forms part of the evolutionary process in which money arises. Actors hoard a good that they expect to become a medium of exchange. We may distinguish different types of cash building. There is speculative cash building when the purchasing power of a medium of exchange is expected to rise. Uncertainty cash building occurs when uncertainty surges. Qualitative cash building appears when the quality of money increases. On these types of cash building see Bagus (2015a). On the importance of the quality of money see Bagus (2009) and Bagus (2015b).

[8] When actors try to increase their real cash balances with a constant money supply, prices tend to fall, accomplishing the desire of increasing real cash balances. On the productivity and welfare gain through a cash building deflation see Sima (2002), Salerno (2003), and Bagus (2015a).

[9] See Hutt (1956) and also Hoppe (2009).

Indeed, being liquid is very important when demand changes. A company that is liquid may react to unexpected changes in demand, survive and even profit from the change in demand. Especially in a recession, a higher cash balance is a competitive advantage. If cash balances are very low, companies may become very fragile and vulnerable to unexpected changes in demand. This fragility can cause economic crises and hamper economic growth in the long run. An adequate amount of cash holdings may foster growth in the long run. Thus, voluntary cash building cannot be considered scientifically to be a non-optimal choice.

DIFFERENCES BETWEEN CASH BUILDING BY SAVING AND INVESTMENT OF SAVING

We have shown that it is not true that cash building by saving necessarily implies a time lag in triggering growth compared to investment of saving. But are the processes identical? If not, what are the differences?

There remain important differences between the capital accumulation caused by cash building through saving and the one caused by investment of saving.

First, cash building through saving implies a tendency for prices to fall. In a commodity standard, falling prices will cause money production to increase, i.e., the mining sector will expand while other sectors will contract.[10] In contrast, when people invest their savings through financial markets, financial markets expand. The banking sector will be bigger than otherwise.

The tendency for prices to fall has other effects besides affecting the financial sector.[11] Price deflation fosters saving in the form of cash building. The expectation of falling prices makes cash building more attractive. There is a positive feedback loop, as cash holdings increase in value over time due to cash building. In a world of price deflation, debts become less attractive as they have to be paid

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[10] See Bagus (2015, p. 66, fn. 184)

[11] There are also distributional effects in a price deflation. The relative wealth positions of actors change. As they have different time preferences, the social time preference rate may change due to this redistribution.

in a currency for which purchasing power tends to increase over time. Actors may be less willing to indebt themselves.[12] If actors lower their level of indebtedness, people will be more independent as they depend less on lenders.[13]

Second, in the case of investment of savings through financial markets, savers determine who will invest the money—at least indirectly.[14] Savers may delegate the decision on where their savings will go to specialized intermediaries that select who will receive the new savings. These intermediaries tend to choose carefully, because they specialize in picking good investment opportunities. However, savers can also directly invest through equity or loan arrangements. Savers will try to channel their savings only into investments that they regard as promising.

In contrast, in the case of cash building by saving we do not have this kind of selection. All (potential) entrepreneurs may benefit from cash building when factors of production are liberated in the consumption stage and stages close to consumption. When savers abstain from consumption and increase their cash balances, factors of production are liberated and their prices fall. All entrepreneurs, indiscriminately, benefit from a fall in factor prices.[15] Therefore, by pre-selection, the investment of savings may better prevent *bad* entrepreneurs from expanding their business than cash building.

In short, cash building by abstaining from consumption is a boon for all entrepreneurs in the stages further from consumption, while investment of savings can be directed to specific entrepreneurs. Also, investment of savings can be concentrated and channeled in

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[12] They will only indebt themselves at lower market rates of interest.

[13] For cultural effects of indebtedness in an inflationary environment see Hülsmann (2013). Thus, there may be also marginal cultural differences between a society where there prevails saving in form of cash vis-a-vis a society where people invest their saving through financial intermediaries. In an inflationary fiat money regime, cash building by saving is not very attractive. Thus, we can predict that in a free commodity money system people would save in the form of cash more than they do today in fiat money systems.

[14] Pătruți states something similar when he maintains that organized markets decrease transaction costs vis-a-vis non-organized markets.

[15] Companies close to consumption, of course, may be worse off due to quickly falling selling prices.

large amounts to specific entrepreneurs, while in the case of cash building by saving the gain in purchasing power for entrepreneurs is more diluted.[16]

Third, the lengthening of the structure of production in the case of cash building by saving is more risky than in the case of investment of saving.[17] This is so because cash building can be undone and reversed immediately in order to increase consumption, thereby reflecting an increase in time preference rates. If actors suddenly decrease their cash holdings and increase consumption, consumer goods prices will rise in comparison to producer goods prices. If the lengthening of the structure of production is not yet completed, there will arise problems for the new investment projects in the stages furthest from consumption.

Entrepreneurs must try to anticipate correctly how long the increase in cash holdings will last. Cash holdings have, so to speak, zero maturity.[18] In the case of investment of savings, it may be easier for entrepreneurs to anticipate correctly changes in saving behavior. This is so, because the kind of investment chosen by savers can be a good indicator for their willingness to maintain their saving rates. For instance, if savers invest in a 10-year bond or in equity, from the outset it seems to be more likely that they will not increase their time preference quickly, compared to the case of savers that increase their cash holdings.

Savers that have invested long term in illiquid projects may face important costs when they disinvest. In contrast, cash builders face very low costs when they reduce their cash holdings, as they hold the most liquid good. Therefore, investors tend to be more committed to their savings than cash builders.

