ACCOUNTING FOR FINANCIALIZATION: STOCK-FLOW-CONSISTENT POLITICAL ECONOMY

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Abstract: We adopt the Post Keynesian input-output framework pioneered by Wynne Godley to delve into both the causes and consequences of financialization. The distinction between National Income accounting and stock-flow-consistent modelling is showcased. Also, the political economy foundations of financial economics are unearthed. Constructively, the elements of a planned strategy to reinvent the accumulation of capital are sketched. Also, we show how "asset-based reserve requirements" and the issue of government bills and bonds can be "creatively manipulated" by the state to deliver superior and stable social outcomes.

Key words: accounting; financialization; stock-flow norms

1. Accounting for Financial Economics

Financial economics is the extension of general equilibrium theory to the future with unknown dates and states of the world. In response, artificial devices like Arrow securities are constructed. An early and basic step in the development of finance theory is the move from the actual probability space of problems to what are called synthetic probabilities. It is likely that we have here in the foundations, the mix and match of disparate securities that was to implode in the great financial crash of 2008. The great theorems in financial economics have almost never been supported by the data, but their great authors would claim that they were never intended to. Careful neoclassical theorists never fail to note that equilibrium

analysis provides benchmarks, creates a vehicle for interpreting reality. It is vulgar economics to apply these theories, with the help of simulations, to reality. Reflective neoclassicals describe their practices as adhering to the demands of methodological individualism. However, the term owes it's origin to Schumpeter, the profound theorist of the growth and the decline of the wealth of nations (Dangel-Hagnauer 2013). The implications went hand in glove with the study of a capitalist economy as a social accounting and clearing system. Specifically, banks were the "social accountants" of the economy. Continuing with a strand of modern heterodox macroeconomics, so-called modern monetary theory is about settlement procedures and the operation of the payments system (Lavoie 2012). The tale that begins with a barter economy and enumerates its infelicities and then goes on to make the case for money is no more than a pedagogical device. On some accounts, money was always, effectively, fiat money (Wray 2012). Monetary analysis can help locate the buildup of financial imbalances *ex ante* (Seitz and Schmidt 2014). Money, here, moves beyond its transactions function and must be appreciated in its role as a store of value and satisfying the precautionary motive. As Weber understood, "money of account" is an instrument of calculation. The critical element is the scrutiny of the balance sheets of financial intermediaries. The approach is actively developed by the circuit approach to monetary macroeconomics according to which the Central Bank (CB) of a country is seen, in terms of credit disbursement and reflux, as no different from a commercial bank (Passarella 2014). A switch is opened when a loan is made to be closed when it is returned. CB money is created in the first moment, winds its way through the wage employment process (the second moment), and is extinguished when the loan is repaid (the third moment). Indeed, by not creating any means for their instruments to reflux, modern governments have effectively imposed an infinite term to maturity on their offerings so that their fair value is zero. The importance of this reflux for the monetary system was recognized by John Law in 1705. The value of a unit of account depends upon its ease of access. People must obtain financial units that back the monetary unit by earning incomes or by borrowing from the suppliers of the monetary unit or by government spending. If, for instance, it is difficult to get money either because wages are too low or the government is loth to run a deficit, the economy will be deflationary. In the opposite case, there would be inflationary tendencies.

One of the limitations of the standard theory is that no essential difference is made between goods and services on the one hand and assets on the other. Agents move freely from one to the other exploiting arbitrage opportunities. Indeed, even if the fiction of textbook competition is dispensed within the case of commodities and services, monopolistic competition is yet to enter models of financial markets. On the other hand, Vernon L. Smith, for one, regarded as the founding father

of experimental economics, distinguishes between the two (Smith 2014). Under laboratory conditions, markets in the former case converge to the equilibrium price rapidly. Not so in the case of the latter, even with perfect information on the fundamental dividend value of the asset. Depending on the price, people switch between buying and selling. As buyers, they sell assets. When initial endowments of cash are high, the volume of trade is high, and convergence to the market-clearing price slow. Besides, the connection between the real and the financial is described by neutrality and dichotomy results. The structure is about real variables, and the incorporation of monetary and financial factors remains an eternal research programme. At the same time, there is an independent literature and ongoing debate about how finance and the real might connect. From the latter cajoling innovations in the former to the revolutionary thesis that monetary-financial mechanisms must be installed before industrial revolutions take off, econometricians and historians have been hard at work. One lesson that has been learnt is that there are important threshold effects, that is, real development must be sufficiently advanced before finance can impact and, as well, there are often nonlinearities in the relationship between the two. The finance-growth nexus is only organic when embedded in an appropriate institutional framework (Abdmoulah and Jelili 2013; Law, Azman-Saini, and Ibrahim 2014). For instance, access to finance acts as trigger of regime change.

