

**Schumpeterian Competition, Financial Innovation and
Financial Fragility :
An Exercise in Blending Evolutionary Economics with Minsky's
Macrofinance**

Leonardo Burlamaqui
lburlamaqui@unikey.com.br

Professor of Economics and Business
Department of Industrial Organization and Strategy
Candido Mendes University
Rio de Janeiro - Brazil

Paper given at the 8th Schumpeter Conference
Change, Development and Transformation
Manchester, U.K
28 June - July 1st 2000

Burlamaqui 2

**Schumpeterian Competition Financial Innovation and Financial Fragility:
An Exercise in Blending Evolutionary Economics with Minsky's
Macrofinance ***

Abstract

How do financial institutions compete and expand? Can evolutionary economics contribute to the understanding of its dynamics? On the other hand, is there a place for macrofinance within evolutionary theorising? If so, what kind of macrotheory is compatible with the evolutionary perspective in economics? Those are the questions addressed in the paper.

The paper tries to follow this track. It builds into a connecting principles approach. It explores the deep complementarity between Minsky's financial fragility framework and Schumpeterian competition, extending it to the financial sphere (e.g. competition by means of *financial* innovation), and suggests that the latter provides a "micro-meso" foundation for the macro-financial approach of the former. A "blending" approach - an evolutionary macrofinance perspective - is suggested, and some of its research implications are showed

JEL Classifications: G, L1, O

Keywords: evolutionary economics, financial innovation, financial fragility, schumpeterian competition .

* This paper is an extension of previous works from an ongoing research agenda. I acknowledge the contributions made by Professors Jan Kregel and Carlos Lagrota for related, co-authored, papers on the same subject. The usual disclaimers naturally apply.

1- Introduction

The Neo-Schumpeterian tradition has always stressed the importance of technological innovations based on the accretion of knowledge as the motor force driving economic development. However, most of the discussion of its benefits and the analysis of the evolution of the competitive process has thus far been concentrated in the “real” sector, in particular to manufacturing industry, with the unfortunate implication that manufacturing is the only sector properly discussed as capable of technological advance through application of economies of scale and scope and through the development of organisational capabilities in sectors capable of knowledge absorption. Yet Schumpeter himself is clear in designating finance as the motor force that allows firms to appropriate the resources necessary to introduce new technological innovations that change the competitive conditions in industry and that lead to the realisation of the gains due to scale economies (Cf. Schumpeter, 1934 [1997]), chapter 3, and 1939 Vol. 1, chapter 3) .

Having said that, it seems also true - and somewhat paradoxically - that Schumpeter never really took time to discuss *financial innovation* or gave it a similar status in his theoretical framework. Although banks and finance were always at the centre stage in his picture, neither product/process, nor organizational innovation in the financial sphere are treated analytically. Summing up, in Schumpeter’s view, it appears that innovation had to be backed by finance, but finance itself was not usually served by innovation. On the other hand, Hyman Minsky - a leading theorist of Post-Keynesian economics and a former student of Schumpeter - has worked out a whole theory of endogenous economic instability based on finance and financial innovation, repeatedly noticing the affinity of Schumpeter and Keynes views of finance but without developing his insights much further in that direction (Cf. Minsky: 1986 and 1990).

The paper tries to follow this track. On the one hand, it suggests that despite their unquestionable and growing importance to capitalist dynamics, neither financial innovation nor competition in the financial sphere have been absorbed by evolutionary economics into its domain. The reason for that, the excessive concentration by Neo-Schumpeterian researchers on “hard” technological issues and “real” products and processes (the reader may look at this Conference program to perform a mild test to the proposition), is the same that prevented Evolutionary Economics from a, much needed , articulation with a “macro dimension” which it lacks.

On the other hand it is also suggested that both lacunae can be managed by means of establishing a dialogue with Minsky’s financial interpretation of Keynes, namely his “Wall-Street Paradigm”. Minsky’s macroeconomics, it will be argued, is fully compatible with the evolutionary perspective in economics and allows for a direct connection between Evolutionary Economics, financial innovation, and financial competitive dynamics.

