

Financialization and Shadow Banking in a Monetary Theory of Production

Sergio Rossi 

University of Fribourg, Fribourg, Switzerland

ABSTRACT

This paper expands on Keynes's monetary theory of production, considering financialisation and shadow banking as two relevant issues that must be accounted for to explain the workings of actual monetary systems. The first section summarises the major characteristics of a monetary economy of production in light of Keynes's writings, pointing out that banks are essential to provide 'initial finance' to firms and thereby open the monetary circuit through which wage-earners obtain an income in the form of a bank deposit. The second section shows the developments of banking and financial activities that have occurred since the advent of financialisation, which has provided a prominent place for financial motives, financial markets, financial actors and financial institutions, inflating a series of credit bubbles for purely speculative transactions that have nothing to do with productive activities. This is so much so that a number of non-bank financial institutions ('shadow banks') have been borrowing from banks to carry out 'non-GDP-based transactions' that have fragilised an array of financial institutions to such an extent that has generated a financial crisis at the global level in 2008. The last section concludes by providing a monetary-structural reform proposal to eradicate these issues eventually.

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Introduction

Financialization is a phenomenon that since the 1990s has been increasingly affecting the global economy. Epstein (2005, p. 3) famously defined it as 'the increasing role of financial motives, financial markets, financial actors and financial institutions' across the whole economy. This process has been impacting all stakeholders, namely, firms, households and the general government sector in a variety of ways. Firms' strategies have been thereby oriented more on maximizing profits over the short run, instead of investing in research and development activities with a long-run perspective, thereby also exerting a downward pressure on the wage level of middle-class workers. Banks have thus been induced to reduce their loans for 'GDP-based transactions' (Werner 2011, p. 29), in order for them to inflate their lending volumes to finance 'non-GDP-based

CONTACT Sergio Rossi  sergio.rossi@unifr.ch  University of Fribourg, Boulevard de Pérolles 90 (Mailbox 22), Fribourg CH-1700, Switzerland

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transactions' (Werner 2011, p. 29), as the latter are expected to deliver higher profits over a shorter time horizon than the former transactions. All this has therefore reduced the employment level and thereby the purchasing power of the middle class, impacting negatively also on public finance, particularly because financial transactions do not provide a higher level of tax revenue for the government sector generally speaking.

This global trend has been further supported by financial deregulation, initially in the United States and later on also in Europe and elsewhere, which has given rise to a so-called 'shadow banking sector' formed by a variety of non-bank financial institutions (such as hedge funds, private equity funds, money market mutual funds, and exchange traded funds) that are much less regulated than banks and therefore in a better position to speculate across financial markets at large. To be sure, the development of shadow banking is a result of financialization generated by the deregulation, liberalization and globalization of national financial systems, as several post-Keynesian economists have been pointing out since the early 2000s (see for instance Bhaduri 2011; Caverzasi, Botta, and Capelli 2019; Girón and Chapoy 2012; Hein 2012; Lavoie 2008; Skott and Ryoo 2008; Wray, 2009).

Originally, financialization and shadow banking were not considered by those authors referring to Keynes's (1930 [1988], 1933 [1973]) monetary theory of production, notably monetary circuit theorists inspired by the work of Parguez (2001) and Graziani (2003). The global financial crisis that burst in 2008 led a number of these authors to elaborate on the theory of the monetary circuit, in order to integrate financialization and explain it consistently in such a theory, thereby addressing the critiques raised by Sawyer (2016) and Lysandrou (2020). Notably, both Seccareccia (2013) and Passarella (2014) provide a relevant and much useful explanation of the role of non-bank financial institutions in a financialized monetary economy of production, where shadow banking has contributed to inflate a huge credit bubble that exploded eventually (see also Rochon and Tropeano 2024).

This paper elaborates on that literature, providing a monetary macroeconomic analysis of banks and financial transactions in the framework of circuit theory, explaining how a variety of banks have been inflating credit bubbles supported by financialization, why current financial regulations are not up to the task of averting these bubbles, and how it will be possible to make sure financial stability prevails through a monetary-structural reform. The next section summarizes the major characteristics of a monetary economy of production in light of Keynes's own writings, pointing out that banks are essential to provide 'initial finance' to firms and thereby to open the monetary circuit through which wage-earners obtain an income in the form of a bank deposit. The third section explains the developments of banking and financial activities that have occurred since the advent of financialization, which has provided a prominent place to financial motives, financial markets, financial actors and financial institutions inflating a series of credit bubbles for purely speculative transactions that have nothing to do with productive activities. This is so much so that a number of non-bank financial institutions ('shadow banks') have been borrowing from banks in order for them to carry out 'non-GDP-based transactions' that have fragilized an array of financial institutions to such an extent that has generated a financial crisis at the global level in 2008. The fourth section puts forward a monetary-structural reform proposal to eradicate these issues for the common good, while the last section concludes with some political

economy considerations, which confirm that the monetary circuit is and will remain crucial to explain the workings of our economic systems even when a series of non-bank financial institutions exist, as in the current period of financialization and shadow banking.