2. From the Vantage Point of Political Economy

Political economy is privileged to capture the capitalist economy as an aggregate driven by the class behaviour of agents. The motors and brakes to the primary classical concern with the accumulation of capital over time are displayed by changes in National Income accounts from year to year. However, even at the hands of masters like Ricardo and Marx, when wearing their "economists" hats, the analysis of the individual was never absent (Hoover 2014). In what has been described as "collective intentionality," social structures are regarded as the outcome of the behaviour of individuals. The institutions that emerge, consequently, while not independent of all individuals, are independent of any individual. The notion of efficient cause is ascribed to the data analogous to the application of the principle to physical processes in which intentionality is absent. "Old" Keynesian economics was strong in developing connections between sub-aggregates depending on the task at hand. The relations between categories were ratios that were robust but that changed over time depending on the configuration of the classes that drove the subsectors. The "non-Newtonian" approach to accounting neatly complements the heterodox approach to our topic (Filip and Piatecki 2012). It is defined by ratios. Mathematically, it is a multiplicative group. The orientation

is sensitive to the fact that double-entry bookkeeping was born out of the existence of private property relations and the accumulation of capital. It went hand in glove with the spread of commerce and interpersonal credit accompanied by principles of enforcement. Finally, the authority of fiat money as a common denominator completes the institutional description. In short, the sectors and the agents driving them below are banks and the CB and, naturally, households and firms who they underpin. We exploit the stock-flow-consistent National Accounting systems summarized in Godley and Lavoie (2007).

Financial economics is about reducing risk. The basic theorems deliver prices that minimize risk. However, risk refers to a social category that emerged only under modern capitalism (Beckert 2014). It developed as a concept when lines of action came to be based on forecasts of a counterfactual future. Projections might not be realized, and the resulting costs were attributed to decision makers, not fate. Uncertainty of the future could paralyse action and lead to the preference for liquidity. Money introduced elements founded on calculation and future returns that ran counter to the traditional economy based on solidarity. Liquidity is a flow but defined as a ratio of cash assets. Illiquidity reflects systemic fragility (Bryan and Rafferty 2013). Secondly, the Black-Scholes theorem is the calculation of the reality of a model, not reality as such (Esposito 2013). When the formula was first introduced, it was greeted with incredulity because of its hard-core, and therefore unrealistic, neoclassical foundations. The formula became credible because markets adopted it. Prices cannot reflect all relevant information, as per the efficient markets hypothesis, because markets lack the information produced by operators by their behaviour and the observation of this behaviour by other participants. Markets respond to themselves rather than the world. The sociological term "future present" is appropriate here. What will become present in the future is different from the array of futures we can catalogue in the present. Uncertainty here, like randomness, does not mean unpredictability but the impossibility of control. Consequences cannot be overcome but can be observed and used for orientation.

Consider the pared-down notional balance sheet constraint of banks in an economy (Godley and Lavoie 2007, 337). Denoting bank money by M, CB money held by banks as H, the stock of bills held by them as B, and the loan covenants of these financial intermediaries as L, the following constraint must be respected, where BLR is the bank liquidity ratio as below,

$$B = M - L - H$$

and

$$BLR = B / M.$$

In the euphoric phase of the cycle, the liquidity ratio will act as a dampener on the animal spirits of banks. They will be inclined to transmute into financial institutions to escape the gaze of the authorities. Firms, by the same token, will find their plans to borrow and build dominated by returns available in the financial circuit. From its point of view, Godley and Lavoie (2007) make the fruitful distinction between "entrepreneurial profits," F, and "total business profits," F_T (Godley and Lavoie 2007, 254–56). With S standing for sales, let the average wage be w and the number of the employed be N. Then the total wage bill is wN. Denoting by IN the stock of inventories, r_1 for the loan interest rate and the subscript -1 denoting the previous period, we have

$$F = S - (wN - \Delta IN + r_{1-1}.IN_{-1})$$

and

$$F_T = S - (wN - \Delta IN)$$

(see Godley and Lavoie 2007, 255n8). The latter definition corresponds to EBITDA (earnings before interest, taxes, depreciation, and amortization). Enron and Nortel and others used the definition to camouflage the massive losses on their books due to the high interest payments. The short message to banks is underscored: Escape the suboptimal demands of lending and CB money.