The resulting “blend” can, once developed, be turned into a fertile theoretical approach to understand a) the interplay among *financial innovation, the dynamics of competition in the financial sphere, and financial fragility*, and b) their impact on the performance of the “real” economies, or to put in a straight schumpeterian vein, the interplay between finance and development. A central point to be stressed in the paper is that we understand Minsky’s framework as the “*natural*” macro dimension of evolutionary economics”¹

The second section of the paper presents, in a very compressed form, the core concepts of the evolutionary approach to economics. It does so by recasting Schumpeter’s 1942 radical alternative to equilibrium theorizing. The third section introduces an abbreviated version of Minsky’s macro-theory through his well-known financial fragility hypothesis. These two sections provide the theoretical framework for the fourth section, where we attempt to blend the evolutionary approach with Minsky’s financial macro-theory. We do this by exploring the schumpeterian aspects of competition within the financial sphere, which stem from both financial innovation and organizational capabilities.

We conclude the paper with some general remarks on the advantages of merging Evolutionary Economics with Minsky’s Macrofinance.

2 - The Evolutionary Perspective in Economics

*“It follows from our entire thought that a dynamic equilibrium does not exist. Development in its ultimate nature disturbs an existing static equilibrium and does not have a tendency to return to a previous or any other equilibrium.... **Development and equilibrium are opposite phenomena excluding each other**” (Schumpeter, 1912, apud Shionoya 1997, our emphasis)²*

¹ Let this be a footnote, but in fact we are suggesting even more: namely, that Post-Keynesian economics, specially in its “Minskyan” approach is the *only* appropriate type of macrotheory to this “blending effort” with the evolutionary perspective in economics. The main reason for that statement is that Post-Keynesian macrotheory can cope better with Schumpeterian competition, bounded rationality, multiple strategies, technological uncertainty and, last but not least, does not suppose convergence to equilibrium as a “natural” outcome of market forces. Critical comments on that are expected...

² This “gem” comes from the seventh chapter of the first German edition of the Theory of Economic

Although the above quotation suggests a full rejection of “equilibrium” as a foundational concept of evolutionary theorizing by Schumpeter, the truth seems to be that, until Capitalism, Socialism and Democracy, “equilibrium” and “evolution” were really Schumpeter’s “two souls”, meaning that he tried very hard to have them both linked in his theoretical building, but without succeeding in it.

However, in 1942 the tension between equilibrium and evolution was solved in Schumpeter’s mind, and in favour of the latter. In Capitalism, Socialism and Democracy, Schumpeter goes back to his “7th chapter statement” perceiving the exclusionary nature of both phenomena. Only then, the *magna carta* of evolutionary economics was written, and it was crafted, as perceptively noted by Nathan Rosenberg (but not so by the vast majority of Neo-Schumpeterian scholars. Cf. Rosenberg, 1992) as an “anti-equilibrium manifesto”³. From our point of view, it should be seen as the core of a completely new paradigm in economic theory and in economic analysis. Its basic elements can be summarized as follows⁴:

- *Capitalism* is a historical process in which *change* (and not equilibrium) is the most relevant feature. “Change”, therefore, should be *the* object of investigation in an evolutionary research program⁵.
- Economic agents are *creative* and firms- the main economic units- are *agents of transformation*.
- *Competition*, understood as *rivalry* among firms, and as a *selection mechanism*⁶, is the *engine* that propels economic change.

Development, the omitted by Schumpeter from later editions and from the standard English translations. In the book, it is placed on page 489, and is translated by Shionoya on page 39 of his superb- 1997 book on *Schumpeter and the Idea of Social Science*. Schumpeter, notwithstanding, would remain ambivalent as to the role of equilibrium in his theory - mainly (and regrettably) accepting it- until the path-breaking chapter 7 of Capitalism, Socialism and Democracy, where he comes back exactly to the statement of an inescapable antinomy between the concepts of equilibrium and evolution. That antinomy is the cornerstone of our view of evolutionary economics in its mature form.

