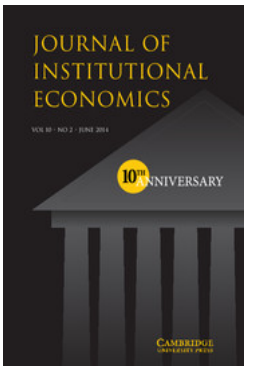

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Schumpeterian economic development and financial innovations: a conflicting evolution

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Abstract: Although in the Schumpeterian process of entrepreneurial innovations money and financial markets are assumed to affect economic development, Schumpeter does not explicitly study financial evolution and its effects on real dynamics. In order to fill this gap, this article suggests a Minsky-inspired interpretation of Schumpeterian institutional dynamics in monetary terms. It then develops a specific Schumpeterian analysis of the evolution of financial institutions and regulatory mechanisms in the wake of the 2007–08 crisis and points to major consequences of financial innovations on economic stability. It appears that unlike the creative destruction process of entrepreneurial innovations, in a liberalised/deregulated environment financial innovations move banks from their crucial role of financing long-term economic evolution and lead to reckless finance. Thus, financial market dynamics put economies on a destructive path. Such an evolution calls for active and tight rational regulation in order to shape capitalist finance towards more stable and welfare-enhancing strategies.

1. Introduction

According to the dominant economic theory a loosely regulated institutional environment leads to stronger financial competition and efficiency that result in innovations providing agents with a rich set of wealth-improving financial products/processes. The prevailing orthodoxy mainly relies on self-adjusting free market ideology and assumes that instabilities come from exogenous shocks or from inconsistent government policies. Recurrent financial crises nevertheless require a profound reappraisal of those assertions as it does not seem any more suitable to suppose *religiously* that free financial innovations necessarily lead to positive economic changes without questioning the relevance of the institutional design of regulatory mechanisms.[1]

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1 Beyond the academic work on this issue, one may refer to the 'clash' of arguments between Krugman (2009) and Cochrane (2011) pointing out confused beliefs of economists when they feel themselves powerless to predict great turmoil.

To support this critique and apprehend the consequences of financial innovations on systemic stability, this article suggests a specific Schumpeterian analysis of capitalist finance evolution in a Minskyian vein. Although intuitively, Schumpeter maintains that in order to understand economic development, one should comprehend the evolution of monetary and financial institutions. The article then analyses the nature of financial innovations in a liberalised-deregulated environment and argues that unlike the entrepreneurial innovations creative destruction, financial innovations may lead to reckless finance and turn out to be a destructive creation process.[2]

This article also aims at contributing to a possible 'cure' of what Hodgson (2009) calls 'the sickonomics' (the standard macroeconomic theory/policy that failed to prevent the current crisis from occurring and destroying several million jobs all around the world) by suggesting some policy orientations to regulate capitalist finance.

In this objective, the second section argues that the Schumpeterian approach offers a dynamic analysis of economic evolution (*Creative Destruction*) through an institutional and evolutionary framework that *implicitly* rests on a monetary pattern. As Minsky (1992b: 113) states, 'Schumpeter brought to the analysis of a monetary production economy the sense of the economy as an evolving institutional structure. Nowhere is market-driven institutional evolution (innovation) more apparent than in the financial sphere. Thus, the rapid changes in the monetary and financing usages that have characterized the past 45 years of successful capitalism would have been well understood by both Schumpeter and Keynes'.

Capitalism is a monetary system where money is *transversal,* implying that all economic transactions rely on monetary rules and relations and all economic existence is under the weight of monetary changes. Schumpeterian economic development lies in entrepreneurial innovations that mainly rest on the monetary and banking system, i.e. on money markets where the fate of the economy is sealed. Bank credit plays an essential role in the financing of new combinations (ventures). Therefore the 'immeasurably important' place of banks as the *ephor* of capitalism requires that the banker must have proficiency, skill as well as intellectual and moral qualities and remain an independent agent. It is obvious that this analysis goes beyond usual financial intermediation models and offers us a vanguard monetary conception of a capitalist economy where money is an endogenous variable of the utmost importance in economic dynamics.

The third section draws the logical consequences of such an approach and argues that the sustainability of capitalist evolution rests on a given institutional/regulatory structure that shapes the behaviour of financial markets.

2 This analysis does not seek to present financial innovations in technical details but to appraise the major and crucial characteristics of markets evolution in liberalised/financialised capitalism since the 1980s.

However, Schumpeter gives more importance to the real analysis of economic change than to the study of financial markets. He mainly relates economic development to entrepreneurial innovations and does not develop a precise analysis of banking/financial dynamics. But as Hanusch and Pyka (2007a) maintain, a comprehensive (Neo-)Schumpeterian understanding of economic development must consider the co-evolutionary process between the different economic domains through three pillars: industry, public sector and finance. To contribute to this research agenda this section interprets Schumpeter through Minsky's approach of financial instability. It then maintains that financial innovations have economy-wide and immediate effects as they are related to monetary markets and banks which affect *transversally* the whole economy. Contrary to Schumpeterian entrepreneurial innovations, financial innovations mainly rely on short-sighted profitability and generate debt-funded speculative excesses – banks becoming disconnected from the long-term evolution of the real economy. Consequently, when the regulatory environment is shaped too loosely following liberal policies, financial dynamics may provoke destructive evolution. Though very intuitively, Schumpeter notices that capitalism is not a self-adjusting system and needs public intervention and control mechanisms – *rational regulation* – an intuition that Minsky, a PhD student of Schumpeter, has wisely developed against all odds in his entire work.