We need to examine the criterion liquidity critically. Liquidity is a characteristic of a portfolio that might, optimally, consist of illiquid assets as well. Farms, factories, highways, and the like are illiquid assets. The press for liquidity might result, in a familiar fashion, in illiquid assets being securitized, diced and sliced with other assets, so that all assets can be marketed. Post the financial meltdown, the logic of financialization has not been impaired. Even lending to the Basics sector is being marketed. Certificates are being created so that the forces of inter temporal demand and supply might equilibrate that market. Naturally, we would expect Basics certificates to be standardized and combined with other assets in saleable bundles. The fundamental characteristic of local environments which is the domain of Basics lending and the creation of long-lived assets which are illiquid is that they are information-intensive. The economics of asymmetric information is irrelevant because the information referred to is knowledge of a shared, tacit kind. Secondly, in the case of fundamental uncertainty, projects for which frequency distributions do not exist, only the state can bridge the present and a perilous future. A viable project to ameliorate the food crisis could be the equivalent of a subprime; if the probability of returns is low, there would be losses on the security. It is likely that innovation here will mimic Wall Street's second wind in the form of credit default swaps (CDs) entering the life insurance business

in the US (Auerbach and Wray 2009). CDs enable individuals to gamble on the fate of bonds, firms, and countries. They are not derivative in the sense that they do not correspond to any real good or service. One party, the "protective buyer," contracts with the "protective seller," the insurer, to guarantee against the risk of default. The buyer can sell the CDs. The new owner becomes the beneficiary of the insurance even if he or she has no insurable interest in the underlying asset. The seller, likewise, is free to offload to a third party and so on. As the counterparty risk is amplified, market instability increases. Incentives get perverse. Investors pray for an early death unlike the life insurance industry.

3. Financialization against the Realization of Value

Capitalism is the self-driven expansion of market relations. These are extensive with reference to territorial reach and intensive with regard to the increasing commodification of social relations. The drive is towards the measurement of value and the extraction of surplus. In the framework of Marx, the value added by a worker to the means of production used up in production by expending labour exceeds the wage, the money price of labour. In accounting terms, surplus labour is the gross profits on the sale of goods. However, surplus labour is not necessarily realized in the productive enterprise in which it is generated (Foley 2013). Exploitation releases a pool of surplus value for which individual capitalists compete. Indeed, it is not even necessary to be a capitalist to appropriate a portion of this surplus. Financialization can be illuminated by the theory of rent. Property rights permitted the landowner to exclude capitalists from access to resources. Thus, standard National Income accounting imputes a fictitious output as a counterpart to incomes generated in the financial sector. What are the attendant consequences of the financialization of labour? The normalization of lower investment and inferior-quality work are some. The industrial sector is in decline. Short-termism has permeated the working class who have accumulated financial assets and debts. Consequently, they are less likely to agitate for remunerative wages. To see matters from a National Income-Post Keynesian perspective, Godley and Lavoie (2007) conducted a parallel discussion in real or "widget" terms. Accordingly, y is real output and the unit cost of producing widgets in the current period is UC in the definition $UC = wN / y$. In that case, the rate of cost inflation $\pi_C = (UC / UC_{-1}) - 1$. The rate of growth of unit costs is roughly the difference between the rate of growth of nominal wages and the rate of growth of labour productivity. Now, suppose that the worker owns a financial asset. At the end of the last period, with a "world" rate of return of r, he or she will have earned a per unit rentier income of $(1 + r_{-1})$. This number needs to be deflated by $(1 + \pi_C)$ to get the real rate of interest, rr_C, which is defined as follows (Godley and Lavoie 2007, 274):

$$rr_{C-1} = (1 + r_{-1}) / (1 + \pi_C) - 1.$$

When wages and/or employment remain flat over decades, the item in the denominator of the expression above is negligible or negative, increasing the incentive of households to turn rentiers.