³ Kurt Dopfer discusses the issue of the “equilibrium concept” in Schumpeter. He ends up talking about “historical equilibrium” and societal equilibrium”, in a way that was not very clear to my understanding (cf. Dopfer in Magnusson ed: 1994, pp 139-142).

⁴ For previous attempts to summarize the principles of evolutionary economics, on which ours is partially based, see Dosi: 1990, and Magnusson ed: 1994.

⁵ This roughly corresponds to Winter’s methodological imperative: “dynamics first” (cf. Winter: 1986)

⁶ Although, Although, as Nelson and Winter, Paul David, and Brian Arthur, among others have stressed, not necessarily of “best practices” (cf. Nelson and Winter, 1982, David, 1985,

- *Innovations*, understood as applications of new ideas and/or methods to the economic sphere, are the main *fuel* of that engine.
- The *main causal chain* in the operation of the economic system runs from entrepreneurial decisions to the determination of investment, production, demand and employment profiles.
- *Finance* and *innovations* function both as “*levers of riches*” and as *uncertainty creators*; their interplay is at the root of the system’s twin operating features: *progress* and *conflict*.
- Profit rates tend to *differentiate* (not to equalize⁷) and no “proportionality law” between investments and profits applies.

Given those “fundamental propositions” we can, very briefly, sketch the *modus-operandi* of an entrepreneurial economy, a term that both Schumpeter and Keynes used to characterize Capitalism. Within the 1942’s approach, competition is conceived as the interaction and rivalry among firms in order to increase their market-shares and realize surplus profits⁸ Competition is an open-ended selection process that iron out equilibrium tendencies, and brings in (cost, price, process and product) variety and diversity. Competing firms pursue monopolistic positions, and create barriers to protect themselves and their markets from “invasion” from known and *unknown* competitors, barriers whose robustness -exception made for those politically maintained- springs as *fruits of successful chains of innovations*. Surplus profits, therefore, can be seen as a consequence of the competitive advantages created by entrepreneurial strategies⁹. In this context, the monopolization of market opportunities is not something opposed to competition, but rather it is the *temporary result of the competitive process itself*.

Surplus profits are, notwithstanding, temporary, since competition itself - either through *innovative behaviour* or *imitation strategies* - means a threat to them. In that framework we have a dynamic connection among innovations, business strategies, and market structures. The main idea being that innovations and technical progress are permanently destroying and rebuilding the entry

Arthur, 1994) Indeed, within this context the idea of “*a best practice*” may be without analytical content.

⁷ Note that the equalization tendency of the rate of profit is an *assumption* shared by classical, marxian, neo-classical and neo-ricardian economics, while in evolutionary theory differentiation, not equalization, is the key theoretical outcome.

⁸ cf. Schumpeter: [1942]1984, Penrose: 1959, Nelson and Winter:1982.;1985, Lazonick: 1991, Rumelt, Schendel and Teece eds:1995, Magnusson ed.:1994.

barriers, which become *fluid* across time. This implies a relation of cross-causality between *innovation strategies* and the *reshaping of market structures* and the competitive process as a “leapfrogging game”.¹⁰

Moreover, competition occurs not only in *existing markets* and among firms operating in the same sectors but also among *firms located in different sectors or industries and for “future markets” whose roots are already present only in the firms innovation strategies and technological expectations*. Economic instability, which manifests itself through fluctuations in investment levels, asset valuation, returns on equities, rates of unemployment, and, specially, through structural transformations, *is an endogenous feature of the normal operation of the economic system*.

A comprehensive recovery of the core concepts of evolutionary economics, as well as the radical departure from mainstream economics performed by Schumpeter in 1942, has also to acknowledge that his “anti-equilibrium manifesto” was also a “pro-institutional economics manifesto”¹¹. In his framework, economic stability is *not* an inherent propriety of the system, but the, contingent, result of *socially and institutionally constructed processes*. Being so, institutions – both subjectively understood as “conventions” and objectively taken as “organizations”- are *the* constitutive elements of “economic order” or “coherence”. Coherence is *not*, however, a once-and-for-all thing - certainly not equilibrium- but a temporary and a tenuous social construction constantly in flux and bound to be disrupted as time rolls forward.

