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Shadow Banking, Relationship Banking, and the Economics of Depression

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Abstract: A simple stock-flow consistent methodological account of the influence of financial markets over the real economy is here presented. The model is so devised as to allow a tidy comparison of relationship or shadow banking interpreted as alternative schemes of liquidity (not credit) risk management. The essential mechanism that is here at work is that fluctuations in the composition of property incomes lead to fluctuations in borrowing for non-financial purposes that, in their turn, drive fluctuations in spending. Having this in mind, the model emphasizes the interdependencies in entrepreneurs’ variations in animal spirits, financial institutions’ idiosyncratic liquidity risk management (ILRM), and households’ effective demand. The model key finding is that both relationship and shadow banking entail a pro-cyclical impact and that differences implied in the two cases can be reduced to the different ILRM aggregate cost functions. As for policy implications, the model suggests that securitisation is not per se leading to financial unsustainability, yet regulatory measures aimed at checking predatory lending and the CDO industry are needed: failing these, securitisation is likely to have a depressive impact on non-financial entrepreneurs’ confidence, and hence on the financial sustainability of a growth process.

JEL codes: B52, E12, E20, E44, M40.

Keywords: animal spirits, endogenous money, liquidity risk management, securitisation, originate-to-hold, originate-to-distribute.

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1. Introduction

On May 2014, the European Central Bank and the Bank of England launched a paper (BOE and ECB 2014b) to discuss with leading European private financial institutions how to re-activate a presumed array of benefits shadow banking provides to ABS issuers, investors, and the real economy. The underlying idea was that simple, transparent and standardized securitisation can provide banks with a diversified funding source and help them transferring credit risk to non-bank financial institutions, thereby providing capital relief that could be used to generate new lending to the real economy (ECB and BOE 2014a). In the last thirty years, the qualitative and quantitative proliferation of securitisation procedures was central to the evolution of financial markets and its associated instability phenomenology. Still, a theoretical consensus over the mere working of securitisation, not to mention its macroeconomic role, is lacking. In surveying the pertinent literature, Gorton and Metrick (2012) conclude that the most basic questions in securitisation are still open.

Events unveiled the need of new statistics to capture the working of actual financial markets (Borio 2013, BOE 2014). Not only economists but also accountants lagged their theories behind this epochal transformation in the macro-financial panorama (Arnold 2014). In the recent past, shadow banking has developed in a theoretical and accounting vacuum shrouding securitisation in an eerie veil of mist: the folk tale was that securitisation provided diversification to issuers, flexibility to investors, and ‘democracy’ to borrowers (cf. Cowan 2003). This narrative was intended to support shadow banking by indirectly discrediting the ‘oligarchic’ bias of relationship banking (after the events of 2006-08, ‘financial democracy’ was renamed ‘predatory lending’). Such an effective rhetoric was unfilled of sound economic theory, though. As it happens, the macroeconomics of shadow banking is as yet embryonic (Brunnermeier and Sannikov 2014, Moreira and Savov 2014, Pozsar 2015). Much sensibly, Gorton and Metrick (2012) recommend the study of securitisation as ‘an opportunity to examine some basic issues in financial economics and macroeconomics’.

The cluster of recent financial crises has rightly prompted attempts at reconsidering the fundamental role of financial markets in macro models. Many theorists look for inspiration into the minority reports of economic theory, and properly so. In this sense, although not dealing with securitisation, the work of a number of economists at the Bank of England is worth a special mention. McLeay et al (2014a, 2014b) acknowledge how actual procedures of money creation throw an un-orthodox light on the very nature of money. Bank deposits being by large the dominant medium of exchange in any modern economy, they draw attention on such a stock and suggest looking at its evolution as a consequence (indicator)—not a premise (driver), of banking credit. That is, the actual causality relation goes the other way round than the received doctrine pretends: lending creates deposits, not vice versa. In their turn, Jakab and Kumhof (2015)
appreciate that the unconventional view is all but new wine\textsuperscript{2}, and show that DSGE models with ‘finance through money creation’ (FMC) banks predict changes in bank lending that are much more meaningful (per se and for the real economy) than DSGE models with ‘intermediation of loanable funds’ (ILF) banks. In a nutshell, they recommend Post-Keynesian wine be decanted into New-Keynesian bottles.

In such works shadow banking is not an issue as yet, though. Even in Post-Keynesian macro the difference of relationship and shadow banking is given bare attention\textsuperscript{3}. The present article aims at dealing with the difference between shadow and relationship banking within a FMC perspective. Relationship and shadow banking are here strictly interpreted as the originate-to-hold (OTH) and the originate-to-distribute (OTD) models of banking, respectively. Without exception, economists (but not practitioners) regard these as models of credit risk management: banks are supposed to originate their own (illiquid) assets and either hold or distribute the associated credit risks (Bord and Santos 2012, Bouwman 2013): in the OTH model, banks originate loans and hold them in order to manage credit risk by screening and monitoring borrowers; in the OTD model, banks originate loans whose credit risk is distributed with the help of securitisation procedures (Gennaioli et al 2013). I deem this approach to both OTH and OTD as misleading. In a FMC perspective, both OTH and OTD must be interpreted as alternative schemes to manage the rise in liquidity risk implied by liquidity creation\textsuperscript{4}.

Liquidity creation occurs when borrowers originate debt securities. When this debt (principal plus interest) is purchased, as the most often is the case, by a banking institution, a principal-equivalent amount of quasi-money in form of deposit funds is originated. This liquidity is created out of nothing (Werner 2014) and is progressively destroyed as the original debt is repaid. The title reference to ‘economics of depression’ matches the above-referred fact—central to the endogenous money theory, that money creation is driven by credit demand. This fact is essential to Keynes’ (1936, ch. 12) notion of animal spirits, too: his emphasis on entrepreneurs’ confidence was meant to make the point that the state of long-term expectations was the key driver of a macro-financial system dynamics. Yet, he was rather unsuccessful in making clear that animal spirits (that seek to ‘defeat the dark forces of time and ignorance which envelop our future’, Keynes 1973, p. 155) are essentially related to the parallel state of confidence relative to financial investment opportunities\textsuperscript{5} (‘beat the gun’, ib.). The reason of this failure is that The General Theory did ‘omit express reference to short-term expectations’ (ib., p. 50).