Fortunately, there is no shortage of blueprints for the escape from the so-called "low road" of high finance and low wages (Aiginger 2014; Sawyer 2014). The "high-road" is a strategy for competitiveness, connecting industrial policy proper with innovation. One of the inspirations for the framers are the bubbles in the financial sector and the severity and duration of recent financial crises. Calls to limit and reverse the decline of the manufacturing sector are getting louder. The ingredients of the programme include the discovery process between government and the private sector and exclude the financial imperative of picking winners. Operationally, any policy should target activities and sectors, not firms. We would specify the Basics sector, in the classical manner, of goods and services consumed by the working class. Governments may step in when the long-term interests of society are at stake and not be compelled by short-term goals like saving jobs in a declining region. The state is an important originator and catalyst in virtually all new technologies. Due to path dependence, a big initial government push is vital. In addition, industrial policy is expected to rebalance economies in the direction of non-financial sectors like manufacturing and away from the financial sector. A feature of the new growth path with new incentives and changing consumer preferences is the combination of the manufacture of products with increasing production-related and value-enhancing services. As products become more durable and consumer choice-specific and if production is aligned with social innovations and social efficiency, prices could increase along with consumer valuation. A reorientation of the definition of competitiveness is called for. At present, the connotation is narrow, signifying cutting of costs in general and wages in particular. Productivity is the key component of the new version, leading to unit cost approaches. Competitiveness is based on capabilities like skills, institutions, and an empowering social system. Where does money come in? One proposal is a scheme of fully-backed CB money building on the Keynesian notion of buffer stock operations in willing and able workers. Dignified employment at a decent wage (say by International Labour Organization [ILO] standards) is guaranteed to all seeking work. The CB acts as "employer of last resort," providing the base money, H, to support this social enterprise. The financial intermediaries through which this regime would be effected are regional banks or cooperative banks. Their assets would be public-private projects that meet scrupulous cost-benefit standards, and the liabilities would be the wages of the workers. The collapse of local banking systems would be halted and reversed. Since the propensity to

consume wage goods by the working class is, by definition, unity, their incomes return to firms who redeem their debts to the financial intermediaries. Money refluxes back to its issuer. In Godley-Lavoie terms, the balance sheet of interest is depicted in Table 1. Imagine an initial condition, resembling a recession, when all the cells are blank. The process springs to life with a CB cash transfusion. However, the money is not a "helicopter drop" but endogenous in that it is specified by the vector of projects defining the bank-firm nexus. The standard asset-liability relationship between the CB and the private sector is inverted, and the reasons are elaborated in the next section.

Table 1   Transactions Flow Matrix

	Households	*Firms*	*Banks*	*Central Bank*	Σ
Consumption	−C	+C			0
Wages	+wN	−wN			0
Change in loans		+DL	−DL		0
Change in cash			+DH	−DH	0
Σ	0	0	0		

The CB column would be sum to zero with the introduction of the holding, with a negative sign, of assets like government bills. In the absence of government, we have a "pure overdraft economy" where properly H should be denoted by A or advances by the CB to banks to support specified activities (Godley and Lavoie 2007, 55–56). We have an indecomposable system with "no black holes" and no intervening financial subsystem to destabilize it (Taylor 2014).

4. Accounting against Financialization

The accounting principles we advance here conform to the actual behaviour of people (Braun 2014). For instance, as an illustration of prospect theory, the asset position at the initial conditions serves as a reference point. Income is created when, from this starting level of wealth, the inflows of money exceed the outflows. Going back centuries, the traditional exercise was focused on determining the profits of the bookkeeping entity. Gains and losses are the amounts of money obtained or paid. The "historical cost" principle is key in contrasting expenses incurred and revenues collected. Thus, the income statement tracks the history of a durable machine. In what is called the revenue-expense approach, over years the item appears on the document as depreciation while the machine wears off. No public information is created or transmitted. In contrast, in the modern approach, the main purpose of accounting is to provide information to the capital market to potential investors. The basic notion, in this case, is the present value of the

going concern which is the forecast of future cash flows. Gains and losses, in this scheme, are the difference between current and future asset positions. However, no new information is generated when, in so-called fair value accounting, the market value of an asset increases. The outcome is the result of the behaviour of all market participants.