Therefore, the *existence* of institutions is a necessary but not a sufficient condition for uncertainty reduction and complexity management. *Institutional change* has to be taken into

⁹ cf. Moss:1981, Rumelt, Schendel and Teece eds:1995.

¹⁰ cf. Brenner:1987, ch 3. Concerning the impact of radical innovations Schumpeter says: “These revolutions remake periodically the existing industrial structure [...] [forming] a recurring process of *rejuvenation of the productive machine*” (ibid., p. 94-5). Competition is thus conceived not as an adjustment mechanism (tending towards equilibrium) but as a powerful source of differentiation and efficiency promotion as well as a vehicle for uncertainty. Given these conditions [...] “A monopoly position is not a pillow on which one can rest”. (Ibid. p.135).

¹¹ To this respect R Swedberg remarks, in his biography of Schumpeter, that: “we shall suggest that his central theme - in Capitalism, Socialism and Democracy - is [...] *The role of institutions in the economy*. As we know, Schumpeter felt that economic theory should deal with ‘economic mechanisms’ and economic sociology with economic institutions”(cf. 1991p 152). As for Keynes’s approach: “[...] expectation and confidence formation are institutionally specific and historically contingent processes [...] Keynes’ macrotheory is based on an institutionalist methodology.”(cf. Crotty: 1994, p 129). Of course this kind of institutional theorizing opens a very promising dialogue between Schumpeter and Karl Polanyi, or more

consideration in order to frame the relationship between *economic order* and *economic change*. Institutional change is the necessary counterpart of structural transformation. It is the only conduit throughout *economic change* and *economic order* can temporarily adjusted.

Looked at retrospectively, what was being offered by Schumpeter in 1942 were the building blocks of an “economics of instability and change” which had the impact of technology and innovations in the economic sphere as its core and institutions as its main stabilizers. Not sufficiently noticed is the striking similarity, and complementarities, between Schumpeter’s rupture with mainstream economics and Keynes, who was – between 1930 and 1938- struggling to make the same move, and who was also offering the fundamentals of an “economics of uncertainty and instability” and proposing a major institutional restructuring of capitalism as the only way to recast its economic stability .

The most relevant point to underline here is that either from the “instability” or from the “institutional” points of view (or from the perspective of the relationship between *economic change* and *economic order*), we can devise a secure and fertile link, or a set of connecting principles as Brian Loasby would phrase it, between evolutionary economics, in its 1942’s version, and Post-Keynesian economics. Hyman Minsky’s radical institutionalism as well as his financial interpretation of capitalism, which had in its roots the influences of both Schumpeter and Keynes is, we suggest, the best access-point to develop that link.

3- Finance, Uncertainty and Institutions: Hyman Minsky’s Wall Street Paradigm

“For a theory to be useful for our economy, the accumulation process must be the primary concern, and money must be introduced into the argument at the beginning” (Minsky:1982)

Minsky’s work belongs to the Post-Keynesian approach to economics, a school, which takes money and finance (rather than technology or innovation *per se*) as the most important features of the organization of a capitalist system, and who emphasises the crucial importance of the concepts of uncertainty and liquidity preference to understand both the multiple rationalities and the volatility that guide investment decisions, as well as their implications for economic instability. Minsky’s approach emphasizes the need to fully incorporate *real world*

precisely , between Schumpeter’s economic sociology and Polanyi’s concept of embeddedness (See Burlamaqui: 1999 for a further elaboration on that).

phenomena - and specially finance - into the core of economic analysis, in order to be able to grasp the *intrinsically unstable* nature of capitalist economies.