\textsuperscript{2} The ‘finance through money creation’ (FMC) model of banking was largely prevalent among economists especially in the inter-war (Great Depression) period and inspired the post-war financial re-regulation, in consequence of which the private banking system stopped being a major source of instability. As a by-product of banking stability, the orthodox (Classic) ‘intermediation of loanable funds’ (ILF) model of banking came back to the fore, and the Keynesian FMC model survived in the works of the financial division of the Post-Keynesian army.

\textsuperscript{3} Taylor (2008) and Lavoie (2013) make a similar remark, which is validated by Caverzasi and Godin’s (2014) survey of Post-Keynesian stock-flow-consistent models.

\textsuperscript{4} ‘Securitization does not alter the fact that bank-intermediated liquidity creation occurs in the economy – it merely reflects a change in the process by which liquidity creation is occurring’ (Bouwman 2013, p. 21).

\textsuperscript{5} Long-term expectations are about non-financial investment opportunities.
Suzuki (2003) has shown that the birth of macroeconomics and the spread of economic management principles in modern societies owe much to the movement of accounting expressionism. In a similar vein, the ‘money view’ of shadow banking (Mehrling et al. 2013, Pozsar 2014) is based on an accounting ‘expressionist’ approach. As it happens, economists can rely on accounting as a lingua franca to enhance the visibility of economic issues and indeed construct reality. The modelling strategy here proposed is therefore of accounting nature. The model deals with a simple monetary circuit so devised as to put the opposition shadow vs. relationship banking to the fore, while providing a simple methodological account of the working of financial markets and it affects non-financial markets. In order to make our topic as intelligible and simple as possible, I abstain from proposing the typical Post-Keynesian stock-flow-consistent modelling apparatus based on transactions flow matrices (Godley and Lavoie 2007) and adopt ‘changes in balance-sheet’ (LX) accounts as defined in the SNA/ESA framework6: as far as I can see, LX accounts are better at highlighting how quadruple-entry transactions entail changes in the liquidity (flexibility) of transactors’ positions.

The proposed model is intentionally rudimental. Its main strength is an extreme simplicity consistent with the specific objective to capture the impact of banking over a whole economy: one can draw more sophisticated versions building on this basic framework. The remainder of the article is thus structured as follows. Section 2 spells out the basics of the proposed models. At their bottom, the fact that, as far as financial items are concerned, one can only ‘originate’ his/her own liabilities. This principle is so developed as to capture the notion that banks can manage liquidity risk by originating liabilities to hold (relationship banking) or by originating liabilities to distribute (shadow banking). This take on the role of banking is embedded in a sequential causation: fluctuations in the composition of property incomes lead to fluctuations in borrowing for non-financial purposes that, in their turn, drive fluctuations in spending. In Section 3, a rudimental macro-financial model with a financial sector adopting an OTH approach to liquidity risk management (relationship banking) is derived. In Section 4 a parallel model assumes the financial sector adopts an OTD approach to liquidity risk management (shadow banking). Section 5 concludes.

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6 ‘The changes in balance sheet account [IV.2, or LX] records changes in the value of assets and liabilities in the course of the accounting period and aggregates the amounts recorded in the various accumulation accounts’ (Eurostat 2013, 8.62).
2. Basics of the model

Assume a macro economy in which:

i. the non-financial corporate sector (S.11) operates production plans;
ii. the financial corporate sector (S.12) finances production plans through money creation;
iii. the public sector (S.13) is ‘doing nothing’ (not changing its fiscal and monetary regulation);
iv. the households’ sector (S.14) operates consumption plans;
v. non-profit institutions (S.15) and the foreign sector (S.2) are irrelevant (a closed economy).

A simple yet far-reaching hypothesis let us focus on our main topic, that is the impact of the S.12 on the financial sustainability of a growth process: the S.12 is the only sector to actively manage the liquidity risk pending on its own characteristic operations. Admittedly, this is a pretty radical assumption, especially as far as the S.11 is concerned. Actually, both the construction and the adjustment of productive capacity take time: at least temporarily, payments grow more than receipts. When commitments to non-financial activities gain strength, non-financial investors’ capacity to immediately face unexpected claims—namely their ‘liquidity’, does temporarily, but surely, deteriorate. The increase in liquidity risk takes place whenever a decision implies a maturity mismatch, i.e., a financial outflow whose associated financial inflow takes time to realize. This liquidity effect is in the nature of a financial effect, and characterizes all time-consuming operations in a monetary economy. Interestingly, this effect is fundamental to Hyman P. Minsky’s Financial Instability Hypothesis. Minsky’s point is that solvency risk goes hand in hand with liquidity risk—insolvency is less likely the more an entity is able to immediately pay for possible pitfalls: the more an entity is liquid, the less unchosen positions can force that entity to refinance its pre-existing debt positions.

Macroeconomists are used to leave liquidity risk out their pictures. As it happens, the hypothesis suggested above is not much limiting; yet, it is important to be clear about its shortcomings. In general, when we assume that non-S.12 entities are as if non-managing liquidity risk we are putting aside a great deal of the prudential dimension in their actual behaviour. In particular, we are indeed considering, firstly, production processes as if instantaneous (the S.11 as if unconcerned with capital formation); secondly, market output as if unusable in subsequent periods (the S.14 as if unconcerned with carrying real assets over upcoming periods). In general terms, both sectors are as if unconcerned with the constitution and management of reserve funds. In such an artificial environment, in which currency is the sole non-perishable asset, we are allowed to pass over the accounting of non-financial assets and focus on financial items:

financial accounts are informationally equivalent to capital accounts.