The last section draws implications through the common theoretical grounds of Schumpeter and Minsky's analyses on capitalist finance instability.

2. Economic evolution: entrepreneurial innovations and money

Schumpeter (1934) argues that development is not a uniform linear evolution but goes through discontinuous endogenous changes as a capitalist economy brings development by its own internal initiatives without any spontaneous adjustment process. He (Schumpeter, 1947: 82) states that 'in dealing with capitalism we are dealing with an evolutionary process', related to entrepreneurs' innovations. However, while the emphasis is on real dynamics, Schumpeter is aware that banks behaviour affects entrepreneurial activities since a capitalist economy's development closely relies on bank-credit markets. This section seeks to develop this perspective throughout three key features of economic evolution:

(1) Entrepreneurial innovations generate a creative destruction process that improves total output and quality[3] although they also provoke non-equilibrium dynamics. That is the competition-rivalry process that leads to incessant changes and destroys pyramids sooner or later.
(2) Schumpeter implicitly offers a vanguard endogenous analysis of money before the emergence of monetary Keynesianism. Schumpeter regards money markets

3 However, the positive causality between innovations and welfare remains an open question (Schubert, 2013).

as the headquarters of a capitalist economy since entrepreneurs-innovators based economic evolution cannot be explained without credit money that displays a *transversal* character.

(3) Schumpeter then assigns a *societal responsibility* to the banker in economic evolution. The banker is the *ephor* of the capitalist economy since she/he does affect development by funding or not entrepreneurs' innovative projects. This requires intellectual and moral qualities which, if absent, may provoke 'catastrophes'. This approach goes beyond the narrow (neo/new)classical theory of banking as a mere intermediation structure and seems to be more relevant to understand instability issues of capitalist evolution.

Non-equilibrium evolutionary dynamics

In neoclassical models,[4] changes are due to external (technological, demographic) shocks and even in endogenous growth theories, market dynamics are assumed to result in a stationary equilibrium without any room for uncertainty and even less for endogenous instability. Contrary to those approaches, Schumpeter (1934: 63, 1947: 31) maintains that capitalism constantly evolves through entrepreneurial innovations (new combinations, goods, methods of production, organisation, opening of new markets, conquest of new sources of supply, etc.) and that 'The whole capitalist process, like any other process that is evolutionary, consists in nothing else but exploiting such opportunities as they enter the businessman's horizon and there is no point in trying to single out the one under discussion in order to construe it as an external factor' (Schumpeter, 1947: 109). Therefore, 'in dealing with capitalism we are dealing with an evolutionary process' (ibid.: 82).[5]

Such a process is not linear, instead it means turmoil: 'in this turmoil competition works in a manner completely different from the way it would work in a stationary process' (Schumpeter, 1947: 32). The economic system does not move along 'continually and smoothly' (Schumpeter, 1934: 216) and is not similar to 'the gradual organic growth of a tree' (ibid.) but evolves 'jerkily' (ibid.: 223). From this perspective, Metcalfe (2007: 951–952) states, 'Thus it is the innovative nature of capitalism that prevents the emergence of a full complement of future markets that gives the price mechanism a constitutional weakness. As economists know too well, only in a stationary state could we expect this difficulty to be resolved by tradition and habit if not by rational calculation, and "stationary" is not an adjective to apply to capitalism at any stage of history'.

Schumpeterian capitalism is not a perfect competitive adjustment process but a *cutthroat competition* (Schumpeter, 1947: 80) and the core of economic

4 e.g. Solow growth models or *Real Business Cycle* models.

5 As Andersen (2012: 628) remarks: 'Schumpeter is exceptional since he, until very recently, was the only major economist who made evolutionary analysis the turning point of practically all his research efforts'.

analysis should be 'the way by which economic changes take place and economic phenomena to which they give rise' (Schumpeter, 1934: 62). Such a dynamic process revolutionises endogenously the economic structure, incessantly destroying the old structures and creating new ones. Therefore, the relevant economic problem is how capitalism creates and destroys existing structures (Schumpeter, 1947: 84). That is the *Creative Destruction* process through close links between innovation, competition and uncertainty[6] that results in economic efficiency-enhancing innovations. Thus, the destruction is viewed as a positive creative process (the *capitalist engine* is an engine of production for the masses (Schumpeter, 1947: 67)).

This process is related to some specific institutional patterns. Schumpeter (1939: 144–145, 1947: 157–162) explicitly adopts an institutional framework and stresses that capitalist evolution means not only changes of existing economic structures but also and more fundamentally changes of society's institutional structures. Those changes are social and historical processes (Schumpeter, 1932: 114, 1934: 58). Actually, comparing commercial and socialist societies, Schumpeter (1947: 167) defines commercial society by specific institutional patterns such as private property in means of production and regulation of the productive process by private contract. He (Schumpeter, 1947: 167, 1951: 48/189) then adds that capitalist society is distinguished by an additional phenomenon: the financing of enterprises by bank credit. Therefore, money enters the picture in its very profound form as 'a tool of rational cost-profit calculations, of which the towering monument is double-entry bookkeeping' (Schumpeter, 1947: 123). This towering monument is the social way of recording and checking in economic relations among independent decision units. It is a part of what one may call the *monetary institution* in a capitalist economy in which the continuous flow of financing economic operations is based on credit relations. Credit operations affect the working of the capitalist engine 'so much so as to become an essential part of it without which the rest cannot be understood at all' (Schumpeter, 1961: 318). More important, it is through money that 'capitalism became analytically conscious of itself' (ibid.).