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[16] Pătruți relates to this advantage by mentioning the "wholesaler" advantage of banks.

[17] See Bagus (2015, p. 66, fn. 184)

[18] We are faced with a situation similar to maturity mismatching. Cash holdings have zero maturity. Increasing cash holding by abstaining from consumption enables the start of investment projects that mature only in the future. Entrepreneurs must forecast if the increase in cash holding is sustainable or not. On maturity mismatching see Bagus (2010), Bagus and Howden (2010), and Bagus, Howden and Huerta de Soto (forthcoming).

CONCLUSION

I am very grateful for Pătruți to have raised the question on the differences between cash building by saving and investment of saving. Yet I do not agree with his main assumption and conclusion. Cash building does not tell us anything about changes in time preference as cash building may also stem from disinvestment. Moreover, there is no reason to think that the adjustment of the structure of production is faster in the case of investment of savings. The interest rate is not the only variable relevant for the adjustment of the structure of production.

When individuals abstain from consumption, accounting profits in the consumption sector fall immediately, causing an adjustment process that expands the structure of production. And even if the market rate of interest rate were the only relevant variable, it may include a negative price premium very quickly depending on the correct anticipation of entrepreneurs.

Which decision is optimal, cash building or investment is decided on the free market by actors. The scientist cannot judge them. We may point out though, that this decision in today's fiat money systems is biased in favor of investment and against cash building due to their inherent inflationary character.

Finally, we have found several differences between cash building by saving and investment by saving. In the case of cash building prices tend to fall, making cash building, money production and low indebtedness more attractive. Investment by saving directs the purchasing power to specific entrepreneurs, while cash building dilutes the effect in form of an increase in the purchasing power of money that benefits everyone. Lastly, a lengthening of the structure of production in the case of investment by saving tends to be more sustainable than in the case of cash building by saving because the latter one can be undone more quickly and at lower costs.

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BOOK REVIEW

CONCRETE ECONOMICS: THE HAMILTON APPROACH TO ECONOMIC GROWTH AND POLICY

STEPHEN S. COHEN AND J. BRADFORD DELONG
CAMBRIDGE: HARVARD BUSINESS REVIEW PRESS, 2016, XI + 223 PP.

DAVID GORDON

Cohen and DeLong are well-known economists, but they indict their fellow economists for an overemphasis on theory. Away with models that have little relation to reality, our authors say. Instead, we need to grasp a simple lesson about the source of America's prosperous economy.

What is this simple lesson?

> In successful economies, economic policy has been pragmatic, not ideo-logical. And so it has been in the United States. From its very beginning, the United States again and again enacted policies to shift its economy

David Gordon (dgordon@mises.com) is a Senior Fellow at the Ludwig von Mises Institute.

onto a new growth direction.... These redirections have been big. And they have been collective choices.... Government signaled the direction, cleared the way, set up the path, and, where needed, provided the means. And then the entrepreneurs rushed in, innovated, took risks, profited, and expanded that new direction in ways that had not and could not have been foreseen.

The heroic leaders include, first and foremost, Alexander Hamilton; Hamilton's nineteenth-century successors, who continued his high tariff policies; Teddy Roosevelt and FDR; and Dwight Eisenhower. Hamilton, a "major economic theorist," favored "high tariffs, high spending on infrastructure, assumption of the states' debts by the federal government [and] a central bank." The rationale for this ambitious program was to reshape the economy "to promote industry... the aim was not to shift the new and fragile economy to its comparative advantage, but rather to shift that comparative advantage."

Hamilton's policy is open to an obvious objection, but Cohen and DeLong stand ready with an answer. The objection is that free trade benefits everyone engaged in it. If, by contrast, the government picks "winners," such as industries it wishes to support, there will be losers as well. If so, do we not have here a case in which the value preferences of the policy makers have been substituted for the freely expressed wishes of the consumers?

The authors answer in this way:

The textbooks tell us that the operations of a free trade system produce a positive sum game: all sides gain. But in industries of substantial economics of scale, of learning and spillovers, there is a major zero-sum element to the outcome. Few governments, if any, place the welfare of the rest of the world above that of their own citizens—my gain can well be your loss.... In terms of the structure of production and employment, the gain of one side comes at the expense of the other side, unless ...the other side (in this case, the United States) can move its resources and people into still higher-value-added activities, industries of the high-value future.

This response blatantly begs the question. Of course, they are right that if an industry subsidized by the government drives out of business a competing industry from another country, the subsidized industry benefits and the losing industry suffers. It

hardly follows from this, though, that a free trade policy puts the welfare of the world above that of its own citizens. Why do the losses to the unprotected industry outweigh the gains of consumers in one's own country now able to buy products more cheaply from the foreign firm? Of course, if one assumes that a prosperous economy must be heavily industrialized, our question can be answered; but this is just what is at issue. Why not let the balance between industry and non-industrial products be settled by the freely expressed wishes of consumers?

Cohen and DeLong cannot yet be forced from the field of battle. They say about the "East Asian Model,"

> The objective was to steer investment into industries that would pay off over the long run. It is not to direct resources into industries that earn the largest immediate profits for businesses at some set of [Adam] Smithian free-market prices. The object is to direct resources to industries that will pay off in terms of economic development.

Is not the far-seeing state able to see into the future better than businessmen, heedless of the long-run out of avidity for current profits? Readers more skeptical of the state than the authors will be pardoned for doubting the matter, all the more so when the authors themselves acknowledge problems with their scheme: "Can such policies go wrong? Yes. Can such policies produce horrible economic disasters? In many cases they have."