The Macroeconomics of Money and Banking in a Circuit Approach

Keynes's (1933 [1973]) monetary theory of production provides a still relevant approach to money and banking, as it integrates money and production since the latter occurs, to wit, for the payment of wages carried out by the banking sector. This approach remains relevant so much so that it does not rely on the figment of the (neoclassical economists') imagination assuming that money enters into the picture when goods are exchanged. For mainstream economists, indeed, the double-coincidence-of-wants constraint in a system of barter trade is avoided by what they consider to be a 'general equivalent' of produced goods and services, namely, money, which all economic agents 'trust' as being accepted in any exchange whatsoever. In fact, money is not really an object but a means of (final) payment issued by an institution that is neither buying nor selling anything in the actual transaction. As Hicks (1967, p. 11) noticed cogently, '[e]very transaction involves three parties, buyer, seller, and banker'. The role of the latter is indeed to make sure that the 'seller of a good, or service, or another asset, receives something of equal value from the purchaser, which leaves the seller with no further claim on the buyer' (Goodhart 1989, p. 26).

In this regard, Keynes's monetary theory of production can explain that 'money and output are associated on the factor market, when the wage bill is paid out by firms to workers with the intermediation of the banking system' (Rossi 2001, p. 124). In his own words, '[w]e shall call the unit in which the quantity of employment is measured the labour-unit; and the money-wage of a labour-unit we shall call the wage-unit' (Keynes 1936 [1973], p. 41). This amounts to saying that wages are the original form of income that results from production when the wage bill is paid by firms. In this regard, banks are instrumental, because, logically, their loans create deposits (as depicted by Schumpeter 1954, pp. 1110–1117), whose initial owners are wage-earners. This means also that the supply of money is 'credit-driven and demand-determined' (Moore 1988, p. 46), and that its purchasing power does not depend on agents' trust (in the banking system) but on the actual production of goods and services by labour, which, according to Keynes (1936 [1973], pp. 213–214), is the only true factor of production.

All these magnitudes enter into a monetary circuit that logically starts when the wage bill is paid out by firms drawing on the credit lines granted by banks. This is the 'initial finance' or 'flux phase' in the monetary circuit as depicted by Lavoie (1987, p. 69) and Graziani (1990, pp. 14–16), who elaborate on Keynes's (1937a, 1937b) finance motive. As monetary circuit theorists — in both the French and the Italian schools — have clearly explained in this regard, the decisions by banks as well as firms are instrumental for the opening of the monetary circuit (see Parguez 2023 and Passarella 2023). If either firms or banks are unwilling to enter into a debt–credit relationship, the monetary circuit does not open: this could be due to firms' expectations not being in line with their target rate of profit, or to banks' credit risk assessment being much higher than what they consider appropriate in light of their own profit expectations. Be that as it may, if

the monetary circuit does not open, firms will not produce and could even reduce the employment level, with a number of negative consequences also for public finance and financial markets across the global economy (see Bellofiore 2004 for analytical elaboration).