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8 On Minsky’s hypothesis, see Mehrling (2009).
9 That is how popular fictions as instantaneous production or a-sequential transitions arose.
10 That is how behaviour is normally analysed as an optimizing behaviour.
Our model can be further simplified with another assumption that, given the problem at hand, is both convenient and legitimate: credit is the only source to finance production. The S.11 is therefore financing production by issuing an amount $D$ in IOUs to be purchased by the S.12 at cost $(1 - d)D$. The levels of $D$ and the discount rate $d$ (on which the interest rate charged on loans essentially depends) are determined by the confidence of entrepreneurs in the opportunity to start new production processes (animal spirits). Although the desiderata of a financer do certainly play an important role in the determination of $D$ and $d$, the issuance of this kind of IOU is a decision in borrowers’ hands, definitely: no one can be forced to borrow against her will—the debtor has always the last word on the inception of a credit transaction. This simple point is very important, as it highlights a truly general principle: as far as financial items are concerned, one can only ‘originate’ his/her own liabilities\(^{11}\). This implies that, contrary to conventional wisdom, S.12 cannot originate loans (AF.4): rather, S.12 can purchase loans (S.11 liabilities) worth $D$ and pay for them by originating $(1 - d)D$ in transferable deposits (AF.22).

This deposit fund worth $(1 - d)D$ is a banking liability. In no sense, however, this loan-backed deposit can be regarded as a liability the bank originates to-hold: borrowers borrow when in need of disposing of immediate expenditure capacity. Rather, one may consider this liability be originated to-distribute. However, this is not the place where the OTH/OTD distinction is relevant: whether a S.12 liability is originated to-hold or to-distribute becomes visible only after the credit transaction, when the lender is left with an extra amount $D$ in illiquid asset that is corresponded by a liquid\(^ {12}\) liability worth $(1 - d)D$. From the perspective of the other sectors, the S.12 has ‘created liquidity’ (Keynes, 1973, p. 155). In terms of net worth (B.90), the lending sector is better off $(+dD)$. Yet, it is in a less liquid position: its ability to meet unexpected liabilities (non-measured downward risks) declines\(^ {13}\). Who is in a less liquid position may feel like taking action to sacrifice a portion of his extra net worth in order to move towards a more liquid position.

Traditional banks (depository institutions) enhance the liquidity in their positions by originating liabilities, yet of another kind than the above referred deposits backed by a loan. This second kind of liability is in the nature of a deposit fund (assumedly worth $F$) that is backed by a discounted amount $(1 - f)F$ in liquid assets\(^ {14}\)—typically households’ savings in form of currency (AF.21)\(^ {15}\). Not only banks cannot prevent runs from taking place, they would rather see depositors not using ATM cards even. Until (traditional) banks consider the rise in liquidity risk associated to loans-backed-deposits adequately balanced by the increase

\(^{11}\)In a monetary economy real liabilities cannot be originated at all. Yet, always and everywhere, one can originate real assets (by self-employment of labour services).

\(^{12}\)For the individual bank this liability is likely to be ephemeral; for the banking sector it is not. In the micro-perspective, this depends on whether workers’ bank is the same as their employers’.

\(^{13}\)The vice versa applies to the borrowing sector. In terms of B.90, S.11 is worse off $(−dD)$; yet it is more liquid.

\(^{14}\)Of course, the discount rate $f$ is what determines the interest rate a bank grants to depositors.

\(^{15}\)Typically but not mostly: in a micro-perspective, households’ deposits can also consist in other (non-central) banks’ deposit withdrawals; in a macro-perspective, however, withdrawals and originations clear each other, so that the remainder is central banks’ liabilities, i.e., currency.
currency-backed-deposits, the latter type is originated-to-hold, definitely. The alternative OTD scheme of ILRM is elicited in Sec. 4.

Once it is understood that liquidity creation is to be complemented with a parallel procedure of idiosyncratic liquidity risk management (hereafter ILRM), one can somehow retain the intermediation notion censured by many advocates of the FMC approach. It is true that actual banks do not intermediate final credit into final debt positions; none the less, the necessity of doing ILRM does situate them in an intermediate position between final debtors and final creditors. Only, the standard view of the direction of the intermediation sequence needs be reversed: final debt originated by S.11 implies a S.12 intermediate credit, whose associated liquidity risk makes S.12 originate intermediate debt which implies, in its turn, a final credit (S.14). The final debtor is the starting link (credit market) of the intermediation chain, the final creditor the ending link (money market). Final debt is a cause (FMC), not a consequence (ILF), of final credit. As opposed to the view implicit, inter alia, in Shin’s specimens of intermediation chain (Shin 2010, p. 101), the money market is a kind of credit market, not vice versa.

At this point, we only need a peculiar assumption about the fundamental driver in the evolution of final debt. Sticking to a Keynesian take on ‘the economics of depression’, let us assume that the debt originated by non-financial corporate (S.11) borrowers in order to finance production first and mostly depends on proprietary households’ willingness to invest in non-financial ventures vs. financial ones. Denote such willingness by \( \xi \) and call it, for sake of simplicity, ‘animal spirit’ when \( \xi \) is rising (falling), willingness to invest in non-financial ventures relative to willingness to invest in financial opportunities is rising (falling). Therefore, however elusive a relative measure of two kinds of ‘sentiments’ may be, one can recognize the difference in profits \( \Pi \) and interest \( R \) realized in the previous period as a possible congruous index of the current state of animal spirits: \( \xi = \Pi_{-1} - R_{-1} \). This particular index embodies a sustainability principle, too: as soon as profits exceed interest, not only the latter are paid off, but the groundwork for these to grow (in the footsteps of new debt and non-financial investment) is definitely laid, too.

When production is instantaneous, the rent—defined as per Eurostat (2013, 4.72) and consistently with the vertically integrated production the present setting however involves, is absorbed into the cost of labour services \((1 - d)D\). If we also assume that, at the end of the period, the S.11 and the S.12 distribute to corporate owners (S.14) the incomes they realize in the current period, we can emphasize that the fundamental driver of the system dynamics \( \xi \) is a function of the structure of proprietary incomes. In its turn, such a structure is critically influenced by effective demand \((C)\), which in its turn depends on funds \((1 - f)F\) available to dishoard and, most importantly, labour incomes \((1 - d)D\). All in all, by abstracting

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17 This perspective over financial markets was championed by H. Minsky.
18 On Keynes’ notion of animal spirits, see Marchionatti (1999).
from the role of general government (S.13) and the foreign sector (S.2), we are emphasising the interdependences of:

a) Variations in entrepreneurs’ (S.11) animal spirits—these being dependent on the structure of property incomes ($\Pi$ vs. $R$);
b) Financial institutions’ (S.12) strategies of liquidity risk management (OTH vs. OTD);
c) Households’ (S.14) effective demand—this being composed of both labour $((1 - d)D)$ and property ($\Pi + R$) incomes.