Further, even if the state spotters of future trends "get it right," from the viewpoint of the industrial policy our authors favor, the fundamental question recurs. Why should the balance between current production and production for the future be set by anything other than the decisions of the consumers? Why is a greater emphasis on the future than consumers wish somehow "better?" The authors suggest that if the economy grows fast enough, sacrifices of present consumption will be repaid by higher consumption in the future. Even if they are right, though, who are they to say that the sacrifices are worth it? Once more, Cohen and DeLong substitute without basis their own value judgments for those of the free market consumers.

I suspect that the authors, if they deigned to read these remarks, would respond with derision: "Raise all the free market purist

points you want. What we propose works!" They say, "What we do know is that since the days of Hamilton, it is a fact that America's successful economic policy has been pragmatic, not ideological. It has been concrete, not abstract."

America, under the high tariff pro-industrial policy the authors support, became the most prosperous economy in the world; and the success of state-directed economies in China and East Asia adds further evidence. Is it not simply obstinate to deny this?

This argument is vulnerable at two points. The first of these will be familiar to any reader of Bastiat and Hazlitt. Granted that the American economy has attained great prosperity, how do we know that prosperity would not have been even greater under the laissez-faire regime our authors disdain? Must we not examine "what is unseen," as well as "what is seen," as Bastiat long ago noted?

Have we been too hasty in this response? The authors might be taken to answer us in this way: "The United States had every chance of sharing what W. Arthur Lewis called the economies of temperate European settlement. These other countries---Australia, Argentina, Canada, and even the Ukraine—became in the nineteenth century great granaries and ranches for industrial Europe. But none of these developed the industrial base to become fully first-class balanced economies in the late nineteenth century.... When commodity price trends turned against them, they lost relative ground. By contrast, the twentieth century became an American century precisely because America by 1880 was not a gigantic Australia."

Here once more our authors have begged the question. They assume that, in the absence of "industrial policy," the United States would have been a largely agricultural country. Why think this?

The doubt here is more than an abstract possibility, of the sort Cohen and DeLong view with contempt; and this raises the second line of attack that may be directed against their "it works" argument. There is little reason to think that Hamiltonian policies led to American prosperity. True enough, tariffs were often high, and nineteenth-century governments favored internal improvements. But tariffs were virtually the only source of government revenue, and the size and scope of government was minuscule in comparison to today's bloated state. Why not ascribe

the success of the American economy to the relative freedom of the economy rather to industrial policy? Appeal to the "concrete" avails nothing; facts without theory are blind. The question becomes all the more pressing when one considers that the authors count as a case of successful state intervention the government's making land available through the Homestead Act of 1862. The fact that the government made it very easy to acquire title, rather than selling land by auction to the highest bidder, is somehow counted as a triumph for state policy. If one is going to call a way of privatizing land an instance of state oversight of the economy, the case for state control of the economy is readily made. To readers who do not share the biases of Cohen and DeLong, though, their procedure will seem akin to calling white black.

BOOK REVIEW

MONEY, BANKING, AND THE BUSINESS CYCLE, VOLS. I AND II

BRIAN P. SIMPSON
NEW YORK: PALGRAVE MACMILLAN, 2014, 568 PP.

SHAWN RITENOUR

INTRODUCTION

Whenever a new book on money and the business cycle from an Austrian perspective is published, the hope is that it will be another monumental contribution setting before the reader the best of monetary and business cycle theory. Alas, while Brian P. Simpson's *Money, Banking, and the Business Cycle* includes 509 pages of small dense print stretching over two volumes, such hope is unfounded. While making numerous helpful contributions to our understanding of the economic history of business cycles in the United States, the way Simpson develops his business

Shawn Ritenour (srritenour@gcc.edu) is Professor of Economics at Grove City College.

cycle theory leads to more confusion than clarification. So much so that the work is ultimately disappointing. One should not turn to *Money, Banking, and the Business Cycle* to learn Austrian business cycle theory. For those looking for a modern, book-length treatment of business cycle theory from an Austrian perspective, Huerta de Soto's *Money, Bank Credit, and Economic Cycles* and Roger Garrison's *Time and Money* are still preferable.

ECONOMIC THEORY

Volume I of Simpson's work includes chapters on monetary theory, inflation, business cycle theory, and the economic history of business cycles in the United States. While ultimately disappointing, Simpson does make several positive contributions along the way.

Such is Simpson's material on money, banking, and inflation. Before jumping into business cycle theory, he rightly begins with money, because it is the one good that integrates the entire social economy. He states up front that the source of the business cycle is government generated fluctuations of the money supply, because money is the general medium of exchange. As such, it is used in all markets and money prices are the basis for economic calculation (I. p. 9). He defines money as the medium of exchange and includes in his measure of money currency, demand deposits, that portion of money market mutual funds (MMMFs) and money market deposit accounts (MMDAs) that people use as a medium of exchange, that portion of retail sweep accounts not swept into MMDAs or MMMFs. He does not include savings accounts.

Following sound monetary theory, Simpson defines inflation in terms of money and not prices. Inflation is "an increase in the supply of money at a rate more rapid than an increase in the supply of gold or precious metal money" (I. p. 25). Of course, Simpson is here presuming a metallic monetary standard that does not presently exist.

Simpson rightly identifies the state as inflationist-in-chief. It inflates directly by creating standard money, through its central bank. The state inflates indirectly by encouraging banks to engage in fractional reserve banking through granting various privileges to commercial banks.