According to Minsky, modern capitalism could only be understood by adopting the viewpoint of what names "Wall Street": " Looking at the economy from a Wall Street board room, we see a paper world - a world of commitments to pay cash today and in the future. These cash flows are a legacy of past contracts in which money today was exchanged for money in the future. In addition, we see deals being made in which commitments to pay cash in the future are exchanged for cash today. The viability of this paper world rests upon the cash flows (or gross profits after out-of-pocket costs and taxes) that business organizations, households, and governmental bodies receive as a result of the income-generating process" (1982, chapter 3, P 63).

However, in his *vision*, understanding money means understanding a vital process shaping social evolution whose future course remains open-ended and contingent. In this sense, Minsky's theory should be taken as an essentially institutionalist one, in the sense that he viewed the structure of the economic world - much like his former teacher Schumpeter did - not as immanent in some set of underlying data – such as endowments or technology – but rather as constituted by a set of key economic institutions. In one of his last published papers, Minsky wrote:

“ Capitalism evolves and so too must the legislated institutional structure. The evolution of the private sector's institutional structure is market driven – driven by agents acting in their own self interest. This evolution can undermine the barriers to instability and inefficiency. Such undermining has to be offset from time to time by changes in the government's institutional structure. These dynamic institutional changes preserve the dynamic efficiency of capitalism”(cf. Minsky: 1996, 33).

Money was one of them , in fact the most important of them. His way of fleshing out that idea was to look at every economic unit – firms, households, governments and even countries – as though it were a bank daily balancing cash inflow against cash out flow (cf. Mehrling: 1998,15). From that point of view, categories such as production, consumption, trade and investment are first of all flows of money , assets and liabilities, exchanged between different economic agents. To put it bluntly, money and finance are *the most real aspects of capitalism* , the ones from everything else springs ¹².

¹² In the words of Mehrling: “The veil of money is the very fabric of the modern economy” cf. Mehrling: 1998,16)

In the logic of finance the most basic element of the economy is cash flow, and the most basic constraint on the behaviour of the economy is the “survival constraint” which requires that cash outflow not exceed cash inflow (cf. Minsky: 1967, 157). Because the exact coordination of payments is impossible, even this simple constraint involves finance. From that perspective, finance and financial relationships are fundamental because they *oxygenate* economic units, allowing them to purchase without previous savings, and they make growth and structural transformation possible, by providing current purchasing power to those who would use it to expand the boundaries of the system.

However, in Minsky's thinking, finance has a double-edge quality. The other side of the above mentioned “positive” roles, is that finance allows economic units to become illiquid in the present (by way of cash commitments) in exchange for the *possibility* of recovering liquidity (plus profitability) in the future (through cash-flows exceeding of cash commitments). By doing that, finance allows units to commit to goals that may very well turn to be impossible to fulfil. Liquidity crunches will result from that .Insolvencies and bankruptcies are the possible “worst case outcomes” of that *failure to achieve*.

Financial fragility is the route towards those possible outcomes. “Fragile finance” refers to profiles of economic units (or of the whole economy) where cash commitments are relatively heavy compared to cash flows so that there is some danger of widespread failure to meet commitments and, consequentially, of breakdowns.

Financial fragility surfaces as an endogenous feature of capitalist economies, springing from the connections between *indebtedness and uncertainty*. Minsky distinguishes three broad classes of investment, "hedge", "speculative", and "Ponzi" (Minsky 1982, p. 23). Hedge projects generate sufficient cash flow throughout to meet their expected debt repayments ¹³; speculative projects generate an initial deficit of cash flow over debt commitments, but are expected to turn a net profit in the end; Ponzi investments are always cash flow negative, and therefore submitted to increasing debt. Profits are solely based upon the resale of assets at higher prices ¹⁴.

¹³ Or, as Kregel (1998 a :pp2-3) has put it : A company that is expected to meet its payments with 99% probability is close to what the banker's aphorism means when it says it does not need the money (The aphorism is that bankers should only lend to people who don't need the money)

¹⁴ “Ponzi's” are companies that need to increase their borrowing just to stay in business, but to which, according to the aphorism and good credit assessment, bankers should not lend under any circumstances (Kregel 1998 a :p 3).