Once the monetary circuit is open, that is, after firms have entered into debt with banks (whose first creditors are wage-earners as a result of the payment of wages), the amount of bank deposits can be held idle or spent in different markets, namely, financial, real-estate or product markets. In the original explanation of the monetary circuit provided by Parguez (1975) and Graziani (1990) in the footsteps of Keynes (1933, 1937a, 1937b), the expenditure of bank deposits occurs in the market for produced goods and services, thus enabling firms to earn the income they need to repay their initial bank loans. This ‘final finance’ or ‘reflux phase’ closes the monetary circuit (for the sake of simplicity, let us ignore the payment of interests on firms’ debts to banks, which in fact represents a major issue monetary circuit authors have been confronted with; see Rochon (2009) for a cogent analysis of this issue). In this regard, therefore, hoarding — that is, the decision by depositors to keep their savings in a liquid form (their sight deposits) — represents a problem for the closure of the monetary circuit, unless these deposits are spent to buy those financial liabilities that firms issue in the primary market in order for the latter to obtain the amount they need to reimburse their bank debts. If wage-earners do not spend all their bank deposits either in the market for produced goods and services or in the financial market, then firms will be unable to repay their initial debts to banks,¹ which therefore will be reluctant to open a new monetary circuit. In particular, ‘[i]f hoarding is too great that it reduces the firms’ proceeds to the point of not being able to meet their contractual obligations, banks may see the firms as less creditworthy and deny them credit in the subsequent period’ (Rochon 1999, p. 40, fn. 38). Hence, a problem could arise for the economic system as a whole, as production and employment will be reduced as a result of hoarding. This could even induce an economic or financial crisis, because of the lack of effective demand or a series of bank defaults resulting from a number of so-called ‘non-performing loans’ that their debtors are unable to reimburse at maturity.

These issues have been even more relevant and problematic since the advent of shadow banking and financialization. Let us elaborate on them in the next section.

Financialization and Shadow Banking in the Monetary Circuit

Monetary circuit theories can easily integrate the emergence of financialization as well as shadow banks. Indeed, this has been done by various authors, like Cingolani (2013), Seccareccia (2013), and Passarella (2014, p. 131), who points out that ‘financialization has led to a remarkable change in the structure of the monetary circuit’. As a matter of fact, the advent of financialization has induced a structural change that affected banks’ activities, shifting their core business ‘towards consumer lending and other financial activities’ (Passarella 2014, p. 143). In so doing, the opening of the monetary circuit occurs also when banks provide credit lines to households (consumer credit) and to a variety of non-bank financial institutions that spend these amounts to carry

¹In other words, ‘the outstanding debt of firms towards banks will be equivalent to the money balances held by households’ (Lavoie 2012, p. 143).

out ‘non-GDP-based transactions’ (Werner 2011, p. 29). As regards the latter transactions, some complex mechanisms exist in intra-financial sector lending, such as overnight lending, certificates of deposit, long-term bond issuance, asset securitization, repos, and clearing houses. These mechanisms significantly influence the total volume of credit within the financial sector as a whole.

These ‘supplementary circuits’ (Sawyer 2016, p. 314) operate alongside the so-called ‘production circuit’ and inflate the volume of bank deposits without contributing also to increase produced output. As a result, an inflationary gap occurs, although very often it does not appear in the evolution of any consumer price indices, because the underlying bank loans are spent across financial markets. Post-Keynesian economists have rightly pointed out that this ‘asset-price inflation’ (Hudson 2006) originates in the decision by banks to open credit lines that have nothing to do with production activities. Indeed, this is the essence of financialization, which creates a series of ‘supplementary circuits’ with the only objective of maximizing over the short run the profits of banks as well as non-bank financial institutions, independently of the economic performance of the countries affected thereby. Let us present the workings of these circuits with a stylized example.

When a bank opens a credit line to a non-bank financial institution (also called ‘shadow bank’), the latter spends the relevant amount to purchase some financial assets in order to earn a higher yield and possibly also to make a capital gain when, later on, it will sell these assets at a higher price. As a result of this financial transaction, there will be a new bank deposit owned by the seller of these assets. If the purchaser of these assets is able to sell them at a price that allows it to reimburse the original bank loan, there will be no problem as regards this supplementary monetary circuit, as this debt repayment closes it eventually. However, if the number of these supplementary circuits and their volume of loans increase, this could rapidly increase the financial fragility of both banks and non-bank financial institutions involved thereby — as the 2007–2008 subprime crisis has shown. This echoes the famous ‘financial instability hypothesis’ advocated by Minsky (1963, 1982). As well explained by Minsky (1982, p. 95), a period of steady economic growth induces more risky forms of behaviour of financial-market institutions, spurred also by financial innovations. The debt structure of the economic system becomes thus problematical, since agents reduce the security margin on debts in light of the apparent stability of that system. When the prevailing financial conditions worsen, the economic system becomes unstable, leading to a crisis. The phase when agents have financial problems because of their over-indebtedness has been labelled a ‘Minsky moment’: at this moment, (forced) sales of financial assets provoke a sharp reduction of their prices, which aggravates the financial problems of (over-)indebted agents, so that the whole system becomes more and more unstable as time goes by, owing to a ‘debt-deflation’ dynamics already pointed out by Fisher (1933) in connection to the Great Depression (see Whalen 2008 and Desmedt, Piégay, and Sinapi 2010 for analytical elaboration).