He properly understands that, without a change in demand to hold money, the only way for total spending in an economy to increase is for the government to increase the money supply. Contrary to Keynesian dreamers, Simpson explains that increases in government spending funded by taxes or borrowing from the non-bank public merely changes the pattern of spending. It does not alter total magnitude of spending. For total spending to increase, the state must spend more without anyone else spending less. This can happen only if government spending is ultimately funded by monetary inflation. Therefore, fiscal policy *per se* does not affect the quantity of spending in an economy, but only "who does the spending" (I. p. 38).

Simpson also provides a good refutation of the Keynesian multiplier argument alleging the economic benefits of government spending. He notes that not only do all savings get spent in an economy, but investment is the most important type of spending for economic prosperity in the long run. He likewise understands that any "scramble for liquidity" is an effect of recession, *not* the cause (I. p. 55). If we want to be rid of recessions, we do not need or want fiscal or monetary activism. The state merely needs to cease intervening in the economy, especially via monetary manipulation.

In his positive exposition of the business cycle, Simpson makes several correct general observations that agree with Austrian business cycle theory (ABCT). He makes it clear that the business cycle is created by government manipulations of the money supply. It is statist intervention that is responsible for fiat-money, fractional reserve banking, and its resulting inflation. Getting rid of government money production and intervention in monetary system and banking industry, therefore, will eliminate the business cycle. He even identifies positive reforms to eliminate the cycle such as moving to a 100 percent reserve, free market monetary and banking system. Simpson assumes it will be a gold-based system.

Simpson proves to be a generally competent defender of ABCT against several of its attackers. Rejecting one of Leland Yeager's (1986, p. 380) criticisms of ABCT, Simpson points out that the principle of Occam's Razor does not invalidate ABCT because the principle implies laying aside *needlessly* more complex explanations for simpler ones. If a situation calls for a complex explanation, however, then a more complex theory is warranted. The

business cycle is a complex problem with many economic facets. ABCT is the theory that best accounts for the many aspects in the simplest way.

Simpson also helpfully refutes the claim that ABCT is invalid because inflation affects short-term interest rates more than long-term interest rates. He notes that even a small decrease in long-term rates make long-run investments look more profitable. At the same time, he affirms that changes in time preference will not be disruptive and not result in a boom/bust cycle. Unfortunately, he stresses that this is so because such changes in time preference tend to be gradual. He misses the crucial point that these changes are by their nature sustainable. They do not encourage investments inconsistent with social preferences. *This* is the main point. Not that such changes are long-term as opposed to short-term. He does, however, recognize that there is a fundamental distinction to be made between interest rates changing due to changes in time preference and that due to monetary inflation.

Simpson also defends ABCT against claims that if it is valid at all, it applies only to cases where resources are already being used to their capacity, not if there are idle resources during a recession. Simpson explains that so-called unused resources are not being wasted. The overall plans of the owners may include the necessity of keeping extra on hand for contingencies, for example. He here agrees with W. H. Hutt (1977) without citing him. He further expounds on this point to successfully explain that ABCT is valid with or without fully employed resources. Here he agrees with Mises (1949, pp. 576–578).

Simpson then provides an excellent defense against the charge that ABCT is inconsistent with rational expectations. He notes that conventional definitions of rational expectations are not very good or helpful. Rational action, Simpson explains, is action based on all relevant, available information, *not* perfect information. "As long as businessmen form their expectations using reason, their expectations are rational" (I. p. 107).

With the above documented positive contributions made by Simpson in his monetary and business cycle theory, the reader of this review might wonder what's not to like. Unfortunately, there is much. One limitation is his resorting to a strange Randian

classification system with regard to what he sees as unsupportable arguments or assertions. For instance, while he does include money market mutual funds in his definition of the money supply, he criticizes Rothbard for including savings accounts "that can be converted at par into money at any time on demand" (i.e. money substitutes) in the money supply. Simpson claims Rothbard's inclusion is an example of "context dropping, first identified as a major logical fallacy by the novelist and philosopher Ayn Rand" (I. p. 16).

When discussing the nature of fiduciary money, Simpson asserts that fiduciary money consists of checking deposits not backed by standard money but rather "backed by debt" (I. p. 21). Such fiduciary money is issued in the form of debt to be sure, but that is not the same as being "backed" by debt. The holder of a checking account cannot exchange checking deposits for debt.

Simpson further adopts a simple monetarist, quantity theory of money approach to inflation. The simple equation he uses is $P = D/S$ (where P = the "general price level", D = monetary spending on economic goods, and S = S of good produced and sold in the economy). He begs the question of the nature of the general price level.

As Simpson begins to explain the cause of inflation, he understandably places emphasis on spending facilitated by increases in the money supply. He concedes much to Keynesian theory, however, by drawing a straight line from more spending to higher profits, "In the long run, more money leads to more spending in the economy. More spending, in turn, leads to greater revenue and profits for business" (I. p. 33). Certainly more money leads to more spending and revenue. However, it is not clear at all that such spending necessarily leads to more profits. Profits are the difference between revenue and costs. If costs increase along with revenues, due to monetary inflation, profits do *not* increase.

Simpson explicitly defends the quantity theory's equation of exchange as a communicator of economic information, specifically identifying Mises's and Rothbard's criticism of the quantity theory without citing them. Simpson argues that the equation of exchange focuses our minds on two variables that affect total spending: money supply and velocity. He says this is "extremely important

in understanding the nature of economic activity and, more specifically, the nature of the business cycle" (I. p. 46). In fact, because business cycles are the result of malinvestment which has to do with relative prices and interest rates and is *not* driven by changes in overall prices or spending, the equation of exchange tells us little to nothing about the business cycle. Despite his generally good criticism of Keynesian theory, he mistakenly indicates that Keynes and the Keynesians' solution for recession is to boost consumption spending (I. p. 46).