The underlying idea is that fluctuations in property incomes ($\Pi + R$) lead to fluctuations in investment $((1 - d)D)$ that, in their turn, drive fluctuations in spending ($C + D$). In such a mechanism, pre-existent funds $((1 - f)F)$ appear at the end, not the beginning, of the sequence. The accounting structure of the present model is so set as to focus on the liquidity shifts\(^{19}\) that characterize a simple monetary circuit, without taking into account changes in stocks that are inessential to the above-referred mechanism, e.g., trading in equities. The circuit consists of five steps—changes in sectorial balance sheets (LX):

**LX.1.** On the basis of the proprietary incomes ($\Pi_{-1}$ and $R_{-1}$) realized in the previous period, proprietary households set both the S.11 and the S.12 willingness to invest: given the state of confidence $\xi = \Pi_{-1} - R_{-1}$, the S.11 originates a stock of current debt ($D$) purchased by the S.12 by originating $(1 - d)D$ in deposits;

**LX.2.** Production being instantaneous, the principal $(1 - d)D$ is wholly used up to pay for labour services provided by the S.14;

**LX.3.** The S.12 does actively manage the rise in liquidity risk associated to new loans. This can be done following either a OTH (Sec. 3) or a OTD (Sec. 4) approach;

**LX.4.** The S.14 fixes the aggregate amount $C$ of effective demand;

**LX.5.** Both the S.12 and the S.11 clear their own debt positions and distribute proprietary incomes to the S.14. The current period ends and, on the basis of current proprietary incomes ($\Pi$ and $R$), the next period begins.

After each step, we will determinate the cumulative effects of the process in the LX.A, LX.B, LX.C and LX.D accounts:

- **LX.A.** = LX.1 + LX.2;
- **LX.B.** = LX.A + LX.3;
- **LX.C.** = LX.B + LX.4;

\(^{19}\) Let us recall that, in our setting, variations in real assets are inconsequential.
Notice that the proposed model is based on two causal sequences, an inter-period and an intra-period sequence. The former is the causal relation going from proprietary incomes to animal spirits: this constitutes the most fundamental driver of the system dynamics and makes our approach one of ‘economics of depression’. The latter depicts the sequence of events taking place within a single period: borrowing (LX.1), investment (LX.2), ILRM (LX.3), effective demand (LX.4), clearing (LX.5).

3. Relationship banking (OTH).

A period is coming to an end: the non-financial corporate sector (S.11) and the depository financial corporate sector (S.12) distribute to corporate owners (S.14) all proprietary incomes produced in that period: profits (D.421: $\Pi_{-1}$) and interest (D.41: $R_{-1}$), respectively. This distribution determines the state ($\xi$) of entrepreneurs’ confidence ruling the period to come: $\xi$, in our setting, is assumed to have the same sign of excess profits over interest, i.e., to take simplest possible case, $\xi = \Pi_{-1} - R_{-1}$.

The current period starts with an act of borrowing. Over time, the stock of debt the S.11 originates is a positive function of the evolution of animal spirits: $\partial (D(\xi) - D_{-1}(\xi))/\partial \xi > 0$. When entrepreneurs borrow, they originate IOUs (loans, AF.4) consisting in liabilities to issuers (S.11) and assets to subscribers (S.12). Issuers get thus a right to draw $(1 - d)D$ in transferable deposit funds (AF.22) originated by the banks themselves. Such a right is an asset to the debtor (S.11) and a liability to the subscriber (S.12). LX.1 accounts below depict the quadruple stock variations entailed by issuance of final debt:

<table>
<thead>
<tr>
<th>S.11</th>
<th>S.12</th>
<th>S.14</th>
</tr>
</thead>
<tbody>
<tr>
<td>LX.1</td>
<td>changes in balance sheet:</td>
<td>LX.1</td>
</tr>
<tr>
<td></td>
<td>BORROWING</td>
<td></td>
</tr>
<tr>
<td>ch. in assets</td>
<td>ch. in liab. and n.w.</td>
<td>ch. in assets</td>
</tr>
<tr>
<td>AF.22</td>
<td>(1-d)D</td>
<td>AF.4</td>
</tr>
<tr>
<td>A.10</td>
<td>-dD</td>
<td>A.10</td>
</tr>
</tbody>
</table>

Banks do not originate these deposit funds in view of holding them, though: debtors (S.11) are meant to draw on them straight away since, in the model, the S.11 borrows $(1 - d)D$ in order to finance non-financial ventures that are meant to produce a cash inflow eventually larger than $D$. Production being instantaneous,
S.11 expenditure ends in a corresponding increase in S.14 assets (labour incomes). LX.2 accounts assume that compensation of employees is executed via giro orders; LX.A add LX.1 and LX.2 together:

\[
\begin{align*}
\text{S.11} & \quad \text{changes in balance sheet: COMPENSATION} \\
\text{LX.2} & \quad \text{ch. in assets} & \text{ch. in liab. and n.w.} \\
\text{AF.22} & \quad -(1-d)D & \text{B.10} & \quad -(1-d)D \\
\text{S.12} & \quad \text{changes in balance sheet: COMPENSATION} \\
\text{LX.2} & \quad \text{ch. in assets} & \text{ch. in liab. and n.w.} \\
\text{AF.22} & \quad (1-d)D & \text{B.10} & \quad dD \\
\text{S.14} & \quad \text{changes in balance sheet: COMPENSATION} \\
\text{LX.2} & \quad \text{ch. in assets} & \text{ch. in liab. and n.w.} \\
\text{AF.22} & \quad (1-d)D & \text{B.10} & \quad -(1-d)D \\
\end{align*}
\]