Capitalism as a monetary economy and the transversality of money

Without euphemism and remaining loyal to Schumpeter's work, one can assert that capitalism is a monetary economy. Schumpeter (1939) introduces money at the very core of his analytical structure and stresses that in a capitalist economy individuals need to be financed in order to become innovators/entrepreneurs. The debt-financing relation between banks and entrepreneurs is *the* fundamental economic relation as an individual 'can only become an entrepreneur by

6 Metcalfe identifies the uncertainty as a major attribute of the capitalist innovation process: 'Perhaps the fundamental point is that innovations are surprises, novelties, truly unexpected consequences of a particular kind of knowledge-based capitalism' (2007: 945).

previously becoming a debtor' (Schumpeter, 1934: 102). Economic development relies on the financing process of entrepreneurial innovations: 'By credit, entrepreneurs are given access to the social stream of goods before they have acquired the normal claim to it. (. . .) It is only thus that economic development could arise from the mere circular flow in perfect equilibrium. And this function constitutes the keystone of the modern credit structure' (ibid.: 107).

Schumpeter (1970: 69/75) is aware of the various (internal and external) ways to finance economic activities. But he (Schumpeter 1934, 1951) asserts that in strict logic, the financing of innovations cannot rest on loanable funds (savings) that stem from previous development (i.e. successful previous innovations). Hence, an essential aspect of capitalist evolution is the financing of economic development by *ad hoc* bank credit. Obviously, the Schumpeterian approach concurs with the Keynesian tradition that seeks to offer a theoretical alternative to the (neo/new)classical real approach through the analysis of the very nature of a monetary economy (Bertocco, 2007). As Minsky (1988: 6) states, "The visions of Schumpeter and Keynes are alike in that the subject of their work is a capitalist economy with complex financial structures. In terms of the vision of a monetary production economy Schumpeter clearly has precedence over Keynes'. One can identify here a vanguard version of Post-Keynesian endogenous money theories, where the means of payment created by bank credit give innovators access to productive means and assets.

While Schumpeter seems to give banks a secondary 'accompaniment' role in economic development, the realisation of entrepreneurial projects is crucially determined by banks' willingness to grant credit. Then the definition of capital lies not in existing means of production but in the 'money market' which is related to the development beyond the existing wealth basis. Entrepreneurship financing has logical priority in economic process (Schumpeter, 1939: 114) as the fate of new combinations is decided in money markets. Money markets and especially the banking system are the *headquarters* of the capitalist system where plans for further development are debated and decided: 'The main function of the money or capital market is trading in credit for the purpose of financing development' (Schumpeter, 1934: 126–127) such that 'development is in principle impossible without credit' (ibid.: 106). In a credit-money economy, 'The decision to invest precedes, as a rule, and the act of investing precedes very often, the decision to save' (Schumpeter, 1947: 395, 1939: 109–112). Financial markets can then be seen as a set of rules and practices which organise the permanent use of loanable funds in the financing process through the transformation of short-term credit into more permanent debt forms: 'In a first place, shares or bonds are created and their amounts are credited to the enterprise, which means that banking resources still finance the enterprise. Then these shares and bonds are disposed of and gradually are paid for (. . .) by the subscribers out of existing supplies of purchasing power or reserves or savings.' (Schumpeter, 1934: 111).

In such a capitalist economy, the responsibility of monetary creation and circulation is ascribed to the banking system. However, money is not a good or service, privately reproducible. Actually Schumpeter remarks (1970: 268, 272, 277) that money is a social institution and represents a social accounting system independent of the world of goods. The monetary system is a set of social rules that allow private economic units to undertake decentralised activities thanks to debt relations supported by the banking system. Such debts circulate as money through the entire economy under the general constraint of repayment at the end of financing contracts. Money and related funding processes and products are supplied by banks and also remarketed by financial institutions. In this schema money is *transversal* and takes everything into its oscillations since all economic transactions rely on monetary relations.[7] Monetary and financial problems do structurally matter to all other sectors through the changes of strategies of the credit-money providers (banks) and of financial intermediaries. Hence, changes on money/financial markets affect the whole economy irrespective of decision units which are or are not involved in debt relations. The worldwide effects of the 2007–08 crisis and the difficulties to restore confidence in money markets and to support a new accumulation regime can be understood in the light of this approach that reveals the importance of bank behaviour on economic evolution.

The crucial role of banks in capitalist evolution

Recent (neoclassical) growth models[8] show a renewal of interest in the Schumpeterian vision of endogenous change and assert that the financial system can promote economic growth by encouraging a switch in savings from unproductive liquid assets to productive illiquid ones. Financial intermediaries are assumed to offer appropriate instruments of risk diversification and then to permit risk adverse savers to hold bank deposits rather than liquid unproductive assets in a way that would be favourable to capital accumulation. However, this approach analyses the financing problem as a matter of efficient circulation of loanable funds between innovators and savings. Schumpeter (1934, 1939) criticises such a narrow vision of banking as a mere financial intermediation[9] and remarks that the intermediation is only one of the two roles played by banks in a capitalist economy. The specific-crucial role of banks lies in the

7 Money is *ambivalent,* it has a twofold nature. It lies both in private decisions and in public/extra market general rules. Money creation is related to private economic decisions of banks and entrepreneurs and allows economic agents to undertake profit expectations-based decentralised plans. At the same time, it rests on general (non-individual, non-private) rules (payment system rules). For an in-depth analysis of money in a capitalist economy, one may refer to Aglietta and Orléan (1998) and Ülgen (2013) that include works of Aglietta, Benetti, Cartelier and Orléan (to quote but a few), and also to Ingham (2009), who develop alternative views on money in the line of Schumpeter, Keynes and Minsky (but in a sense also in the tradition of Georg Simmel and his *Philosophy of Money*) and opposite to (neo/new)classical real equilibrium models.