The actual working of economies can be tracked, thereby. Using the accounts as an alternative to financial statements, for example, studies show that during the Great Depression, while the non-bank financial sector went into a tailspin, banks booked positive profits (Cinzia and Gros 2009). National Income statistics are not marked to market. According to Minsky, an economy is a set of interrelated balance sheets (Kregel 2009). At the foundation of the system are households that hold the liabilities of corporations in order to make payments and accumulate wealth and business firms which issue liabilities to acquire productive capital stock and provide income and employment to households. In that case, the measure of a well-oiled capitalist economy is the provision of a safe and secure means of payment and a reliable store of value that ensures financing of a level of capital investment sufficient to provide employment to all. A critical stratum here is banks and the leader of the club of banks, the CB, because it and only it can create liquidity. A financial system can be said to be stable when the overarching fabric is such that cash commitments can always be met. The US rose like a phoenix of what Minsky called a robust financial system from the ashes of the Second World War with private balance sheets full of safe government debt. High government debt ratios and slowly moving private debt ratios accounted for the early post-war success and high level of liquidity. Investment goods are not putty and require complex financial arrangements. Consequently, increasing investment will result in growing private debt ratios and, thereby, increasing financial fragility. Increasing government spending, in that case, is stabilizing because it permits private spending to grow as a function of income, not debt. In sum, what Randall Wray (2009) has called ratchet government spending is called for. That is to say, government spending is called for in a recession to revive effective demand but continued fiscal stimulus is called for to operate the plant and new machinery that has been supplied. We do not require unbalanced budgets but there is solid crowding in.

We use the Godley-Lavoie method to evaluate constructive proposals to stem the rise of finance.

4.1. Asset-Based Reserve Requirements (ABRRs)

A powerful, yet simple, monetary policy device has been recommended by Thomas Palley (2014) and others. A straight transfer on the books of banks and the CB is called for: make reserves liabilities, not assets, in the former. Secondly, reserve

requirements would apply to both banks and non-bank financial intermediaries. Thereby, the CB would respond to credit contractions (expansions) by supplying (withdrawing) interest-free liabilities in exchange for purchases (sales) of assets on the balance sheets of the financial sector. For instance, in a slump it would purchase assets in exchange for free liabilities which would encourage institutions to, therefore, balance their books by expanding their holdings. Non-performing assets would be cancelled and replaced by earning assets. By underpinning private sector balance sheets, monetary policy could buttress fiscal measures designed to revive demand and investment. Also, the system would permit all institutions to draw on their reserve accounts with CBs and make payments to one another. The monetary policy conveyor belt would be strengthened. Volatility would decline as institutions would make portfolio adjustments by buying and selling reserves instead of assets. Financial sector reserves would be the only item in the CB's balance sheet. It would no longer hold a portfolio of government securities. Repos would be an ideal tool to use to interface with the entire financial system. It could access a thick set of markets ranging from loans, commercial paper and corporate bonds to mutual and pension funds, insurance and finance companies.

We proceed to formalize the measure. Statutory reserve requirements are imposed on the deposit liabilities of commercial banks by the CB. Call the reserve requirement m and bank money M. In that case, $H = mM$. In elementary introductions to banking, the only other item on the balance sheet of banks is the loan portfolio, L. Just as an exercise in accounting, then, we could entertain the possibility of reserve requirements being imposed on loans instead. We install an ABRR, $H = mL$. Why is the need to shift attention from one side of the balance sheets of banks to the other being felt? In the first place, evidence is provided that people are moving out of deposits in banks induced by the higher returns that non-bank financial institutions offer. Secondly, in the case of the reserve ratio, the ideology "freedom to choose" has extended to banks as well. Reserve ratios are steadily being reduced around the world on the counterfactual argument that there is no reason to believe that anyone other than bank managers can be superior judges of the future of the organisations in their care. The relocation of interest would delete an issue that has even divided economists within the heterodox camp: whether interest should be paid on reserves. In combination, these facts imply the erosion of CB money. At the same time, nobody contests the claim that checks and balances must be installed in banks' balance sheets so as not to unlearn the lessons of history. Finally, a view that is gaining ground is that non-bank financial institutions must be included in the monetary policy transmission mechanism (D'Arista 2009). The system would work as follows. L is a vector of quantities. The portfolio of an average financial institution will consist of farms and factories as well as potentially "toxic" assets. The vector m will