We are assuming that the S.12 only is actively managing liquidity risk. As far as this risk is concerned, the financial sector position is worse off: the S.12 has financed an inflow of illiquid assets (AF.4) with an outflow of liquid liabilities (AF.22). Banks are thus disposed to give up a part \((fF)\) of the expected interest inflow \((dD)\) in view of holding \((1 - f)F\) in additional liquid assets and thus reduce liquidity risk: the S.12 issues liquid liabilities (deposits, AF.22) worth \(F\) so to obtain from households \((1 - f)F\) in liquid assets, e.g., currency (AF.21)\(^{20}\). The reason why banks do originate-to-hold such liabilities is that liquidity risk is effectively reduced as far as depositors (S.14) do not withdraw their deposits. LX.3 accounts depict this operation of OTH-ILRM; LX.B add LX.A and LX.3 together:

\[
\begin{align*}
\text{S.11} & \quad \text{changes in balance sheet: OTH-ILRM} \\
\text{LX.3} & \quad \text{ch. in assets} & \text{ch. in liab. and n.w.} \\
\text{S.12} & \quad \text{changes in balance sheet: OTH-ILRM} \\
\text{LX.3} & \quad \text{ch. in assets} & \text{ch. in liab. and n.w.} \\
\text{AF.21} & \quad (1-f)F & \text{B.10} & \quad -fF \\
\text{AF.22} & \quad F & \text{B.10} & \quad fF \\
\text{S.14} & \quad \text{changes in balance sheet: OTH-ILRM} \\
\text{LX.3} & \quad \text{ch. in assets} & \text{ch. in liab. and n.w.} \\
\text{AF.21} & \quad -(1-f)F & \text{B.10} & \quad fF \\
\text{AF.22} & \quad F & \text{B.10} & \quad fF \\
\end{align*}
\]

\(^{20}\) Needless to say, discount rates are inversely related to the perceived liquidity of related IOUs.
It is households’ (S.14) turn to play their game, i.e., fixing effective demand (C). Assume that purchases of goods and services offered by the S.11 are settled by giro orders. Recall that our assumption on ILRM implies that production is instantaneous and that the goods and services produced in the current period cannot be carried forward. This simplifies our accounts to a great extent, as it let us reduce the model capital accounts to the financial accounts. The LX.4 accounts below depict effective demand; LX.C add LX.B and LX.4 together.

All sectors having made their own characteristic decision, the cycle goes to an end by clearing debt positions (LX.5). This is not inducing any change in net worth (B.10):
LX.D accounts (LX.C + LX.5) show how both profit ($\Pi$) and interest ($R$) are eventually financed out of households’ loss in net worth (B.10), the extent of which basically depends on effective demand ($C$). It is perhaps worth to recall that, in actual fact (turning a deaf ear to our simplification), households’ loss in net worth is more than balanced by the ‘utility’ derived from consuming goods and services.

Our sequence of accounts can be useful in drawing dynamic implications\(^2\). Our primary interest is in property incomes causing fluctuations in borrowing and hence in spending. We are left with two residual property incomes: $C - D = \Pi$ (profit) and $dD - fF = R$ (interest). Given our behavioural assumption about variations in animal spirits: $\xi = \Pi - R$, $\xi$ is non-negative—that is non-depressive, as soon as $\Pi - R \geq 0$, i.e.,

$$C - D \geq dD - fF.$$ \[1\]

Condition \[1\] implies that consumption must overshoot the cost of non-financial investment ($D = $ wages plus interest) by an amount no smaller than S.12 surplus ($dD - fF$). In other terms, condition \[1\] implies that investment and consumption—not saving, must be in a certain relation: the effective contribution of investment to demand depends not only on the quantity and but also the quality of investment. The issue more naturally arises in a model where production takes at least two phases (periods), one in which

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\(^2\) “PK-SFC models explicitly account for the discrepancies between ex post realisations, which are given on the one hand by statistical accounting equilibria (every spending of someone is the income of someone else) and on the other are the result of modelled behaviours based on ex ante values. These discrepancies are incredibly relevant in that they represent dynamical adjustment processes such as capital gains” (Caverzasi and Godin, 2014, p. 4).
productive capacity is being built, another in which is being used, so that producers must manage liquidity risk\(^\text{22}\), and the accounting of non-financial items does matter. In this (more general) case a macro-foundation of learning is directly implied: new investment (innovation) is so managed as to pursue the inter-temporal co-ordination in costs (investment) and proceeds (effective demand). Although the assumption on ILRM set this issue aside, condition [1] takes this in: this is important as it provides the rationale for our hypothesis concerning the dynamics of animal spirits.

When condition [1] holds, profits exceed interests, animal spirits excite and, in the next period, entrepreneurs are willing to originate more debt and boost production. This reverberates on households’ confidence, too: rising labour incomes are likely to enhance effective demand (transaction demand, \(C\)) relative to precautionary demand (\(F\)): yet as we assume that S.14 does not actively manage liquidity risk, this (easing) pressure can be neglected. We are focusing on S.12 liquidity motive: when banks have no motive to lean against this favourable wind (speculating on the failure of new ventures—by rising beyond a certain threshold \(d\) and, most importantly, \(f\)), the S.12 is likely to ease these developments: constituting a prime factor in the dematerialization of liquidity (and hence credit) risk, the success of S.11 ventures is a major concern to the S.12\(^\text{23}\). Condition [1] is thus likely to self-fulfil.

When condition [1] does not hold, the current performance is depressive to animal spirits. In the subsequent period, S.11 is likely to moderate supply of debt (\(D\)) and investment ((1 − \(d\)) \(D\)) thereby. In the present setting, investment is equivalent to labour incomes, the paramount element of effective demand (\(C\)). Since we are focusing on S.12 liquidity motive, the fact that proprietary households are likely to boost precautionary motives (\(F\)) relative to transaction motives (\(C\)) is here of marginal importance. In depressed conditions, banks are likely to negotiate higher \(d\)'s and impose lower \(f\)'s. Unfortunately, this is likely to exacerbate depression, as the excess of consumption over investment that is necessary to realize for condition [1] to hold—and thus reverse confidence dynamics, must increase relative to the preceding period.