Minsky's work focused on the endogenous tendencies of capitalist economies to evolve from hedge financing towards a situation where Speculative and Ponzi financing prevail. The key element in his reasoning is the behaviour of the banking system: banks have a tendency to underestimate the risks they face when the economy is expanding at a steady and seemingly predictable pace, and to overestimate them when the economy is in recession. It is the former that is more dangerous for the survival of the bank and is the additional source of uncertainty and instability to that created by the competitive activity of firms outlined above.

Indeed, in all his models, periods of steady expansion stimulate riskier behaviours of banks and firms, both *conjecturing* that by reducing their margins of safety on borrowing and lending they can pursue more profitable opportunities. As increased expenditures (investment) brings increased profits, by effective demand creation and multiplier mechanisms, this behaviour is validated and induces more investment at higher leverage rates, driving the economy to a boom.

However, the more highly indebted the agents get, more prone to a rush for liquidity, and eventually, to a debt crisis situation the economic system gets. Within this scenario, rising interest rates or an unexpected drop in sales revenue may push many hedge investments into the speculative projects "Ponzi".

As these agents fail to honour their debt, their creditors will be facing difficulties in honouring their own debt, and a perverse cumulative causation process takes form. To avoid insolvency, agents then start to sell first their liquid assets (bonds, shares), and may be forced to liquidate even real state or equipment if their balance sheets remain unfixed. The outcome is a deflation in asset prices, devaluating portfolios and reducing collateral values¹⁵. This is what Minsky defines, borrowing the concept from Irving Fischer, as a *debt-deflation* situation.

Additionally, all creditors affected or not by the liquidity/solvency crisis become more conservative reducing the acceptable leverage rates and increasing their liquidity preference. All these propagation mechanisms play a role leading to cumulative processes capable of transforming small perturbations into financial crises.¹⁶In other words, capitalist economies

¹⁵ If the downward pressure persists, agents **will** be forced to sell also their less liquid assets. Of course if this happens, a full blown asset value depression will materialize, something which can – if not institutionally and policy managed – throw the economy into a depression.

¹⁶ Crises that can reach catastrophic proportions, like the great depression of the thirties which dragged the whole world into deflation, unemployment, and social unrest, dismantling the U.S. banking system which had 50% of its banks closed in 1933(See Kindleberger: 1974 for a full account of the episode). Or, more recently, both the Asian and Russian which destroyed years of growth and took an enormous

with sophisticated financial systems are biased to a *financial fragility* type of evolving behaviour. "*Destabilizing stability*" is a nice shortcut used by Minsky himself to frame this situation (Minsky: 1986, introduction).

The trouble attached to that sort of dynamics is the possibility that, left to its own devices, the financial system would, in all probability, operate to amplify rather than to compensate or absorb the instability inextricably created by the cyclical process of growth. Minsky thus followed Keynes track seeing a "natural" role for government both acting as a lender-of-last-resort to ensure a floor to downward fluctuations and prevent major financial bankruptcies, and acting as financial regulator, in order to impede the development of what Keynes called a "casino capitalism"¹⁷. In his theory, however, stability steams mainly from *institutional building and policy making*, being, notwithstanding, a *dynamically fragile one*.

After recalling both frameworks, at least two questions self-impose: how compatible are they, and why does it matter? We will attempt to *begin* answering them in the next following sections.

4 – Schumpeterian Competition, Financial Innovation and Financial Fragility

"The money market is always, as it were, the headquarters of the capitalist system, from which orders go out to its individual divisions, and that which is debated and decided there is always in essence the settlements of plans for future development. All kinds of credit requirements come to this market; all kinds of economic projects are first brought into relation with one another, contend for their realization in it; all kinds of purchasing power, balances of every sort, flow to it to be sold."
(Schumpeter, 1934)

"A banker is always trying to find new ways to lend, new customers, and new ways of acquiring funds, that is, to borrow; in other words, he is under pressure to innovate" (Minsky 1957)

Within Minsky's financial fragility framework, financial institutions always increase their lending during rapid expansion phases and tend to practice "lend pushing" as expansion progresses. However, as soon as *some* key institutions *suspect* that some sort of miscalculation was done, they drastically reduce their exposure calling in loans and substantially increasing

amount of institutional engineering and policy measures to be 'stabilized'.