This issue is even more problematic, since a series of non-bank financial institutions have been in a position to issue ‘near-money’ liabilities, primarily through the use of leverage and reliance on short-term funding. These liabilities (which can take the form of shares, bonds, or other financial assets redeemable on demand or within a very short period) can be issued by open-ended funds, money market funds, and structured

finance vehicles. While they are not considered as money, they can pose financial stability risks due to their potential for liquidity mismatches and spillovers to the banking sector. As a matter of fact, many non-bank financial institutions, such as hedge funds and structured finance vehicles, operate with high leverage, relying on short-term funding sources. In a number of cases, this has created liquidity mismatches when assets are relatively illiquid but liabilities can be redeemed on demand, leading to potential runs and fire sales of any illiquid financial assets in times of stress. All this creates conditions for potential crises, particularly because non-bank financial institutions are largely intertwined with banks through lending and complex relationships, exposing the banking system to the risks of a systemic financial crisis such as the global financial crisis that burst in 2008, after the collapse of the investment bank Lehman Brothers in the United States (see in particular Lavoie 2022, Ch. 4; Franceschi et al. 2023; Financial Stability Board 2024).

Hence, contrary to the ‘production circuit’ — whose major problem occurs when it does not open as explained in the previous section — the ‘financial circuit’ raises a major issue when it does not close: the ensuing financial fragility and instability could rapidly create a systemic financial crisis, because banks and non-bank financial institutions are highly interconnected at global level. If a systemically relevant bank (‘too big to fail’) is close to bankruptcy, this puts a rapidly increasing number of financial institutions into a crisis situation, because a relevant number of monetary circuits cannot be closed by debtors in financial markets. An analogous situation could occur when a number of smaller banks or non-bank financial institutions are in an illiquid position, because these institutions in general implement similar strategies across financial markets: if one of them appears to be in trouble, many other similar institutions could also suffer from the same problem as well as from some rumours about them. This is so much so in an era of digitalization of financial positions, which can be moved very rapidly from one account to another, with no physical movement across the geographical space involved thereby.

Now, these ‘supplementary’ monetary circuits are also largely opened by non-financial businesses, like transnational corporations, aiming at maximizing their own profits and in particular when there is a lack of effective demand in the market for produced goods and services. To be sure, non-financial corporations embark on financial transactions not only in periods of crisis or recession, but also in phases of expansion. As a matter of fact the process of financialization of the non-financial business sector is structural in nature, as shown by the growing size of the financial balance sheets of that sector since the end of the 1990s: non-financial corporations have been increasing the number and amounts of their purely financial operations, borrowing from banks and shadow banks, in order to engage in non-productive financial operations. Hence, as a result of the extension of the financialization process, the weight of productive investments has been negatively affected. As Seccareccia (2013, p. 282) pointed out in this regard, ‘growing profits and retained earnings associated with a relatively weak business investment have slowly transformed (or rentierized) the nonfinancial business sector itself into a net lender that seeks profitable outlets that provide high financial returns for its internal funds’. This is so much so that banks as well as non-bank financial institutions (shadow banks) benefit from those supplementary circuits opened by non-financial businesses, both as a result of their lending to the latter — which provides to them a relevant interest income — and as they purchase a large volume of financial liabilities that these firms issue to finance their initial bank loans. This is particularly problematic for so-called

investment banks, as the latter are in a conflict of interests when they advise a firm about the selling price of its own securities and then purchase them at such a price. As Brandeis (1914, p. 11) cogently pointed out, in such a case '[t]he investment banker, through his controlling influence on the Board of Directors, decides that the corporation shall issue and sell the securities, decides the price at which it shall sell them, and decides that it shall sell the securities to himself'.

Generally speaking, financialization and shadow banking could impact negatively on both the employment level and economic growth — thereby also on public finance — as a result of firms' strategies aimed at maximizing their profits over the short run, but could also support employment and economic growth via consumer credit as well as monetary policy decisions aimed at preventing falling asset prices across financial markets (see in this regard Stockhammer 2010, 2017; and Hein 2014, Ch. 9, 2019). Be that as it may, the 'supplementary monetary circuits' have been inflating to such an extent that in 2008 a global financial crisis burst, provoking a series of damages in the world economy, and particularly in so-called 'advanced' countries. This clearly shows the need to implement a monetary–structural reform disposing of banks' capacity to inflate credit bubbles with a series of 'supplementary' monetary circuits that increase financial fragility to such an extent that it can originate a systemic financial crisis. Let us turn to this issue in the next section.