8 For a synthesis, see Papaioannou (2007).

9 'merely a technical matter to be relegated to a chapter on banking methods' (1934: 100).

financing of productive activities through the credit-money creation in order to fund entrepreneurial expectations (Keynesian *animal spirits*). In this very specific function the Schumpeterian banker is, in the name of society 'the *ephor* of the exchange economy' (Schumpeter, 1934: 74/140–141).

A very important point to be emphasised in this framework is that banks – contrary to other intermediaries – can issue large amounts of debt in the form of deposits which circulate in the whole economy as general means of payment, i.e. money. This function constitutes the keystone of the modern credit structure (Schumpeter, 1934: 107). As stated above, the working of a monetary economy is linked to bank credit and to the underlying social/extra-market rules governing the creation (grant of bank credit), circulation (economy-wide use) and the extinction (reimbursement) of debts. Banks are indeed active agents and if they do not grant credit (*credit rationing*) to finance investment expenditures, they may obstruct entrepreneurial innovations. Therefore, the following statement of Schumpeter (1939: 116) comes into the picture with acuteness as regards the current turmoil of capitalism: '(. . .) The banker must not only know what the transaction is which he is asked to finance and how it is likely to turn out, but he must also know the customer, his business (. . .), and get (. . .) a clear picture of his situation. But if banks (. . .) finance innovation, all this becomes immeasurably more important'. Therefore, banks are at the core of economic evolution and then should have 'moral and intellectual qualities' to perform their function which is essentially a 'critical, checking, admonitory one' (ibid.: 118). Raines and Leathers (2012: 6) and Leathers and Raines (2013: 512) put forth this crucial aspect of the Schumpeterian analysis of banks in economic evolution. Hudson (2010) notices that this role had been emphasised by several authors and policy makers in the past as 'From St Simon's followers in France to Marx and other reformers prior to World War I, nearly all financial observers expected banking to become the economy's industrial planning agency, alongside government'.

So in the evolution of financial markets and aims, banking dynamics change such that the 'symbiotic relationship between the entrepreneur and the banker' (Hanusch & Pyka, 2007a) is interrupted: 'Schumpeter's banker is a robber baron of J. P. Morgan's time . . . [who] is not our own day's master of the corporate raid and the leveraged buyout, for Schumpeter's banker financed the creative part of creative destruction' (Minsky, 1988: 11). 'Our own day's' banks indeed follow innovative strategies that mainly rely on financial restructuring and affect the evolution of the productive sphere without accompanying it in its possible creative path. Therefore, the relevant question becomes: Does financial market development consist in its function of financing economic development or does it follow another logic consisting in making money without improving or reinforcing productive structures? The answer to this question will determine whether one can consider financial liberalisation and innovations as sources of Schumpeterian creative destruction.

3. Are financial innovations creative or destructive? A Schumpeter–Minsky assessment

Although arguing that banks and finance are at the core of capitalist dynamics as entrepreneurial innovations have to be backed by finance, Schumpeter mentions only roughly financial innovations. So developing the scope of the Schumpeterian analysis, certainly that of the Schumpeter Mark II of the post-World War II economy (Andersen, 2012; Petit, 2009), one can remark that endogenous economic change also relies on banks' innovative strategies. Schumpeterian analysis of financial (in)stability – not consistently detailed in his time – can be developed through a Minskyian analysis to assess the financialisation process of modern capitalism that started in the late 1970s and reached its culminating point in the 2000s with two major crises, the dotcom fall and the 2007–08 catastrophe, which also reflect the ill-evolution of the productive system. The result of such an analysis turns out to be different from the creative destruction picture of the 'Prophet of innovations'. In a liberalised/loosely regulated environment, financial dynamics may result in a process of destructive evolution and threaten the viability of the entire system. This is one of the most crucial results that Minsky has reached in his seminal work that calls for an appropriate organisation of financial markets and *rational regulation* to dampen instability.

Financial innovations and the instability of financialised capitalism

Even though Schumpeterian analytical grounds are more frequently used by most modern economists (Hanusch and Pyka, 2007b), little attention has been paid to the ways through which financial innovations might affect the functioning of the 'economic engine'. To deal with this issue, it is worth reassessing Schumpeter's results regarding the evolution of modern banking activities.

Burlamaqui and Kregel (2005) distinguish two types of banking: house banking, based on confidential and accompanied relationship, and transactional banking, based on financial arbitrage related to particular characteristics of financial assets. The second type of financial system which has been prevailing since the 1980s in major economies raises financial competition and innovations. This involves banks in strategies directed towards new opportunities able to make rapid returns on arbitrages irrespective of real sector's evolution. From this perspective, one can talk about a *great transformation* of the financial system *à la Polanyi* so much the banking activities turned away from the financing of productive activities to focus more upon speculative operations with high short-term returns.

In recent decades, generalised liberalisation/deregulation let spectacular financial innovations take place with an unprecedented expansion of new means and methods of funding markets. Various financial derivatives (hedge instruments) increased the *immediate* liquidity of banks to cover positions against risk of unexpected fluctuations in interest and exchange rates as well as in

asset prices. Also, the negotiability of debt instruments issued by non-banks is enhanced thanks to banks which implicitly assumed risks on the issuers' debt offering without increasing their required capital. Highly flexible and low-cost financial products through off-balance-sheet banking increased the attractiveness of financial positions for institutional investors as well as for individuals (especially for low-income households). Those innovations allowed investors and traders to transfer risks into specific and complex products (structured investment vehicles, SIVs) and positions which encouraged the development of shadow banking. Those activities – not included in bank assets and liabilities under conventional procedures – increase bank risks beyond the regulatory boundaries.