¹⁷ Interestingly enough, those "tasks" were already present in the Federal Reserve Act of 1913, but not surprisingly, not in the mainstream equilibrium-based theory whose main credo is "the 'market' conceived as a self-regulating entity.

their liquidity preference. Banking industry expectations (or “the market” as they are called today) are, therefore, crucial to the course of action to be taken by the whole system. Minsky’s argument is, however, constructed in a cyclical fashion. The state of finance is fundamentally determined by the cyclical phase of economy. The route from “hedge” to “Ponzi” finance is always a reflex of the passage from recovery to expansion and boom. There is nothing wrong with this argument, but it can be broadened.

Although Minsky’s macrofinance refers to financial innovation as an important feature of financial dynamics, it does so specially to show how the banking system is always trying to bypass Central Bank’s measures and regulations to control liquidity. Despite of its correction, this line of reasoning leaves some room for the sort of criticism raised, for instance, by Tobin. Tobin (1989: p.106) asserts that the increasingly risky – and even reckless- behaviour during booms is irrational, because the knowledge of previous financial crisis should teach economic units – and specially banks- to be more cautious. Tobin points out that, as Minsky has no rational explanation for this absence of learning, the financial instability is based on a questionable empirical hypothesis: in the boom times, the optimism is stronger than the lessons of history¹⁸. The same interpretation is spelled in the entry “financial instability hypothesis” in the *New Palgrave of Money and Finance* and it disqualifies Minsky’s theory as one that seems to be built on a fragile empirical assertion, instead of a solid rational behaviour hypothesis¹⁹.

An answer to those criticisms would be, as Mehrling suggests, that although *risks* are accessible and allow for learning by those modeling them, *uncertainty* is not. As a consequence of uncertainty, expectations about the future inevitable have little objective foundation, and therefore mistakes are inevitable because rational expectations are impossible (Mehrling, 1998: 21). This is the “standard” Post- Keynesian answer.

From the perspective of evolutionary economics, another, complementary but perhaps more comprehensive, answer to this one can be assembled. An answer that comes straight from

¹⁸ “This scenario, it seems, is intended as an endogenous systematic business cycle, for which no external stochastic fuel is required beyond normal microeconomic business risks. Minsky does not provide a rigorous formal model, and without one readers cannot judge whether an undamped endogenous cycle follows from the assumptions or not. Rational expectations adherents will doubtless object that the alleged cycle would vanish as soon as borrowers and lenders understood it. I guess Minsky would give an empirical answer: The participants in every new era of prosperity extrapolate it, finding many reasons not to temper their optimism by the lessons of history” (Tobin, 1989: p. 106).

¹⁹ As for Darity Jr. (1992, pp. 75-6). He refers to Minsky’s as “... a generational ignorance argument: that lenders today have no knowledge of the historical process that engendered crisis in the past”.

Schumpeterian competition. Its departure point is the recognition that although Minsky’s perspective turns finance into its key element, there is surprisingly little discussion of financial innovation dynamics and, even less, of competition among financial institutions.

There is certainly a very fertile exchange to be made here. Just as financial innovation and financial dynamics would be profitably absorbed by evolutionary economics in order to broaden its scope, Schumpeterian competition would be extremely useful to explain both the “rationality” behind the apparently “irrational” behaviour of financial units, and how financial innovation actually reinforces financial fragility. Let us recall that from an evolutionary perspective, *economic change* is the focus of analysis, and *competition* the engine that propels it. From a Schumpeterian point of view, we could start to conceptualise competition in the financial sphere by saying that the same principles of competition by means of innovation, including both building organizational capabilities and competing through creative destruction, should be placed at its centre. The institutional embeddedness of the whole process should also be acknowledged, namely the dominant role played by government in the regulation of financial institutions, and therefore, the crucial part played by policy measures on it.