A Monetary–Structural Reform to Restrain Financialization and Shadow Banking

As explained in the previous section, financialization and shadow banking have been inflating a series of major credit bubbles since the 1990s. Many of them have exploded, giving rise to a financial crisis that, in some cases, impacted the whole economic system negatively, such as the subprime crisis in 2007–2008. Mainstream economists have pointed out the need to adopt a more stringent regulation of banks' behaviour, that is, increasing their liquidity and capital ratios, particularly for systemically relevant banks. This gave rise to the so-called 'Basel III agreement' in November 2010, which is based on three pillars: the first pillar addresses capital and liquidity adequacy and provides minimum requirements, the second pillar outlines supervisory monitoring and review standards, while the third pillar promotes market discipline through prescribed public disclosures (see Basel Committee on Banking Supervision 2010). If these pillars might provide a series of incentives for bank managers not to exaggerate in their speculative activities, they cannot avert that banks continue inflating their lending volume for these activities, as they may continue financing them with a series of supplementary circuits opened by the granting of credit lines that rely on no pre-existing bank deposits, although they do not create additional income for the economy as a whole.

As a matter of fact, current financial regulations, like 'Basel III' requirements, function as an incentive mechanism rather than as an effective binding constraint: any financial institution that must respect these requirements may indeed decide the volume of credit lines to open, in order to maximize its profit, considering the amount of liquidity (to wit, 'reserves') this institution has to put aside (*ex-post*) as a result of this credit volume. In other words, bankers' behaviour is thereby influenced by an *ex-post* constraint, which nevertheless is not (and has not proven to be) enough, in order to avoid

that a major financial crisis occurs — as noticed in 2008. It is as if one were to say to an alcoholic: ‘you can drink all the alcohol you want, but for every bottle of alcohol you drink, you must have a box of headache tablets with you’. This is really not enough to prevent an accident. In other words, incentivizing bankers to limit the expansion of their lending activities cannot avert the inflation of credit bubbles, when the latter provides a higher profit to banks and non-bank financial institutions. Hence, rather than merely inducing bankers to contain these bubbles with a behavioural economics approach, one needs an ontological economics approach that *ex-ante* prevents the inflation of credit bubbles on structural grounds. It must be ensured that an alcoholic cannot start the car engine when he gets on board.

To be sure, even though behavioural economics is in fashion, this does not mean that behaviour can explain all major economic issues, particularly at the macroeconomic level, where there are some financial institutions, namely banks, that can issue money by providing loans that do not rely on any pre-existent income as explained above. This is the reason why one needs a logical and ontological investigation of banks’ activities in order to understand that banks are special, as they are the only institutions that can lend without borrowing. This is instrumental to produce national income through the payment of the wage bill, that is, production costs across the economy as a whole. Hence, banks must be constrained by a monetary–structural reform that mechanically (rather than behaviourally) impedes them to open new credit lines for ‘non-GDP-based transactions’ starting from scratch, that is, *ex-nihilo*.

As Ricardo (1824 [1951], p. 276) pointed out, banks are both money and credit providers. Having ‘no necessary connection with each other’, these two operations can be carried out by two separate departments of banks’ accounting, ‘without the slightest loss of advantage, either to the country, or to the merchants who receive accommodation from such loans’ (Ricardo 1824 [1951], p. 276). Ricardo’s investigation famously inspired the Bank Act of 1844, by which the Bank of England’s book-entry system was split into two departments, namely the Issue Department and the Banking Department.

In the first department, all money emissions of the central bank were entered, whilst the second department recorded all credit operations carried out by the Bank of England. This ‘departmentalization’ of the central bank’s books was meant to avert that it may generate inflationary pressures in the national economy — as a result of over-issuing central bank money with regard to available income. (Rossi 2020, p. 211)

A similar monetary–structural reform must occur for all banks, because any of them can and does indeed open new credit lines without any *ex-ante* constraint, as we noted above. To be sure, financial regulations — such as the ‘Basel III agreement’ and the like — so far have an impact only *ex-post*, to wit, once a bank has already granted a credit line to any borrowers its managers deem profitable for it: the latter will then have to make sure it has enough capital and liquidity levels to respect the relevant regulations, which in no case to date affect the bank’s own accounting structure, since they merely aim at affecting bankers’ behaviour — once these bankers have already provided new loans without having any pre-existing deposits up to their amounts.