conform in the formula $H = mL$. Elements of the vector m will be upward-biased for "suspicious-looking" assets and negligible for projects generating output with decent employment. In such an eventuality, banks would be disposed not to hold those assets that do not find favour with the authorities and opt to finance projects that promise high levels of social welfare. By the same token, risk-averse households would prefer to deposit their savings in financial institutions in which the touch of the reserve requirement is light. The new reserve measure has been subjected to critical scrutiny (Toporowski 2007). Some of the reservations echo the discussion surrounding the repeal of the Glass-Steagall Act. The monitoring of the assets of financial institutions would propel them off balance sheet. Margins and profits of banks and non-bank financial institutions would be less attractive than would otherwise be the case unless the requirement went along with large-scale public investment and public banks. An offshoot of Keynes's "socialization of investment" would be public-sector banks from which the risks entailed in holding long-term capital assets have been removed. Also, we move from a system in which the information set of the monetary authorities is null to one in which the information set is dense. Advocates of a return to face-to-face financial relations would be sceptical because relationship capital cannot be valued by a CB official. For instance, how can an outsider appraise a subprime mortgage contract that has idiosyncratic features? The counter argument would be that a bubble is an aggregate statistic that is bigger than the sum of individual decisions and can only be tracked and burst by central authorities. We can motivate another role for m. Let us assume, now, that the bank-cum-financial-institution does not take in deposits. Instead, it issues equity e_b at a price p_{eb}. The firm, similarly, has recourse to the market in issuing shares e_f at a price p_{ef}. We define the bank liquidity ratio, BLR, as $H / e_b p_{eb}$. The capital adequacy ratio is $CAR = e_b p_{eb} / L$. Taking the product of the two ratios, we find $H = (BLR \times CAR) L$. The two new ratios are on the radar of regulators all over the world. Liquidity is a knife edge concept, more or less being adverse for growth and stability, respectively. The aggregation problem re-emerges. Only a central authority can decide on optimal systemic levels. As introduced, the ratios do not originate in Basel. Complaints have often been lodged against the Basel norms as being too confining and not being capable of being tailored to the unique requirements of specific countries. The new formula can be connected with another venerable ratio in macroeconomics, Tobin's q. The definition is $q = (e_f p_{ef} + L) / K$, where K is the extant stock of capital. Combining the definition with the expression for ABRR, we get $H / K = m (q - e_f p_{ef} / K)$. Another charge levelled against the Basel formulae is that they are procyclical. The negative sign in our expression suggests that m might be an automatic stabilizer in the face of an equity price bubble (or its reverse), given the capital stock.

In sum, support for ABRRs can be drawn from a different quarter. Animated discussion is underway about the ambit of CBs. Should they move beyond their mandated job of fighting inflation, using familiar tools, and concern themselves with financial stability? The issue fades away in our treatment. In that, we return to a long-standing tradition according to which CBs must be concerned both with inflation and unemployment, on one hand, and with financial fragility, on the other.

4.2. Government Bills and Bonds

In the 1930s, Henry Simons, one of the important members of the Chicago School, proposed a rule that targeted a constant price level in the short run. That objective was to be met by changes in the quantity of money. In turn, the quantity of money would be realized through the fiscal stance (Tavlas 2014). Debt of various maturities are near moneys. The government controls the legal tender in which bonds are issued and can always pay its bills in cash (Galbraith 2011). The term bankruptcy is used in court proceedings to protect debtors from their creditors. There is no reason why a sovereign borrower should pay a real rate of interest on liquid borrowing. The government does not need to compensate for risk. It also does not need to lock in borrowing over time.

Bills are debt instruments issued by governments in any given period so as to support the budgetary deficit, the excess of government expenditure, G, over taxes, T. They are short-term paper of typically the duration of a year, in contrast to government bonds which, in principle, have an infinite life. The well-known symbol Δ for change will be used interchangeably with time subscripts so as to make the dynamics explicit. For instance, $\Delta B = B_t - B_{t-1}$. Bill offerings by the government can be accepted by households, banks and the monetary authorities. For the sake of simplification, we assume that bills are held only by banks (b) and the CB (cb), distinguished by recognizable subscripts. Thus, the existing stock of bills at time t, $B_t = B_{bt} + B_{cbt}$. Denoting the rate of interest on bills by r_b, $B_{bt} = (1 + r_{bt-1}) B_{bt-1}$ and $B_{cbt} = (1 - r_{bt-1}) B_{cbt-1}$. The two stocks are distinguished by a positive/negative sign. The CB is one arm of the government, the other being the Treasury. Consequently, a CB is not in the business of making profits. Earnings on holdings of Treasury bills, therefore, are returned to the Treasury. The requirement of stability is that the bracketed terms be less than unity. The condition is naturally met in the case of the CB prompting the interpretation of the residual holding of government paper as a built-in stabilizer. A ruthless market rewrite of this convention and one that is insensitive to the rhythms of the cycle would have the CB free, along with the private sector, to reject the offering of government securities. In that case, the negative sign turns positive in the dynamic equation for the CB. Indeed, the autonomy of CBs from the government is sought precisely to check the Public Sector Borrowing Requirement (PSBR) of the latter.