Those operations – resting on securitisation processes – amplify different ways of transforming illiquid non-commercial commitments into liquid assets (Minsky, 2008). Expansion of lenders' markets into less creditworthy borrowers begins with financial innovations such as 'interest-only' and 'option adjustable rate' mortgages with low payments at the outset, but rising monthly payments later. In these markets banks initiate new products by creating financial papers that structure credits previously granted. These products are also used as sound investment vehicles[10] and then serve to create other securitisation conduits that are also connected to short-term asset-backed commercial paper. Such innovations generate therefore strong interdependence among various products, processes and market players.

Confident expectations – stemming from continuously rising profits – increase the willingness to assume less sound liability structures and lead banks to finance acquisitions of additional capital goods and real estate assets. In such a context sharp speculative expectations-based rises in the value of existing capital lead to an increase in the willingness to finance new acquisitions by issuing new liabilities (increasing the borrower's risk) and to stronger willingness of lenders to accept low-yield assets in relation to the lenders' risk. This financial development began in the 1980s when the Leveraged Buyout (LBOs) movement led to growth in highly leveraged firms and fed Ponzi financing (Minsky, 1992a). Also the securitisation enabled banks to continue to initiate mortgages even though their funding ability was sorely compromised (Minsky, 1982). Most economic activities become financialised and enterprises 'are being turned from means of production into vehicles to extract interest, generate banking fees and register stick market gains for the banking and financial sector' (Hudson, 2010). Numerous works (Hudson, 2010; Leathers and Raines, 2013; Lounsbury and Tavakoly, 2013; Ülgen, 2011) show the speculative bubble fuelling character of financial innovations. Those innovations do not only let

10 For example, banks bundle mortgages into mortgage-backed securities and sell them to investment funds. Investment funds use these securities, highly rated by private rating agencies, as collateral for leveraged loans which are used in turn to buy more mortgage bundles.

the securitisation become independent of the evolution of the real economy and popular classes' income but also allow some specific sectors to become the main source of profitable banking activities, thereby strengthening the short-term tendency of market expectations. The FIRE (finance-insurance-real estate) sector plays therefore the leading role in the accumulation process. Supported by a favourable tax code, this makes asset-price inflation the quickest mode of wealth creation (Hudson, 2010). In the same process, financial markets become more globalised through the opening up of domestic markets and worldwide financial deregulation policies and generate highly sensitive strong interconnectedness among different markets and nations.

Greenspan (2005) nonetheless emphasises that financial innovations increase the efficiency and the soundness of the system: 'The use of a growing array of derivatives and the related application of more-sophisticated approaches to measuring and managing risk are key factors underpinning the greater resilience of our largest financial institutions, which was so evident during the credit cycle of 2001–02 and which seems to have persisted. Derivatives have permitted the unbundling of financial risks'. He (Greenspan, 2000) maintains that recent innovations visibly accelerate Schumpeter's creative destruction process: 'Today our capital stock is undergoing an increasing pace of renewal through investment of cash flow from older-technology capital equipment and facilities into cutting-edge, more efficient vintages. This process of capital reallocation across the economy has been assisted by a significant unbundling of risks in capital markets made possible by the development of innovative financial products (. . .)'.

This is an unfortunate misinterpretation of Schumpeter. Schumpeter never gave banks' innovations a positive role or never developed the financial aspects of capitalism through money market innovations as he did for entrepreneurial innovations. Certainly he (Schumpeter, 1939: 277–282/348) gives various examples of financial innovation to emphasise the role of finance in capitalist dynamics and asserts that the most important innovations of the 19th and 20th centuries would have been impossible without joint-stock companies, limited liability and joint stock deposit banks. However, he maintains that innovative activities of banks turn easily into speculative behaviour provoking reckless finance when they go beyond their essential role (i.e. financing entrepreneurial innovations; Schumpeter, 1934: 106). The speculative *wild excesses* – through reckless borrowing and lending in mortgage financing (Schumpeter, 1951: 219) or through *bubble speculations* resting on new industrial opportunities (Schumpeter, 1939: 277–79) – result in manias as banks withdraw from their regular activities (Schumpeter, 1939: 348).

One can find here the speculative excess of the 'secondary wave' of Schumpeterian business cycles (Leathers & Raines, 2004). Schumpeter (1939: 148) calls macroeconomic oscillations the secondary wave of cycles, subsequent to the primary wave of entrepreneurial innovations: 'In the atmosphere of the secondary prosperity there will also develop reckless, fraudulent or otherwise

unsuccessful enterprise, which cannot stand the test administered by recession. The speculative position is likely to contain many untenable elements which the slightest impairment of the values of collateral will bring down. A considerable part of current and investment operations will show loss as soon as prices fall (. . .). Part of the debt structure will crumble'.

In order to apprehend the secondary wave more explicitly in monetary terms, one should notice some specific dynamics of financial markets. The main purpose of the changes in financial markets is to facilitate regulatory and/or speculative arbitrages by shifting off balance-sheet investments, allowing them to hold less capital and provision against losses. In this sense, financial innovations do not entirely provide more efficient diversification of risk but shift risks to speculative investors who are looking for greater short-term returns on their capital instead of financing long-term productive investments. Contrary to the (neo/new)classical hypothesis that regulation-free finance is the best tool to select and boost efficient investments, the 'great transformation' of capitalism into a financialised system leads to Schumpeterian reckless finance. Schumpeter (1939: 260; note 1) defines the reckless finance in the frame of endogenous money approach as the 'issue of notes or the creation of deposits without regard to redeemability. More accurate is it to stress the criterion of granting loans without regard to the borrowers' ability to repay.' This definition seems to be well suited for the understanding of the consequences of the financialisation phenomenon. It remains however a bit general and can be analytically developed through the work of Minsky. Two crucial aspects might be emphasised in this respect.