The most troubling weaknesses of Simpson's work, however, comes in his positive explanation of the business cycle theory. Despite the generally correct conclusions mentioned earlier, his book is simply not where one wants to turn for an explanation of ABCT.

In explaining the cause of the cycle, Simpson argues almost exclusively that it is due to an increased rate of profit due to increasing the money supply above what is expected. He says that if the money supply increases at a slow and steady pace, spending increases, but this has a minimal effect on the economy. He here focuses on aggregates in the quantity theory. A two percent increase in the money supply, for example, only causes a two percent increase in prices. As long as increases in the money supply are slow and steady, in Simpson's opinion, entrepreneurs are able to incorporate them into their plans and make adjustments consistent with the slow and steady increase in spending. This is more monetarist than Misesian. It also smacks of the New Classical money surprise-aggregate supply hypothesis in that it hinges on the money supply increasing at too great a rate for entrepreneurs to include in their expectations.

In all of this Simpson fails to see that the initial monetary injection itself produces the initial malinvestment. Malinvestments do not occur merely after entrepreneurs allegedly see profits increase due to increased spending due to the increased money supply. As F. A. Hayek noted in *Prices and Production*, the process *begins* with the increased spending of entrepreneurs due to monetary inflation via credit expansion (Hayek, 1931, pp. 241–249). Simpson also fails to recognize that decreased market interest rates will increase expected profit at the same time. So expected profit increases precisely *because* the market interest rate is artificially lowered.

Contrarily, Simpson claims that most ABCT theorists place too much emphasis on the manipulated interest rate and not nearly enough on the rate of profit, which he sees as the primary catalyst of the cycle. He seems shockingly unaware that it is not merely "most ABCT theorists" *but the very originator* of the theory who emphasized the importance of artificially low interest rates in stimulating the boom/bust cycle. Ludwig von Mises (1912, pp. 357–364), in his first explanation of the business cycle in *The Theory of Money and Credit*, cites a lowering of the interest rate due to expansion of credit via fiduciary money as the trigger that begins the inflationary boom by making various production projects appear profitable when, in fact, they are not. Mises continued to emphasize manipulated interest rates as causes of the cycle throughout his career (Mises, 1928, pp. 107–111; 1931, pp. 160–161; 1936; 1949, p. 550). In an address he made in 1931, Mises was very clear. "The interest rates are reduced through the expansion of credit, and then some businesses, which did not previously seem profitable, appear to be profitable. It is precisely the fact that such businesses are undertaken that initiates the upswing" (Mises, 1931, pp.160–161). In commenting on the Great Depression that was then in full swing, Mises explains, "The crisis from which we are now suffering is also the outcome of a credit expansion. The present crisis is the unavoidable sequel to a boom. Such a crisis necessarily follows every boom generated by the attempt to reduce the 'natural rate of interest' through increasing the fiduciary media" (Mises, 1931, p. 163). F. A. Hayek (1929), who won his Nobel Prize in economics partly for his development of Mises's business cycle theory, also cited an artificially low interest rate as the catalyst for malinvestment.

Simpson's focus on the rate of profit he claims is an advance developed by George Reisman. Simpson makes a hard distinction between the interest rate and the rate of profit and treats them as completely independent of one another, almost like Keynes's distinction between the interest rate and the marginal efficiency of capital. In fact, however, the lower interest rate *causes* an increase in the rate of profit. An investment's "rate of profit" is better understood as a firm's return on equity minus the interest rate (Rothbard, 2004, pp. 509–516). As the market interest rate falls then, other things equal, the firm's expected profit increases. *This* is what motivates malinvestment.

Simpson does recognize that the period of production and fluctuations therein are related to the business cycle. However, he asserts that the production structure can be identified with the average period of production. As a needless aside, he asserts that economic progress is due only to application of scientific method to natural phenomena and then application of that knowledge to our problems. Faith and emotions, both contrary to science evidently, represent an "abandonment of reason." Such claims are typical of faithful Randianism.

His defense of ABCT against critics likewise features a hodge-podge of good insights mentioned above weakened by muddled theory. While downplaying the importance of interest rates, he emphasizes again that "more than anything else" what affects businesses' decision making is the rate of profit (I. p. 89). "Any valid business cycle theory must recognize the primacy of the rate of profit over the interest rate" (I. p. 90). Again he seems to fail to see how the monetary interest rate affects the perceived rate of profit. He then goes on to actually explain how artificially low interest rates reduce borrowing costs and hence raise the perceived profitability of long-term investments. In so doing, he refutes his own previous claims implying a sharp independence between the market interest rate and rate of profit.

ECONOMIC HISTORY

After Simpson's muddled business cycle theory, it is refreshing to turn to his empirical work. Simpson makes a valuable contri-bution by providing much data illustrating ABCT in economic history. Interestingly, he does not approach the history of business cycles chronologically, but begins with the 1980s, moves forward to the 1990s into the early 2010s, then jumps back to discuss the Mississippi scheme of John Law, moves forward again to the Great Depression and then finishes with the a chapter devoted to the period from 1900 to 1965. It seems to this reviewer that there would have been better flow if the chapters were kept in chronological order. Better flow would help in comprehension.