A way needs be found to check this vicious circle. In our setting fiscal policy cannot directly stimulate investment and consumption, hence what needs be done essentially amounts to the (non-mutually exclusive) alternative: debase \(d\) and/or enhance \(f\). Unfortunately, there is little room to enhance \(f\). It is the bank, not the depositor, to originate (to-hold) \(F\): banks have the last word on deliberating the conditions that apply to origination of deposits. How feasible is finding a way to make banks accept (deliberate) to pay more to manage liquidity risk when depositors, given the assumption concerning ILRM, are likely to exert no pressure in this direction? However tricky, finding a way to debase \(d\) would be more likely—provided that a

\(^{22}\) The relative sequence of accounts is developed in Bianco (2015).

\(^{23}\) ‘Credit is the pavement along which production travels and the bankers if they knew their duty, would provide the transport facilities to just the extent it is required in order that the productive powers of the community can be employed at full employment’ (Keynes1972, p. 220).
role for the public sector is allowed for. Lacking this possibility by assumption, the impact of a financial sector managing liquidity risk following a OTH scheme needs be recognized as per se pro-cyclical.

4. Shadow banking (OTD).

Literature on securitisation has developed since 2007 only, at the outset of the Great Financial Crisis. Claessens et al (2012, p. 5) highlight three main strands in this literature, respectively focusing on issues in private liquidity creation, market failures, and the importance of shadow banks in supporting collateral-based operations in the financial system. While touching on the third, our take on shadow banking essentially pertains to the first strand. Yet, I avoid overemphasizing partial aspects so to open a perspective based on elements as simple and general as possible, as the ESA definition of securitisation: ‘the issuance of debt securities for which coupon or principal payments are backed by specified assets or by future income streams’ (Eurostat 2013, 5.104). Being collateralized by the cash flows produced by a predetermined pool of financial or non-financial assets (ib., 5.110, 20.260), these debt securities are called asset-backed securities (ABSs). Being part of the originator’s estate, which can conceivably used to satisfy other creditors’ claims, the collateral is suitably segregated into legally separate entities that national accountants call financial vehicle corporations (FVCs) (ib., 2.90). FVCs are also known as SIVs, SPVs, and the like. However one may call such vehicles, the practical import of securitisation is unambiguous to practitioners: ‘financial institutions and business of all kinds use securitisation to immediately realize the value of a cash-producing asset’ (Cowden 2003). Being employed as a tool of credit monetization, and not one of credit risk transfer (there is no transfer of collateral, indeed) it goes without saying that securitisation amounts to a ILRM tool.

Assume an individual bank holding a pool of assets. In the LS below this is assumed to consist in debt securities (AF.3). The pool is expected to produce a cash inflow worth $D$. For sake of simplicity and clarity of exposition (emphasis here needs be placed on the relation between an ABS issuer and an ABS buyer), tables below rule out the cost to purchase such a pool. Yet, the pool-holder is to manage the liquidity risk implied by such a cost. The liabilities originated by shadow banks are not deposits (AF.22) but ABSs (AF.3). As in OTH banking, liquidity risk management is costly: the market applies a discount rate $s$ on ABS facial values. The following sequence of accounts depicts the securitisation of a pool of asset worth $D$, i.e., the origination-and-distribution (LX.A), and consequent clearing (LX.B), of a $D$-backed-security:
Just like in OTH banking, debt clearing implies no change in net worth (B.10): however obvious, this point is particularly important when dealing with OTD banking as it allows skimming through the complexity of securitisation procedures losing no essential information. Let us call the *interim balance sheet* the stock account resulting after the ABS is originated and distributed, but before it is cleared (LI = LS + LX.a):
The interim stock identity retains all essential (and persistent) information involved in a securitisation procedure: the pre-existence of the collateral (AF.3 in issuer’s assets column), the origination-and-distribution of the ABS (AF.3 in issuer’s liabilities and buyer’s assets), the liquidity risk transfer (transaction in AF.2) and, crucially, net worth (B.90) equivalent to closing ones (cf. LE account). Interim identities are thus suitable to draw evaluations of the ex ante impact of securitisation procedures.

FVCs have a special interest in distributing low-discounted ABSs: the lower s, the lower the cost to immediately realize the collateral facial value (monetise credit). The discount rate s is a measure of a buyer’s liquidity premium. The fact that typically ABSs are not distributed out of the financial sector is due to the fact that securities other than ABSs allow better economic and legal guarantees. ABSs that are not as liquid as money are typically purchased by other shadow banking units (FVCs). That is how ABSs are usually held until maturity by other FVCs that employ them as collateral to continue the liquidity transformation process, so as to originate ABS-squared, ABS-cubed, etcetera. These \( n^{th} \)-order ABSs are also known as collateralized debt obligations (CDOs), CDOs being no else than ABS²s, CDO³ being ABS³, and so on. Continuous liquidity transformation, while being a clear ingredient of liquidity risk management, was a key factor in the inflation in size, complexity, interconnectedness and layering of pre-crisis financial markets²⁴.

Let us sketch a first approximation of a full-fledged shadow banking sector by abstracting, first, from variations in the discount rate s down the \( n \) layers of the liquidity transformation process. Constancy of s is not only unrealistic but also prejudicial of a consideration of the role of credit risk transfer instruments (CDS, IRS, and other derivatives alike) or liquidity enhancement strategies (most importantly maturity transformation²⁵), whose crucial role is checking discount rates, i.e., the costs to the originators’ for doing

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²⁴ Pozsar et al (2010) schematically represent the funding flows of the shadow banking system.
²⁵ It is worth to notice that maturity transformation in shadow banking is ‘reversed’ as compared to relationship banking: in the latter case, maturity is typically lengthened; in the former case, maturity is shortened. A model of ABSs markets liquidity crises (‘sudden stops’) in which maturity transformation plays a key role can be found in Bianco (2014). That article deals with the fragility of the shadow banking sector; this one with the macro-financial sustainability of securitisation.
ILRM. Let $\psi$ $(0 \leq \psi \leq 1)$ be the fraction of total cash flows from illiquid assets that is used as collateral. To keep things simple, let us assume constancy of $\psi$ down the $n$ layers. This double assumption let us set up a tidy benchmark model to evaluate how differently OTH and OTD banking impact on macroeconomic dynamics.