The first is that the consequences of banks' activities concern every economic agent and there is no competitive mechanism that would ensure a systematically efficient banking (Hellmann *et al.*, 2000). As stated above, the *transversality* of money and related financial relations mean that, unlike the consequences of entrepreneurial innovations, increasing risk and fragilities on banking and financial markets affect directly all economic sectors as they can stop the financing of real activities or direct them towards more speculative horizons. Consequently, it does not seem to be suitable to study financial innovations as Schumpeterian entrepreneurial innovations although the analogy is tempting.

The second is that as Leathers and Rains (2004: 671) wisely remark, in Schumpeter's analysis there is no room for financial innovations in 'positive' economic evolution for two reasons. First, the central role of banks is not to induce monetary/financial innovations but to finance/accompany entrepreneurial innovations, i.e. the productive dynamics of economic development. When banks take the initiative of innovation, they evolve towards reckless finance (Schumpeter, 1939: 642, 1951: 214) and regular banking business may be made ancillary to innovative aims (1939: 348). Second, in a monetary economy, banks – as creators of *ex nihilo* credit-money – do not need to innovate in order to finance productive activities; their ability to lend is never limited by a given amount of funds ('there is never any such thing as a definite quantity of bank

accommodation available'; Schumpeter (1939: 606, 1934: 112–115)). Financial innovations aim at improving financial profitability, whatever the consequences on economic development. They are not designed to make banks more able to finance productive activities.

Such an intuition can be extrapolated to the analysis of modern finance since financial innovations of the late 20th century are not related to the creation of new productive value but to the desire of increasing the speed and the scope of short-sighted speculative returns that become independent of productive relations. Two speculative pressures, expectations-induced and competition-coerced, emerge therefore in liberalised markets. Those pressures contribute to the increase of high-risk speculative transactions which augment financial vulnerabilities (Arestis, 2001). Innovations allow markets to imagine various techniques and products that spur agents to take a positive stand on the future of the economy while the commitments move away from the real state of macroeconomic imbalances. As Schumpeter (1939: 885) states, 'The path that leads from the financial sector to real investment is tortuous and unsafe'. Financial innovations make this path much more unsafe.

This results in a new accumulation regime resting on the profitability of a debt burden. It is not full employment optimism but a spending-ease optimism that leads individuals and institutions to further borrowing/lending. A kind of attractive bubble that rests on financial innovations emerges (Leathers & Raines, 2013: 516) and speculative gains increase over time, enlarging the prevailing optimism. After the end of the euphoria of 'dotcom markets' in the second half of the 1990s, a new speculative source was found thanks to the mortgage bubble, especially in the USA. Such strategies often provoke instability when expectations backfire on mark-to-market values, borrowers' default increases, real assets and related financial supports cannot be sold without suffering losses while investors try to sell out positions and assets. Illiquidity enters the picture as the herald of future general insolvency in markets. Such a reversal on financial markets may provoke macroeconomic disequilibria fuelled by defensive retreat of creditors from debt-financed activities. While new products/processes, closely related to each other, allow agents to match risks and cover them by highly sophisticated and diversified instruments at microeconomic level, at macroeconomic level a sort of bank run can be triggered and provoke a race to withdraw among lenders when some institutions are expected to default on payments. So the ability to fulfil obligations is incessantly under the threat of lack of confidence which can transform temporary liquidity problems into a system-wide insolvency crisis (*money is transversal*).[11]

11 As stated by Schumpeter (1939: 683) in his analysis of the 1929 crisis and by behavioural finance and Post Keynesian models (Raines and Leathers, 2011), the risk management is influenced by herd and opportunistic short-sighted behaviour; market players share some common expectations and follow similar strategies that involve numerous institutions into increasingly risky operations. When optimistic

To deal with this endogenous issue of capitalist finance, Minsky (1992a) puts the emphasis upon the capital development of the economy as the prime problem that economic theory needs to address and calls it the *Schumpeterian problem*. Schumpeter indeed argues that money is a social institution/social tie which should rest on some stronger regulatory principles. In other words, the institutional/social embeddedness of the financial sphere does matter for consistent systemic viability.

Rational regulation against financial destruction

A regulatory framework provides the economy with a specific institutional structure and incentives that shape banks' conduct. On the one hand, when faced with tight regulation banks try to escape constraints through new strategies (the *regulatory dialectic* of Kane (1988)). On the other hand when regulatory constraints are relaxed, banks have to compete with other financial intermediaries and innovate in pursuit of competitive advantage. Since the 1980s regulatory barriers among financial intermediaries have been reduced, and expanded liberalisation policies have let new financial practices and players enter the market and freely innovate in products and processes without considering the underlying systemic fragilities. Thus, financial markets evolution in past decades and the subsequent 2007 crisis have been built on financial deregulation policies that implemented the efficient free markets doctrine which asserts that markets – left to their own devices (*laissez faire*/deregulation) – can work and produce an optimal equilibrium without requiring external/public regulation (Leathers & Raines, 2013; Ülgen, 2011). It is assumed that free markets internal adjustment mechanisms could minimise the possibility of financial crises and the need for government bailouts: 'Over and over again, ideology trumped governance. Our regulators became enablers rather than enforcers. Their trust in the wisdom of the markets was infinite. The mantra became government regulation is wrong, the market is infallible' (Committee on Oversight and Government Reform, 2008: 2).