Nevertheless, Simpson's work illustrates the virtue of identifying and handling statistics in ways that best enable rightly telling relevant history. Simpson begins by compiling a preferable statistic

accounting for aggregate spending in the economy, which he calls Gross National Revenue, which includes total sales revenue by businesses plus total wage payments in the economy. This allows for a statistic that is more gross than GDP, thus better representing aggregate spending in the production structure. At the same time Simpson's empirical work demonstrates the virtue of drilling beneath the aggregate empirical surface in order to make sense of the macroeconomic impact of government money manipulation. The more precisely we are able to define data groups within the structure of production, the more the data supports ABCT. Simpson's method begins with distinguishing between rate of return on equity, the interest rate, and the difference between the two. This is partly due to his carrying over the theoretical importance of profit expectations to his explanation of economic history.

He does confuse the issue some by equating pre-tax rate of return on equity (ROE) as the rate of profit. Thankfully, he usually includes a data set for the difference between the ROE and the interest rate. That statistic is a better measure of economic profit than ROE.

When describing the recession of the early 1980s, Simpson identifies a number of important insights illustrated in the data. He illustrates the destructive effects of reflating to combat recession. He also notes that, because inflation had been building up during the 1960s and 1970s, malinvestments were made that necessarily had to be undone regardless of whether the Federal Reserve announced to the public its intentions to slow the rate of money supply growth. Simpson argues that according to rational expectations theory, the recession of the early 1980s should have been avoided, because the Federal Reserve made announcements in the late 1970s of its intention to slow the rate of monetary inflation. Investors should have taken notice of the Fed's intention and acted to avoid a recession. The recession of the early 1980s, therefore, is contrary to rational expectations and new classical economics but verifies ABCT.

The lessons Simpson takes from his first chapter on economic history include identification of the best policies to avoid recession and to foster recovery. Because monetary inflation is the source of the inflationary boom that necessarily results in a recession, the obvious policy to avoid the business cycle is to cease inflation.

History also teaches that the best policy to speed recovery is to forgo additional intervention in the economy.

Unfortunately, Simpson's discussion of second best policies is unsatisfactory at best. It is especially hard to make sense of his call to not let the money supply fall, as if it is the job of the central bank to maintain an optimal, or at least minimum threshold, money supply.

In his chapter covering the United States from 1965 to 2012, Simpson amasses a significant number of relevant statistics to illustrate how macroeconomic history in the U.S. played out as ABCT would imply. He helpfully documents how monetary inflation precedes increases in economic profit (ROE – the interest rate), thus giving incentive for malinvestment. However, he fails to cite relevant literature that would have broadened his history,[1] and Higgs (2006) on uncertainty that would have broadened his history.

Simpson's history of John Law's Mississippi Scheme (which he rightly calls a financial scam) and the South Sea Bubble make for fascinating reading. Simpson applies elements of ABCT to these historical episodes, arguing that monetary inflation fueled bubbles in capital markets that necessarily burst, resulting in severe financial distress for many. His discussion of Law's Mississippi Scheme is particularly engaging and enlightening, marred only by a strange and unnecessary Randian attack on religion.

Simpson provides the reader a detailed exposition of the macroeconomic history of the Great Depression, embracing the traditional Austrian explanation. Inflationary credit expansion during the 1920s fueled an inflationary boom that turned toward recession in 1929 and that turned into the Great Depression as succeeding Presidents Hoover and Roosevelt increasingly intervened in the economy, hampering the necessary readjustment process. Simpson provides a long list of interventions both Hoover and Roosevelt made that significantly forestalled recovery. As in earlier chapters, however, he stumbles into making a strange charge, citing both collectivism and altruism as the ideological sources of their destructive interventionist policies. Collectivism

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[1] For recent economic history literature that would have complemented Simpson's economic history, see Callahan and Garrison (2003), Cochran (2011), Ravier and Lewin (2012), Salerno (2012), and Woods (2010).

perhaps, but altruism? Again with the needless and unhelpful Randian categories.

In his chapter documenting the macroeconomic history of the US from 1900 to 1965, Simpson again makes good use of a large quantity of data to illustrate the ABCT. He includes a particularly excellent discussion of the economic impact of World War II, successfully explaining why wartime prosperity and the claim that the war got us out of the Great Depression are illusory. His only stumble is his unfortunate buying into the monetarist notion that a decrease in money supply in 1936–1937 led to recession in 1938, prolonging the Great Depression.

CRITIQUE OF ALTERNATIVE BUSINESS CYCLE THEORIES

Simpson begins the second volume of his work critiquing Keynesian and Real Business Cycle Theory explanations of business cycle theories. Beginning with Keynesian underconsumption theory, he points out that those who fret about a lack of consumption fail to recognize that shifts from consumption to investment results not in a decrease in total spending, but merely in a shift in spending. Likewise, reallocating spending from labor to spending on capital goods will not even result in decline in real wages in the long run, due to increases in productivity which increase real purchasing power of wages via increased output.

Simpson helpfully reminds us that not even hoarding causes recession. He notes that hoarding may often be an effect of a business cycle, but never the cause. In fact, hoarding is beneficial to the economy because it corrects previous errors by people who became too illiquid during the boom. He also provides an excellent exposition and refutation of Keynes's claim that it is normal for free markets to be in chronic depressive states due to wild swings in investment spending driven by animal spirits.

Simpson also makes a good refutation of the Keynesian "sticky" wages and prices theory of the business cycle. He correctly notes that, contrary to conventional Keynesian wisdom, flexibility of wages can be negotiated into contracts on the one hand, while on the other actual inflexibility in wages does not necessarily result in negative economic consequences.