To constrain the opening of ‘supplementary’ monetary circuits, therefore, a monetary–structural reform must allow banks to open new credit lines starting from scratch only when these loans are instrumental to produce a new income within the whole

Table 1. The result of a payment of wages through two accounting departments of the bank.

Bank B Issue Department (I)			
Assets		Liabilities	
(1) Credit on firm F	+x m.u.	Department II	+x m.u.
(2) Credit on firm F	−x m.u.	Department II	−x m.u.
(B*)	0		0

Bank B Banking Department (II)			
Assets		Liabilities	
(1') Department I	+x m.u.	Wage-earners' deposit	+x m.u.
(2') Credit on firm F	+x m.u.	Department I	+x m.u.
(B*) Credit on firm F	x m.u.	Wage-earners' deposit	x m.u.

Note: (B*) is the balance of those entries that are recorded in the relevant department.

economy, which occurs only through the payment of wages as noted by Keynes (1936) in his own monetary theory of production elaborated upon by circuit theorists as explained above. In practice, once such a departmentalization of banks' book-keeping occurs, the latter can provide loans to open any of these 'supplementary circuits' only up to the amount of pre-existent savings recorded in the whole banking system. This is indeed what, so far, the mainstream of the economics profession believes, claiming that banks are financial intermediaries between depositors and borrowers, collecting savings by means of which they finance their lending activities across the global economy. In fact, as pointed out in this paper, banks are special because of their capacity to lend without borrowing first the amount involved in this credit operation. As a result, this special characteristic of banks must be limited to financing 'GDP-based transactions', to wit, the payment of the wage bill, since only the latter produces a new income within the economy as a whole. Let us expand on this with two stylized examples, the former concerning production while the second concerns financial transactions.

Suppose that a (non-financial) corporation asks a bank to open a credit line in order for the former to finance the payment of wages of the current period ('initial finance' in the language of monetary circuit theory). If the bank accepts such a demand, once the wage bill is paid its two departments record the result of such a payment as shown in Table 1.²

Entry (1) results from the emission of x money units (m.u.) by the bank as a result of the payment order of the relevant firm, which thereby remunerates its wage-earners, who

²In this stylized case, we assume the paying firm produces consumption goods, so that its wage-earners obtain the purchasing power (in the form of bank deposits) necessary to close the monetary circuit when they purchase these goods. However, in practice, banks also finance purchases of capital and intermediate goods when lending to firms producing consumption goods. As a result, there is often a time lag before the credit line granted by a bank is fully transformed into wage payments. During this period, firms may use their credit lines intended for real investment to carry out purely financial transactions. Therefore, in reality, a 'departmentalization' of banks' book-keeping cannot impede that an *ex-nihilo* credit line is spent in order to purchase financial assets. Nevertheless, in this case, the total volume of newly granted credit lines by the banking sector and recorded in its Department I will be higher than the total amount of newly formed bank deposits owned by wage-earners and recorded in Department II, so that financial supervisory authorities can easily grasp that this situation could originate a financial crisis, therefore intervening with appropriate sanctions much before such a crisis occurs. As a matter of fact, contrary to the current book-keeping and regulatory frameworks, where no bank operates illegally when it provides an *ex-nihilo* credit line for 'non-GDP-based transactions', with the monetary-structural reform proposed in this paper such a credit line would be illegal, so that banks granting it will be sanctioned. Provided that these sanctions are relevant, this is enough to induce banks to reduce their illegal credit operations to a large extent, thereby reducing financial fragility and risks.

in this same bank obtain their income in the form of a bank deposit (entry 1'). When this bank carries out the payment order, it transforms the monetary debt of the firm (entry 1) into a financial debt of it (entry 2'): the firm has indeed a financial debt to the bank that corresponds to the credit of wage-earners to the same bank where their deposits are kept idle, as shown by the balance sheet of the Banking Department in [Table 1](#). This is what today any bank records as a result of the payment of wages in its own book-keeping system of accounts. So far nothing really changes once the monetary–structural reform we suggest has been put into practice. Things change, however, when the bank opens a credit line to a non-bank financial institution for any 'non-GDP-based transaction'. Contrary to what occurs to date, after our proposed reform has been implemented, the bank cannot grant a credit line in such a case, if it does not rely on an equivalent pre-existent income (that is recorded in its own accounts or that this bank borrows from either some other banks or non-bank financial institutions).