In this vein, more decentralised and private control practices ruled instead of public supervision rules. The loose regulation of institutions and markets allowed banks to manage their risks and the quality of their engagements through their own internal models and through credit-rating agencies – also used as strategic advisors. Contrary to the Schumpeterian principle that the banker 'should be an independent agent' in order to be able to check and to judge (Schumpeter, 1939: 116), this transformation has broken off the necessary separation between finance and industries and the necessary independence of banks as social evaluator of entrepreneurs' plans. This new regulatory environment ignored

expectations are stopped by some bad news, agents' behaviour may quickly change into defensive strategies pushing them to sudden withdrawal from financial circuits. A shortage of liquidity may then become the announcement of insolvency even for large banks.

the crucial gap between the quantitative/individualistic speculative efficiency of the innovated 'new' finance and the qualitative/long-term efficiency of the monetary/financial system required for economic development.

So in his analysis of the 1929 Great Depression Schumpeter points to the inability of capitalism to police and to protect itself and maintains that the system's sustainability remains related to regulatory devices. He (Schumpeter, 1939: 1027) states that the recovery after the 1929/33 crisis has been substantially facilitated by the Banking Act of 1933 which introduced important reforms to provide consistent institutional conditions. In the same vein, the Committee on Oversight and Government Reform (2008: 2) declares that the 2007–08 turmoil 'could have been prevented if federal regulators had paid more attention and intervened with responsible regulations'.[12] It is obvious that most policy-makers and scholars who were defending financial deregulation in the past are in a 'shocked disbelief' today; and aware of the consequences of financialisation on systemic stability they opt for more macro-prudential approach (Bernanke, 2013; Greenspan and the Hearings before the Committee on Oversight and Government Reform, 2008). DeLong (2011), an eminent Keynesian, 'confesses', 'It may even be the case that we ought to return to the much more tightly regulated financial system of the first post-World War II generation. That system served the industrial core well, at least as far as we can tell from the macroeconomic aggregates. We know for certain that our more recent system has not'. Also, World Bank (2012: 2–3) declares, 'The state tends to play a major role in the modern financial sector, as promoter, owner, regulator, and overseer'.

However, those changes seem to go very slowly and those who do advocate change in the regulatory regime do not base themselves on any robust analysis of the structural weaknesses of financialised capitalism, rather the standard studies often rest on some 'unconventional' monetary-easing policies and on macro-prudential tools to accompany self-regulation mechanisms.[13] More than five years after the beginning of the 2007–08 crisis, there has not been enough and sufficiently tough reforms to prevent a future systemic crisis.

When financial innovations enter into a process of destructive creation, alternative policies must be designed and implemented. From this perspective, two major oppositions between Schumpeterian lessons and post-crisis market-friendly policies must be noticed:

12 Although beyond the scope of this paper, it is worth noting that in an environment dominated by liberal ideology and policies, it is difficult to get out of the prevailing codes of behaviour of the system. Furthermore, in a globalised, interconnected world, it seems not to be easy to implement unconventional domestic policies. That requires an international coordination and cooperation directed towards alternative economic rules and aims beyond the (neo/new) classical doctrine.

13 In the aftermath of the 2007–08 crisis, Hodgson (2009) remarks that in spite of a renewal of interest in newspapers and magazines for some out-of-mainstream economists of the 'past' like Keynes and Minsky, it is difficult to find remarkable shifts of opinion among *mainstream* economists.

(1) The first is that in times of crisis central banks and governments intervene in order to reduce the immediate effects of the turmoil on major institutions without aiming at deeply reforming the system (Greenspan in 2000s, Bernanke in 2008, to quote but a few). The subsequent cost of such policies is now the rise of unemployment and deterioration of living conditions of lower classes while markets continue their path through 'business as usual'. So, as Leathers and Raines (2013) and Raines and Leathers (2012) note it, Schumpeter (1934: 112, 255, 1939: 410, 437, 1951: 116, 176, 253–255) advocates for discriminatory/selective policies to be implemented by an 'intelligent government' in order to move out speculative excesses and rescue firms and banks that merit it. The relief must aim at treating the systemic disease, not to hush up the weaknesses of an ill-working finance.

(2) The second is that contrary to dominant market ideology, promoted by policy makers and scholars (e.g. Greenspan, 2005), Schumpeter (1934: 115, 254, 1939: 261, 987, 1027, 1947: 89–91, 1951: 116) advocates for active public regulation to prevent reckless finance. This means that a *rational regulation*, able to shape markets behaviour, assigns to banking/financial system its appropriate role in economic development and keeps speculative-innovative ardours under control. From this point of view, a very Schumpeterian financial innovation would lie in new regulatory forms (e.g. the 1933–35 regulatory reforms in the USA; Schumpeter, 1939: 987–1027), not in financial liberalisation. Opposed to the liberal wisdom, Schumpeter (1951: 185) remarks the role of public intervention in the banking/financial system to sustain economic activities especially in case of crisis, as it was the case of the Reconstruction Finance Corporation Act of 1932 which played a major role in handling the Great Depression in the USA by 'keeping capitalism alive in the oxygen tent'.