Simpson also provides the reader with an excellent refutation of New Keynesian efficiency wage theory. He reminds us that if paying workers higher than market "efficiency wages" actually provides efficiency gains, lower production costs offset the higher wages. If they do not, employers cannot pay the higher wages. If such efficiencies do justify higher wages, however, the efficiency wage is merely the market wage. In this he agrees with Don Bellante (1994).

Simpson then continues with a variation on his main theme by explaining how government intervention is the leading cause of labor market inflexibility and unemployment. Government subsidies such as unemployment benefits can allow unemployed workers to remain out of work long enough for their skills to atrophy. All in all, Simpson concludes, Keynesians focus too much on "sticky wages" and not enough on volatility in the money supply and spending.

Simpson likewise makes excellent use of empirical evidence countering sticky wage and price theory. He documents how Alan Blinder's survey of businesses about their factor-pricing behavior does anything but verify sticky-wage theory (II. p. 69–77). However, it must be said that a lot of Simpson's argument rides on just one survey. Nevertheless, Simpson argues that sticky price theorists have only identified one minor piece of empirical support—lagging price changes—and he notes that Keynesians do not recognize that such a lag occurs due to accelerated changes in the money supply. Additionally, many of the characteristics of a "sticky wage" theory of the business cycle are inconsistent with observed features of the cycle.

Simpson's generally devastating critique of Keynesian theories is marred by a couple of errors, however. Surprisingly, while refuting the claim that recessions are the result of insufficient aggregate demand via a lack of consumption spending, he nevertheless identifies the cause of recession as "a decline, less rapid increase, or less rapid acceleration in spending" (II. p. 17). This is not correct, as long as prices are flexible downward—as they are in a free society. Additionally, while criticizing the neoclassical model of perfect competition, Simpson embraces a neoclassical objective cost theory of supply, claiming that firms are not price takers because they set their price based on their costs of production.

One of Simpson's best chapters is his excellent and somewhat detailed critique of Real Business Cycle Theory (RBCT). He criticizes RBCT economists' methods, noting that merely to mimic an empirical phenomenon does not offer an explanation for why said phenomenon occurs. In fact the theory of fluctuations in RBCT is rather sketchy because it does *not* identify causal factors involved with the business cycle. Explaining the contraction phase of the bust by alluding to technological change is a bit rich for Simpson. The same goes for asserting that changes in fad and fashions can result in the boom/bust cycle.

One point of agreement between Simpson and RBCT is the recognition that government intervention plays a role in recession. However, while RBCT sees changes in regulation as a potential cause of business cycles, Simpson notes that, while non-monetary government intervention might make a recession more severe, it is not the cause of the cycle.

CURING THE BUSINESS CYCLE

Simpson concludes his work with several chapters that speak to how society can cure the business cycle by keeping the state out of the way. He properly identifies government's desire to increase spending without taxes as the main reason for fiat paper money. He likewise understands the unsoundness and instability of fractional-reserve system. He adopts Rothbard's view in *The Mystery of Banking* that free banking would not lead to wild fractional reserve banking, but oddly without citing Rothbard.

Simpson effectively critiques George Selgin's claim that increases in money supply necessarily increases savings. He notes that changed assert composition is not the same as increased savings.

Simpson also explains that banks are *not* counter cyclical, but are in fact pro-cyclical. He recognizes that if the supply of goods increase, so the price of goods falls, people can buy more goods with the same money, there is not a "needs of trade" necessitating an increased money supply.

Unfortunately, Simpson argues for a moral right of banks to issue fiduciary money. He is here contrary to Rothbard, again without citing Rothbard. He explicitly criticizes Heurta de Soto primarily.

He does so partly because he views increased cash holdings as an increase in savings. The problems of fractional reserve banking, for Simpson, are philosophical not ethical. Simpson dislikes fractional reserve banking, not because it is fraudulent, but because the practice is "philosophically unsound." A glaring weakness is his failure to interact and respond to several relatively recent criticisms of the so-called free banking literature (Bagus and Howden, 2010, 2011; Howden, 2011, pp. 121–128; Hülsmann, 1996, 2003)

Simpson then proceeds with his understanding of what a free market in money and banking would look like, how it would perform, and what effects it would have on the social economy. To forestall the canard that people happily and voluntarily use our current statist, inflationist system, he correctly notes that societies did not, in fact, voluntarily move away from gold, but were forced off by their respective governments. His discussion includes the sound reminder that money functioning as unit of account is dependent upon and linked to money *being* a general medium of exchange.

Simpson's description of the distinctive characteristics of a free banking regime are the common ones. It would be a banking industry unencumbered by government regulations, and fractional reserve banking would be allowed. Simpson would require that the government only be allowed to deposit its own money in its own banks, so as to remove government completely from the monetary system. For this system to work, Simpson makes what seems to be a naïve suggestion—the institutional stipulations for free banking must be enshrined in a constitution. We have a constitution now that does not mention a Congressional power to charter banks, but this has not stopped the government from socializing money production and cartelizing the banking industry through the Federal Reserve.

When explaining the performance of a free banking regime, he reaches basically the same conclusions as Rothbard in *The Mystery of Banking*, but does not cite Rothbard. For example, Simpson argues that in order for people to be willing to hold a particular bank's bank notes, said bank would have to develop reputation for being conservative and sound in its practices. This fact among others would constrain banks in a free market from wild, profligate inflation. In fact, it is argued that the constraints on inflation in a free market setting are definite enough to result in banks operating at or very near 100 percent reserves.