Since [Table 1](#) shows that there is an income in the form of bank deposits for an amount of x money units, this is the amount of savings that this bank may lend to finance some 'non-GDP-based transactions' across financial markets. If this bank were to lend a much higher amount to carry out these transactions, it would have to record this credit across its two accounting departments, thereby making it plain that it inflates a credit bubble in the domestic economy where it operates. This transparency, which to date does not exist and is not required by current regulations, will be necessary and sufficient to make sure no bank will continue expanding its lending operations beyond some reasonable limit in regard of available income within the whole economic system.

As regards our stylized example, the amount of available income (x m.u.) represents the maximum amount this bank can lend for 'financial circulation' (Keynes 1930 [1988], p. 217). Let us suppose this amount is lent to a non-bank financial institution like a hedge fund, which finances thereby a purchase of financial assets sold by a firm that thereby obtains the income it needs to reimburse its initial bank debt. [Table 2](#) shows the results of these operations recorded across the two departments of the relevant bank.

Table 2. The result of a financial transaction respecting the money–output relationship.

Bank B			
Banking Department (II)			
Assets		Liabilities	
(B _i) Credit on firm F	x m.u.	Wage-earners' deposit	x m.u.
(3') Loan to hedge fund HF	$+x$ m.u.		
Securities sold to wage-earners	$-x$ m.u.		
(4')		Wage-earners' deposit	$-x$ m.u.
		Deposit of hedge fund HF	$+x$ m.u.
(5')		Deposit of hedge fund HF	$-x$ m.u.
		Deposit of firm F	$+x$ m.u.
(6') Credit on firm F	$-x$ m.u.	Deposit of firm F	$-x$ m.u.
(B _E) Loan to hedge fund HF	x m.u.		
Securities sold to wage-earners	$-x$ m.u.		

Note: (B_i) is the initial balance resulting from [Table 1](#). (B_E) is the end balance after the transactions recorded in entries (3'), (4'), (5') and (6') have been carried out.

In order for this bank to grant a credit line to the hedge fund, it must sell an equivalent amount of securities to those wage-earners who transform thereby their (liquid) deposit into a much less liquid number of financial assets (entry 3'). Hence, the bank obtains an income from these depositors that it can lend to the hedge fund, without mixing-up the creation of money with the granting of a loan that does not result in produced output as explained above. In so doing, the bank merely transfers to the hedge fund the amount of income initially owned by wage-earners (entry 4'). Now, in order for the firm to recover the income it needs to repay its debt to the bank, the hedge fund must spend the income it has borrowed from the bank in the market for produced goods and services, where the firm is able thereby to recover the 'financial finance' to close the monetary circuit (entry 5'). If so, then entry 6' clears the firm's debt against the bank. Once all these operations have been carried out, the end balance of the bank's second department shows that, on one hand, wage-earners have transformed their bank deposit into an equivalent amount of securities and, on the other hand, the loan provided to the firm has been replaced by an equivalent credit line granted to the hedge fund. All in all, financial transactions do not inflate credit bubbles anymore, since the money-output relationship is unaffected thereby. Of course, this monetary-structural reform does not dispose of all problems as regards financial instability and crises, since those securities purchased by wage-earners could become 'toxic' and the hedge fund could not be able to repay its debt to the bank.³ These issues, however, will not affect the whole economic system anymore, as banks' 'departmentalization' will make sure that the volume of credit granted for any financial market transactions cannot be higher than the amount of produced income. If a bank or non-bank financial institution will be in trouble, therefore, there will be enough income in the whole economic system to pay for their debts eventually. Moreover, there exists already a number of micro-prudential instruments that allow any financial supervisory authorities to intervene in order to make sure that no single bank or non-bank financial institution is in such a problematic situation that it induces a domino effect across the financial system. In the worst-case scenario, when a debtor goes bankrupt, the banks' 'departmentalization' averts the systemic consequences that, to date, such a bankruptcy induces across the economic system as a whole (Cencini and Rossi 2015 elaborate on this).