Financial corporations hold $D$ in illiquid assets corresponding to liabilities originated by the S.11 and purchased by originating $(1 - d)D$ in deposits. The associated liquidity risk is managed with an OTD approach: banks recommend their incorporated FVCs to issue ABSs for a facial value amounting to a fraction $0 \leq \psi \leq 1$ of $D$. In this case, during the whole period $D$ goes to maturity, ABSs outstanding value is $\psi D$. In distributing these ABSs, FVCs rightly cash $(1 - s)\psi D$ in liquid assets financed out of FVCs liabilities. FVCs manage the associated liquidity risk by originating $\psi D$ in ABSs (CDOs) so to cash $(1 - s)\psi D$ in liquid assets… and so on with FVC², …, FVCⁿ. The following accounts depict this ‘creative wave’:

<table>
<thead>
<tr>
<th>FVC1</th>
<th></th>
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<tbody>
<tr>
<td>LS - Opening balance sheet</td>
<td></td>
</tr>
<tr>
<td>AF.3 D</td>
<td>AF.2 $(1-d)D$</td>
</tr>
<tr>
<td>B.90 $dD$</td>
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<table>
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<tr>
<th>FVC2</th>
<th></th>
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<tbody>
<tr>
<td>LS - Opening balance sheet</td>
<td></td>
</tr>
<tr>
<td>AF.3 D</td>
<td>AF.2 $(1-d)D$</td>
</tr>
<tr>
<td>B.90 $(s \cdot D)$</td>
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<table>
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<tr>
<th>FVC3</th>
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</tr>
<tr>
<td>B.90 $s \cdot D$</td>
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<table>
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<tr>
<th>FVCn</th>
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<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>AF.3 D</td>
<td>AF.2 $(1-d)D$</td>
</tr>
<tr>
<td>B.90 $s \cdot D$</td>
<td></td>
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</tbody>
</table>
It is possible to capture what happens down the $n$ layers through a set of interim balance sheets:

\[
\text{FVC1} \\
\text{LI - Interim balance sheet} \\
\begin{array}{l l l l l}
AF.2 & (1-s) \phi \ D & AF.2 & (1-d)D & \text{AF.3} & \phi \ D \\
AF.3 & D & & & B.90 & (d-s\phi) \ D \\
\end{array}
\]

\[
\text{FVC2} \\
\text{LI - Interim balance sheet} \\
\begin{array}{l l l l l}
AF.2 & (1-s) \phi^2 \ D & AF.2 & (1-s) \phi \ D & \text{AF.3} & \phi^2 \ D \\
AF.3 & \phi \ D & & & B.90 & s \phi (1-\phi) \ D \\
\end{array}
\]

\[
\text{FVC3} \\
\text{LI - Interim balance sheet} \\
\begin{array}{l l l l l}
AF.2 & (1-s) \phi^3 \ D & AF.2 & (1-s) \phi^2 \ D & \text{AF.3} & \phi^3 \ D \\
AF.3 & \phi^2 \ D & & & B.90 & s \phi^2 (1-\phi) \ D \\
\end{array}
\]

\[
\text{FVCn (n>1)} \\
\text{LI - Interim balance sheet} \\
\begin{array}{l l l l l}
AF.2 & (1-s) \phi^n \ D & AF.2 & (1-s) \phi^{n-1} \ D & \text{AF.3} & \phi^n \ D \\
AF.3 & \phi^{n-1} \ D & & & B.90 & s \phi^{n-1} (1-\phi) \ D \\
\end{array}
\]

Supposing that the eventual ABS$^n$ is held until maturity by the households' sector (S.14), the interim balance sheet for the shadow banking sector as a whole amounts to:

\[
\text{Shadow Banking Sector} \\
\text{LI - Interim balance sheet} \\
\begin{array}{l l l l l}
\text{Assets} & \text{Liabilities} \\
AF.2 & (1-s) \sum_{i=1}^{n} \psi^i \ D & AF.2 & (1-d)D + (1-s) \sum_{i=1}^{n-1} \psi^i \ D & B.90 & (d-s\psi^n) \ D \\
AF.3 & \sum_{i=0}^{n-1} \psi^i \ D & AF.3 & \sum_{i=1}^{n} \psi^i \ D & & \\
\end{array}
\]

Notice that the shadow banking sector (S.12) net worth (B.90) is limited by the amount of interests $dD$ paid by ‘originators-of-last-resort’ (final debtors, i.e., originators of $D$). This aggregate interim balance sheet let us comfortably and consistently compare our account of OTH and OTD banking. Notice that, relative to the previous sequence of accounts, the only critical variation takes place in LX.3:
### S.11

<table>
<thead>
<tr>
<th>LX.1</th>
<th>changes in balance sheet: BORROWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>ch. in assets</td>
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<tr>
<td>AF.22</td>
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<th>changes in balance sheet: COMPENSATION</th>
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<tr>
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19
The moral of this sequence of accounts is that the **only difference with relationship banking (OTH) is in the S.12 ILRM aggregate cost function**, with $s\psi^n D$ appearing in place of $f \Phi$. Given our behavioural hypothesis ($\zeta = \Pi_{-1} - R_{-1}$), under a full-fledged shadow banking financial regime animal spirits are ‘positive’ ($\zeta > 0$) when:

$$C - D > (d - s\psi^n)D.$$
When condition [2] applies, \( C > (1 + d - s\psi^n)D \). Let \( C = (1 + d - s\psi^n)D \) be the level of effective demand that needs be realized in order to avoid depressing animal spirits. Once all possibility to exogenously enhance \( C \) is by assumption ruled out, and abstracting from \( s\psi^n \), the discount rate \( d \) is a key variable in determining the elasticity of animal spirits to current performance. It is reliable to assume a negative relation between \( \xi \) and \( d \): when the current performance is such that animal spirits are positive, \( \tilde{C} \) declines (net of the effect of \( \xi \) on \( D \)) and the condition to sustain confidence is easier to meet. On the contrary, when the performance is depressive to animal spirits, \( d \) is likely to increase and the condition to reverse depression becomes even harder to fulfil. This pro-cyclical impact of shadow banking applies to relationship (OTH) banking, too, and is consistent with ancient and modern actual experience.