Criticizing the divorce of the unit of account function from money *being* the medium of exchange, Simpson lapses into Randian quirkiness again. To do so is to be guilty of "context dropping" and the "fallacy of the stolen concept" (II. p. 181).

Simpson then provides some helpful general conclusions from various episodes in the history of money and banking. He identifies correlation between government intervention in the banking industry and decreases in reserve ratios. He also reports the extent of government intervention in many so-called "free banking" periods. However, in his account of the history of banking, he seems to want it both ways on issues of limited liability and whether fractional reserve banking is fraudulent, claiming that banking is "one of the easiest industries in which to engage in fraud because it is easy for bankers to secretly lend reserves that they are contractually obligated to keep on hand" (II. p. 216).

Simpson's preferred monetary regime would be a free market, 100 percent reserve gold standard. Simpson provides a generally good explanation of the benefits of such a system. It would be much more stable than government paper and fractional reserve money. Such stability would help entrepreneurs improve business forecasting using economic calculation. One hundred percent gold money also would keep unwise or bad loans of one entrepreneur from spreading as a contagion to the rest of the economy, because bank deposits are never at risk.

A 100 percent gold dollar additionally would prevent non-productive consumption because people would be unable to consume without producing via government fiat monetary inflation. Simpson here echoes the argument of James Mill in his *Commerce Defended*. Governments would not be able to borrow as easily as they now do. Government debt, therefore, would not be perceived as "risk free" as it now is, because the state has no ability to pay it off via monetization.

He also seems to contradict his earlier staunch defense of the ethics of fractional reserve banking by implying that a 100 percent gold standard prevents fraud. "Fractional-reserve banking is an attempt to cheat reality because it is a situation in which people attempt to have their money and lend it too" (II. p. 232). Of course, "cheating reality" could allude to philosophical inconsistency,

but cheating implies fraud, which Simpson strongly denies in an earlier chapter.

Simpson does provide excellent refutations of attacks on the gold standard. He reminds us, for example, that if output doubles and prices are cut in half, entrepreneurs have the same ability to reap profits. Such a change is not recessionary. He also notes that if fiat money was socially preferable, we would expect that it would have arisen out of a free society. In fact, commodity money did.

Unfortunately Simpson includes in his defense of a 100 percent gold standard several weaknesses at various points in his argument. When asserting that gold is deflation proof, for example, he says that it cannot cease to be once it comes into existence. With regard to gold's impact on the money supply, what matters is not the quantity of gold in existence, but how much existing gold is used as money. Gold can be changed from the form of monetary gold into use as a commodity. In which case, the money supply would decrease.

Simpson also claims that commodity money is "a stable and easily understandable measure of value" (II. p. 221). In fact, Mengerian economists know that value is subjective and not objectively measurable, even by money prices. As Mises (1912, pp. 38–45; 1922, p. 99) pointed out over a century ago, prices are manifestations of value, not measures of value. Additionally, overall prices are never "stable," so exchange value of money is never absolutely stable (Mises, 1928, p. 72).

Simpson sounds rather market-monetarist when defending some aspects of the gold standard. He argues that falling prices due to increases in production do not lead to unprofitability and recession, *as long as the quantity of money and spending increases*. "The key to increasing profitability is that the amount of spending increases" (II. p. 222). Increases both in the money supply and spending contribute to increases in the profit rate, he claims, because additional revenues are generated for entrepreneurs. Because, in his mind, spending increases are what leads to increased profitability, Simpson is likewise fixated on not allowing spending to fall. "The key is to make sure the money supply and spending to not fall, which is what a 100 percent reserve gold standard does" (II. p. 223).

As already mentioned above, what matters for profitability is not the volume of spending or revenues *per se*, but the gap between

the price of products and the sum of the prices of factors used to produce those products. This gap can continue to be positive even if the total quantity of spending falls. What matters is entrepreneurial foresight and not whether spending increases or decreases. Spending could in fact decrease in a 100 percent gold standard, but would not be a problem even if it does.

Simpson also lapses into imprecise usage of the terms *objective* and *subjective* when asserting that gold has objective value. He means by *objective* that value is based on the rational assessment by people of the ability of gold to increase their satisfaction. He cites industrial and ornamental use of gold as the source of gold's objective value. He contrasts the objective value of gold with a subjective value of fiat money. He says the value of fiat money is arbitrary and dependent on the designation by the state of what a paper dollar is worth. This attempt to express the contrast between the value of commodity money and that of fiat money is clumsy at best, but more likely misleading and confusing.

His final chapter providing his plan for transitioning from our current statist system to a free market in money and banking is likewise a mixture of good and bad. His plan for moving to a gold standard is explicitly similar to that of George Reisman and Murray Rothbard. Along the way, Simpson follows Salerno in providing a good analysis and critique of pseudo gold standard schemes. He is, unfortunately, a little easy on banksters who do in fact work to perpetuate the current system to happily increase their own wealth via fractional reserve banking.

CONCLUSION

This reviewer had hoped that Simpson's *Money, Banking, and the Business Cycle* would be the next brilliant contribution to our understanding of Austrian business cycle theory and how modern banking practice help generate inflationary booms and recessions. Alas, Simpson's work is ultimately disappointing. While making numerous helpful contributions related to economic history, Simpson's exposition of business cycle theory misleads rather than clarifies. Do not look to Simpson if you desire to learn Austrian business cycle theory. For those desiring a modern, book-length treatment of business cycle theory from an Austrian perspective,

Huerta de Soto's *Money, Bank Credit, and Economic Cycles* is still the gold standard.

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