Conclusion

This paper has shown that money and production are 'two sides of the same coin' as banks provide credit lines to firms for the payment of their wage bill. As a matter of

³In fact, generally speaking, non-bank financial institutions (like the hedge fund involved in the stylized case explained above) do not spend their borrowed income to buy goods or services: as a result, the lack of demand in the market for produced output will induce non-financial corporations to reduce both output and employment levels, when these firms are unable to repay their bank debts entirely. This issue cannot be solved with the monetary-structural reform proposed in this paper, which indeed focuses on financial instability as a major factor of systemic crises. However, such a reform could also contribute to economic growth, in so far as it induces banks to increase their lending for 'GDP-based transactions', as these credit lines can still be granted *ex-nihilo*, so that banks' profits could be increased thereby, without the problems and risks involved by 'non-GDP-based transactions' in the proposed book-keeping framework of banks' 'departmentalization' suggested in this section. If so, then such a reform could lead to the 'euthanasia' of shadow banking, once banks become aware of the limited volume of credit lines they may grant for these 'non-GDP-based transactions' and the reduced profitability of the latter for the banking sector as a whole.

fact money measures produced output on economic grounds (this is Keynes's concept of wage-units as he explained in Chapter 4 of his *General Theory*), while production is logically the origin of money's purchasing power, expressed by income in the form of those bank deposits whose initial owners are wage-earners. Keynes's monetary theory of production has been elaborated upon by monetary circuit theorists in both the French and Italian schools led by Alain Parguez and Augusto Graziani respectively, to explain that firms need 'initial finance' from banks in order to pay out the wage bill, so that the monetary circuit opens with this 'flux phase'. These authors have also explained that the circuit closes when firms recover 'final finance' by selling produced goods and services to income holders (namely wage-earners). Since the advent of financialization, however, this 'production circuit' has become less relevant in explaining the opening of monetary circuits, as banks have been granting credit lines to a variety of financial institutions (to wit, banks and 'shadow banks') that opened a series of 'supplementary circuits' to carry out 'non-GDP-based transactions' in financial markets whose regulations have not been in a position to avoid the inflation of credit bubbles.

Since the eruption of the global financial crisis in 2008, monetary circuit theorists have been focusing on these issues to integrate financialization and shadow banking in their research works, thereby providing a consistent explanation of the structural impacts of these phenomena on the workings of monetary circuits in 'advanced' economies. The analysis that this paper provides confirms these theoretical advances in monetary circuit theory, but also suggests a monetary-structural reform that is necessary to eradicate the possibility for banks to provide any volume of credit they deem profitable even though the latter does not give rise to an equivalent amount of income in the whole economic system. This reform is instrumental to avert the inflation of credit bubbles beyond the existing volume of available income, so that a systemic financial crisis cannot occur anymore.

This paper shows therefore the political economy relevance of monetary circuit theory, providing a crucial step forward from the theoretical to the political economy side of the subject matter. As Machlup (1963, p. 259) wrote cogently, 'bank managers and others with practical experience ought to stop regarding anything that has never been tried as impractical, and the theorists ought not to give up attempts to advance their favourite schemes just because the bankers refuse to listen'. Such an admonition could also be extended to politicians as well as to policy makers: they have the task of making sure other systemic financial crises do not occur across the global economy. Hence, rather than following behavioural economists' advice as regards financial regulations, they should learn from monetary circuit theory that banks are essential and indeed special with regard to money and credit. The history of economic thought provides a series of relevant investigations into this subject matter, particularly Keynes's own writings and the post-Keynesian literature on endogenous money (see Rochon and Rossi 2017 for a comprehensive presentation of this literature). It is time to remind both the economics profession and policy makers about these advances in monetary macroeconomics, for the common good regarding financial stability as a key factor of people's well-being.

Keynes as well as the fathers of monetary circuit theory deserve to be considered for implementing a monetary-structural reform that eradicates the essential factor of those systemic financial crises that have been harming the whole economic system since the

advent of both financialization and shadow banking. It is impossible to avoid that banks inflate credit bubbles, but this does not mean it is impossible to avert that these bubbles may inflate without any structural limits. This is not really a matter of banks' behaviour, as the mainstream of the economics profession believes, but depends on a monetary and structural reform that makes it mechanically impossible for banks to provide credit lines for non-productive activities beyond available income in the form of pre-existing bank deposits. Monetary circuit theory is instrumental to understand these issues and to act in order that systemic financial crises cannot happen again (Rochon and Rossi 2010; and Rossi 2011 elaborate on this).

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ORCID

Sergio Rossi  <http://orcid.org/0009-0002-5926-5356>

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