Then there are long-term government bonds or consols, contracts which pay the owner one unit of fiat money, the coupon, per period in perpetuity. Thus, if there are BL bonds extant, the interest disbursed on this stock is BL_{-1}. The price at which bonds are traded is p_{bL}, and the long-term rate of interest, r_{bL}, is the reciprocal of the price. In the aftermath of the crisis that erupted in 2007, among other measures taken, the US Federal Reserve began to operate at the other end of the term-structure relationship, in the market for government bonds. The attempt, allegedly, was to "forward guide" the economy. However, monetary historians trace the origins of CB money across Europe with the issue of government bonds. In that sense, the recent innovation can be regarded as a return to the roots. On all occasions, the intervention of CBs was required to restore macroeconomic balance, not unlike in the present instance, in the wake of extraordinary circumstances. For example, the Continental Dollar, while not a fiat currency, was a zero-interest bearer bond used to finance the American Revolution (Grubb 2013). In order to make a formal case, we use a decomposition of the change in the value of bonds proposed by Godley and Lavoie (2007, 136). In the spirit of calculus, the total change is split into a change in the quantity, keeping the price constant, and a change in the price, keeping the quantity constant. Formally,

$$\Delta p_{bL} \Delta BL = \Delta BL p_{bL} + \Delta p_{bL} BL_{-1}.$$

The first term on the right-hand side is an item in the government budget constraint. It is the fresh issue of bonds, at the existing market price, to support the government deficit, $G - T$. The second term is capital gains (CG). Assume now that the only instrument to finance the deficit is the long-term bond and, to avoid notational clutter, that only households hold the bonds. In that case, along with other sources of income like wages, capital gains must be added to the definition of disposable income in so-called Haig-Simons income, YD_{HS}. Now, recalling that the familiar disposable income YD is the deduction of taxes from National Income, Y, we define $YD_{HS} = YD + CG$. One more definition is required, that of the accumulation of wealth, $\Delta V = (YD - C) + CG$, where C is aggregate consumption. Substituting these definitions along with our truncated government budget constraint (no bills) into the expression for the change in the value of bonds, we have

$$\Delta p_{bL} \Delta BL - \Delta V = C + G - Y.$$

In the steady state, $Y = C + G$. In words, we support the intuition from David Hume to James Tobin that the long-term bond provides the nominal anchor for income and expenditure, both private and public.

5. Conclusion

In a typical Godley-Lavoie stock matrix, the outermost column on the right-hand side and the bottom row are null vectors. The double-entry-bookkeeping principle is at work. An item somewhere in the accounts must be matched by an identical item with a different sign elsewhere. The only exception in the case of the column referred to is the level of the capital stock, K, carried over from the past. Moving the snapshot of the economy along as a moving picture, we may track the accumulation of capital over time. If such a film had to unspool for any country of the world today, it would show a more or less horizontal or dipping line, K. Universal secular stagnation of wages and employment in manufacturing is well established. At the same time, aggregate consumption is not falling. The conclusion is that rentier income is increasing. Concomitantly, shadow banking which is off-balance sheet has renewed its dynamism. Non-basic consumption and financialization feed on each other. The state must intervene in novel ways in agriculture and industry and services to provide dignified work to able and willing hands that, in turn, will provide the goods and services they will consume. In classical language, the Department they must nurture is Basics instead of the production and consumption of Non Basics or luxury goods. We also make the case for both conceptual refinement of National Income accounting as well as research to make invisible transactions visible. Money is the antidote to financialization. The CB and the fiscal authorities act in concert in our framework to ensure smooth payments and settlements procedures during the dynamics of the cycle.

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References

Abdmoulah, W., and R. B. Jelili. 2013. "Access to Finance Thresholds and the Finance-Growth Nexus." *Economic Papers* 12 (4): 522–34.
Aiginger, K. 2014. "Industrial Policy for a Sustainable Growth Path." Working paper, no. 469/014. Austrian Institute of Economic Research.
Auerbach, M., and L. R. Wray. 2009. "Banks Running Wild: The Subversion of Insurance by 'Life Settlements' and Credit Default Swaps." Policy note, no. 9, the Levy Economics Institute of Bard College, New York.
Beckert, J. 2014. "Capitalist Dynamics, Fictional Expectations and the Openness of the Future." Discussion paper, no. 14/17, Max Planck Institute for the Study of Societies, Germany.

Braun, E. 2014. "Just a Matter of Prospect (Theory)?—The Ecological Rationality of the Traditional Accounting Principles." Working papers in economics, no. 0012, Institute of Management and Economics, Clausthal University of Technology.