More characteristic of shadow banking is the role of the OTD-ILRM cost function \( (s\psi^n) \), instead. The volume \( \tilde{C} \) of effective demand that needs be realized in order to avoid depressing animal spirits is a negative function of \( s\psi^n \): the higher \( s\psi^n \), the lower \( \tilde{C} \), i.e., the less likely the current performance is depressive to animal spirits. Rising (decreasing) OTD-ILRM aggregate costs \( s\psi^n \) have a positive (negative) impact on the dynamism of the whole system: high \( s \) or \( \psi \) and low \( n \) is good; low \( s \) or \( \psi \) and high \( n \) is bad. The analytical implications are straightforward:

1) that a high \( \psi \) is good—and a low \( \psi \) is bad, points to the fact that, in a financial sustainability perspective, securitisation is not per se bad—as it is in a financial fragility perspective (Bianco 2014);

2) that a high discount rate \( s \) is good—and a low one is bad, implies a reversed take on the popular view that a healthy shadow banking system (where discount rates keep moderate) must have a positive impact on the economy to the extent that it contributes to debase \( d \) (the cost of credit to non-financial borrowers). As a matter of fact, condition [2] hints at the fact that a debasing \( s \) can trespass on so-called predatory lending, that is a pathology in risk pricing that lies at the heart of the subprime mortgage crisis;

3) that a high \( n \) is bad—and a high \( n \) is good, points to the fact that the financial structure ‘layering’—what Shin (2010) refers to as ‘long intermediation chains’, is to be checked: in a financial sustainability perspective, the impact of CDO industry is bad—just like it is in a financial fragility perspective.

All in all, securitisation is not per se bad; yet, the present model suggests that its overall effect depends on two other elements: first, market confidence in the liquidity of ABSs/CDOs, with which discount rates are in a negative relation; second, the extent \( (n) \) of CDO industry. An obvious approach to check both \( s \) and \( n \) is to
enhance the costs of using credit risk transfer instruments\textsuperscript{26} with the tools of financial regulation. Current experience is showing how difficult such a reform is; yet, if not feasible, securitisation is likely to have a depressive impact on animal spirits, and hence on the financial sustainability of a growth process. It is worth to notice that the peculiar form of our behavioural hypothesis, \( \xi = \Pi_{-1} - R_{-1} \), does not affect our implications concerning the impact of relationship and shadow banking: these apply whenever we assume a general form of expectation formation based on property incomes: \( \xi = \xi (\Pi_{-1} - R_{-1}) \).

5. Conclusion

In the years to come, macroeconomic theory is called to taking into account the financial sector essential role in determining the evolution of actual economic systems. This applies not only to the role of traditional relationship banking, but also to the shadowy role of the modern market-based banking practices. I have devised a simple stock-flow-consistent model based on a Keynesian take on economic dynamics, in which the OTH and the OTD models of banking are reduced to a similar analytical structure. As far as the macro-theory is concerned, the essential difference in the primary impact of the two models of banking lies in the form of the ILRM cost function for the financial sector as a whole. I have here assumed pure forms of OTH and OTD banking sectors, but the structural analogy that has been brought to light is especially fit to devise hybrid forms of financial systems. More in general, the main strength of the present model is its extreme simplicity consistent with the specific objective to capture the impact of banking over a whole economy: more sophisticated versions can easily be built building on this basic framework.

A sense of contradiction between shadow banking and such ‘commons’ as economic growth, a resilient financial sector, and distributive justice is gathering pace in the literature. As far as financial stability is concerned, Luck and Schempp (2014) find that this is determined by the relative size of the shadow banking sector: the bigger the sector, the more fragile it is. A similar argument, with an emphasis on the maturity transformation approach to liquidity transformation, can be found in Bianco (2014). As far as economic growth (financial sustainability) is concerned, literature is less centred on shadow banking. In general terms, Cecchetti and Kharroubi (2015) argue that by draining resources and skilled labour from the real economy, the growth of the financial sector results in a drag on real growth, in particular for financially dependent and R&D-intensive industries. The S.12 as devised here has no employees, yet a behavioural assumption about the evolution of animal spirits provides a macro-foundation to a draining effect which applies to both relationship and shadow banking along diversified channels. A Kaleckian take on investment

\textsuperscript{26} Credit default swaps, interest rate swaps, and the like.
funding\textsuperscript{27} inspires our inter-period behavioural assumption: with some amendments, one may account for more subtle distribution-related issues. The conflict underlying the present model, however, is not one à la Piketty (2014)—wages versus profits and interests, but one of interests versus profits and wages.

Moreira and Savov (2014) rightly stress that shadow banking does actually consist in a liquidity transformation process and underline that the conventional (Basel) ‘capital scarcity view’\textsuperscript{28} puts out of sight the actual role of intermediaries’ liabilities as the essential link between the financial system and the macro-economy. Their ‘liquidity view’ is based on households’ liquidity motive, though; here, this motive is inherent to financial firms. That is how the essential role played by the costs of doing ILRM (following either a OTH or a OTD approach) has here come to the fore.

\textbf{References}


\textsuperscript{27} The effect of labour incomes on animal spirits is only indirect (via consumption), and the allocation of investment expenditure between financial or non-financial ventures mirrors the distribution in proprietary incomes.

\textsuperscript{28} Fragility is arising out of a shortfall in capital.


ECB and BOE (2014a). The impaired EU securitisation market: causes, roadblocks and how to deal with them, URL: https://www.ecb.europa.eu/pub/pdf/other/ecb-boe_impaired_eu_securitisation_marketen.pdf?3429df50ee767fe22ad87ba0d51c7071