In this vein, the Schumpeterian approach, developed in some Minskyian directions, can be used as a suitable way of establishing relevant principles to reform the institutional organisation of financial markets in order to design 'robust finance' able to serve economic development (Minsky, 1986: 328).[14] From this point of view, when capitalist economy turns out to be a *money manager capitalism* (Whalen, 2001) and the accumulation regime mainly rests on debt-funded speculative excesses, it is time to 'tame the finance monster', i.e. to *definancialise* the capitalist accumulation process. Re-regulation cannot therefore lie in some improved control devices of actors' behaviour in a liberal environment. It must be founded on alternative principles to cut financial markets' ardour down and push them to adopt less speculative strategies. That means, at least, the prevention of speculative positions through new regulatory rules, for instance by separating the financial intermediation and the traditional – productive system financing – bank activities. 'Finance to finance' and 'finance

14 One can also refer to Raines and Leathers (2012) for an analysis of financial innovations and the role of the Fed in the supervision of banks in the work of Veblen.

to produce' must be distinguished. Studying national reactions across different countries, Lounsbury and Tavakoly (2013: 9) also notice that in the aftermath of the 2007–08 crisis, one of the angles of attack to fight the crisis' consequences was the global interconnections among markets and economies such that some nationalistic logic gained strength 'to challenge the neoliberal logic'. They then argue that the relationships between the neoliberal and nationalistic logics shape the orientation of regulatory systems and frame the future of capitalist finance.

Certainly, structural reforms are much more difficult to implement than it seems. In a liberal-oriented and globalised environment different sectors and countries with different characteristics do not experience the same effects. Furthermore, international negotiations through G8–G20 platform do not rely on an alternative structural framework. However, without voluntarist and toughly oriented regulatory policies there could be no sustainable solution. In this sense, there is no gain without pain but the gain here is the systemic stability, not the micro efficiency of markets.

Studying complex dynamic economic systems to point out close relationships between institutions and development, Ostrom and Basurto (2011) insist on rule evolution to enable actors to develop regular procedures of revising their behaviour and relevant institutions in order to improve collective as well as individual results of their actions. But in the case of financialised capitalism, capital development does not seem to be a learning-by-doing process which would allow individuals to adopt efficient and wiser behaviour under previous turmoil. Mirowski (2010: 428) then maintains, 'Once the crisis grows acute, markets cannot heal themselves on their own; some outside social authority or external entity must push the reset button'.

The complexity of financial innovations as well as the financing of entrepreneurial innovations are likely to lead to unstable/explosive business cycles that call for rational systemic regulation: 'A modern central bank which attempts to control aggregate demand and is the lender of last resort is the ephor of the ephor of the financial structure' (Minsky, 1988: 10). To contain the endogenous instability of liberalised/financialised capitalism a central authority is needed. From this perspective, establishment of consistent macro-regulatory institutions is the prerequisite to frame a 'good financial society" (Minsky & Whalen, 1996–97) able to ensure more shared prosperity.

4. Conclusion

This article sought to offer a specific Schumpeterian analysis in monetary terms and to assess the scope and effects of liberal financial innovations on economic stability. Reappraisal of the Schumpeterian theory of capitalist evolution in monetary terms and its development through the Minskyian theory of unstable capitalism show that unlike entrepreneurial innovations, financial innovations often provoke a destructive evolution path.

The underlying topic that runs through the Schumpeterian analysis is the economic evolution related to a creative destruction process, resting on entrepreneurial innovations. From this perspective, the first lesson drawn from Schumpeter is that the capitalist economy is not a general equilibrium-led society of which the tranquillity would be only punctured by the monotonous splash of the demographic change or exogenous technological shocks. That is what Metcalfe (2004) calls 'Restless Capitalism'. Yet, an integral part of the Schumpeterian theory is the assertion that banks make innovations possible, and along with them, economic development. To Schumpeter monetary and financial system is at the heart of capitalist evolution. In this visionary vanguard endogenous-money-economy schema, the banking system and credit-borrowing relations are at the core of economic dynamics regarding monetary and financial instability issues, a chapter left incomplete by Schumpeter but developed by Minsky in the same vein.

Schumpeter and Minsky both maintain that capitalism rests on a non-equilibrium evolutionary process along with endogenously unstable financial dynamics. Schumpeter (1939: 148, 1951: 214) points to the rise of the secondary wave (reckless finance) after the primary wave of prosperity of entrepreneurial innovations while Minsky identifies the financial instability as the 'turmoil after the calm'. They share indeed the same analytical orientations as they both state that the capitalist economy is: (1) a changing disequilibrium economy; (2) a credit based/monetary economy; (3) an institutionally framed evolutionary economy; and (4) an economy where government interventions shape the economic activity (Whalen, 2001: 807–809). In their policy prescriptions, they both would be most critical of our time's policy makers' decisions in the aftermath of the ongoing financial and economic catastrophe as those policies are not fitted for suitably reforming the weak regulatory system, they are only directed to provide short-term 'light relief'.

As Schumpeter stated in his analysis of the 1930s crisis and Minsky in his analysis of the 1960s/70s/80s/90s crises, in order to contain the systemic instability one should develop alternative institutional macro-framework for more rational systemic regulation. Minsky (1986: 350) argues that the main policy problem is to design a system of financial institutions that dampens instability. In this way, one should incite banks and financial institutions to support long-term investments that seek sustainable growth and aim at preventing costly systemic crises. Schumpeter's analytical heritage reveals that financial competition and innovation do not spontaneously lead to development and need tight public intervention. This is a crucial lesson that Minsky, one of Schumpeter's PhD students, tried to put forth throughout his entire work. An alternative vision of macro-regulation is possible even in a globalised and open world but it requires less dogma and more courage. As Sir Francis Bacon once said, 'They are ill discoverers that think there is no land, when they can see nothing but sea'.

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