Bryan, D., and M. Rafferty. 2013. "Fundamental Value: A Category in Transformation." *Economy and Society* 42 (1): 130–53.

Cinzia, A., and D. Gros. 2009. "What Lessons from the 1930s?" Working document number, no. 312, Centre for European Policy Studies, Belgium, May.

Dangel-Hagnauer, C. 2013. "Schumpeter's Institution of Money: Slipping Off the Border of Economic Theory and Landing in Economic Sociology." *The European Journal of the History of Economic Thought* 20 (6): 1000–31.

D'Arista, J. 2009. "Setting an Agenda for Monetary Reform." Working paper, no. 190, Political Economy Research Institute, University of Massachusetts Amherst.

Esposito, E. 2013. "The Structures of Uncertainty: Performativity and Unpredictability in Economic Operations." *Economy and Society* 42 (1): 102–29.

Filip, D. A., and C. Piatecki. 2012. "In Defence of a Non-Newtonian Economic Analysis." Project no. PNII IDEI 2366/2000, CNCSIS-UEFISCU, October 8. Accessed June 15, 2015. https://hal.archives-ouvertes.fr/hal-00945782/document.

Foley, D. 2013. "Rethinking Financial Capitalism and the 'Information Economy.'" *Review of Radical Political Economics* 45 (4): 257–68.

Galbraith, J. K. 2011. "Is the Federal Debt Unsustainable?" Policy note no. 2, Levy Economics Institute of Bard College, New York.

Godley, W., and M. Lavoie. 2007. *Monetary Economics: An Integrated Approach to Credit, Money, Income, Production and Wealth*. Basingstoke and New York: Palgrave Macmillan.

Grubb, F. 2013. "The Continental Dollar: How the American Revolution Was Financed with Paper Money." Working paper, no. 10, Alfred Lerner College of Business and Economics, Department of Economics, University of Delaware.

Hoover, K. D. 2014. "Reductionism in Economics: Causality and Intentionality in the Microfoundations of Macroeconomics." Working paper, no. 3, Centre for the History of Political Economy (CHOPE), Duke University, Durham.

Kregel, J. 2009. "Minsky and the Regulation of the Financial System." Annual Hyman P. Minsky Conference on the State of the U.S. and World Economies, Levy Economics Institute of Bard College, New York, April 16–17.

Lavoie, M. 2012. "Perspectives for Post-Keynesian Economics." *Review of Political Economy* 24 (2): 321–35.

Law, S. H., W. N. W. Azman-Saini, and M. H. Ibrahim. 2013. "Institutional Quality Thresholds and the Finance-Growth Nexus." *Journal of Banking and Finance* 37 (12): 5373–81.

Palley, T. I. 2014. "Monetary Policy after Quantitative Easing: The Case for Asset Based Reserve Requirements." Working paper, no. 350, Political Economy Research Institute, University of Massachusetts Amherst, May.

Passarella, M. V. 2014. "Financialization and the Circuit." Working paper, no. 18, FESSUD (Financialization, Economy, Society and Sustainable Development), Leeds University Business School, University of Leeds.

Sawyer, M. 2014. "Finance and Industrial Strategy." Working paper, no. 31, FESSUD (Financialization, Economy, Society and Sustainable Development), Leeds University Business School, University of Leeds.

Seitz, F., and M. A. Schmidt. 2014. "Money in Modern Macro Models: A Review of the Arguments." Discussion paper, no. 37, OTH im Dialog: Amberg-Weiden University of Applied Sciences, Germany.

Smith, V. L. 2014. "New Insights into Old Discoveries; Two Kinds of Markets." *International Journal of the Economics of Business* 21 (1): 33–35.

Tavlas, G. S. 2014. "In Old Chicago: Simons, Friedman and the Development of Monetary Policy Rules." Working paper, no. 177, Bank of Greece, March.

Taylor, L. 2014. "Keynesianism and the Crisis." In *The Oxford Handbook of Post-Keynesian Economics*, vol. 2, edited by G. C. Harcourt and P. Kriesler, 459–85. Oxford: Oxford University Press.

Toporowski, J. 2007. "Asset-Based Reserve Requirements: Some Reservations." *Review of Political Economy* 19 (4): 563–73.

Wray, L. R. 2009. "The Return of Big Government." Policy brief, no. 99, Levy Economics Institute of Bard College, New York.

Wray, L. R. 2012. "A Meme for Money." Working paper, no. 736, Levy Economics Institute of Bard College, New York, November.