However, there are also some important differences between financial and industrial firms that relate to structural features of the environments in which they operate. Unlike the manufacture of physical goods that require physical productive activity and time to be delivered, financial markets are capable of creating contractual commitments for any future date, and thus future outputs, instantaneously in the present. Since little if any reliable information exists concerning the “financial landscape” that will prevail at future points in time, expectations regarding financial markets behaviour cannot be either objective or stable, since they will be based on *facts* that will only be produced by actions *yet to be decided*.

In the *General Theory*, Keynes presented a way to calculate the price of an asset, the asset’s “own rate of return” in his phrasing, that will illustrate the point. Keynes formula was the following:

$$i = (R^{exp}/V) - c,$$

Where i is the interest rate, R^{exp} the expected returns yielded by the asset, V is its present

However, he opens another possibility that is very similar to the point we are going to develop here: “a second argument involves rivalrous pressures in the financial sector”.

value, and c the carrying costs associated with the possession of the asset. The own rate of return is r , therefore, the net income per unit value minus the carrying cost (cf. Keynes, 1936: chapter 17). A slightly different formulation of asset pricing sets the price V equal to an expected net return flow R^{exp} capitalized by interest and carrying costs, $V = (R^{exp}/i + c)$.

The point to be made here is simply that there is no solid basis to calculate the net return flow (R^{exp}) of most financial assets, nor even for their discount rate (given by the “market interest rate” which is really a plethora of different rates oscillating across time). The term *expected* then is where the burden of the asset price determination will fall²⁰. The pricing of financial assets is really a “beauty contest” in Keynes sense of the term, where prices obey not to objective factors or “fundamentals”, but to “what average opinion (in the market) expects average opinion to be”(cf. Keynes: 1936, chapter 12).

Subjectivity and volatility of expectations thus make financial asset prices *much more volatile* than prices in other parts of the economy (Cf. Keynes: 1936 [1983] chapter 12, Strange:1998). The result is that financial unit’s expectations will be subject to extremely volatile revisions over time, driven by both relevant and irrelevant information, leading to substantial price instability *and* market volatility (Cf. Shackle: 1972 [1992], books III and VI, Vickers: 1994, and Eatwell and Taylor: 2000). Secondly, given the inherent volatility of financial asset values, liquidity provides a crucial “protective device” or “defensive strategy” to manage uncertainty. An useful statement to introduce here is that :

When financial institutions are strategizing aggressively they compete for market share, and when they are strategizing conservatively they compete for liquidity and/or, for solvency.

In order to develop a little further our point on the *evolutionary dynamics* to be attached to the financial fragility framework, let us now characterize how closely financial unit’s behaviour fits the Schumpeterian perspective on competition. Financial innovation will thus get into the picture.

Financial firms seek to increase their profits, without incurring in unmanageable risks²¹. The term “unmanageable” is very important here, because they cannot work without any risks,

²⁰ Note that a similar process takes place concerning pricing *new*(rather than incremental) innovations.

²¹ To be more precise, we should use uncertainty instead of risk, following the Knight-Keynes distinction between those future events that can be “known” by probabilistic inference (risk), and those that can not (uncertainty). However, for the sake of simplicity, when discussing banking strategies we will use the term risk (more familiar to the financial literature) on a broader sense, representing any

they are *speculative* - in Minsky’s terms - by their very nature (Minsky: 1982,106). As most financial assets can be called by its owners at any time, the only “risk free” posture by a financial institution is to have only perfectly liquid assets, that is, cash. Thus, a financial unit in order to be “completely safe” – completely hedged in Minsky’s terms – *should not operate at all*. Notice that the only risk (type of uncertainty) mentioned above is about maturity, that is, the risk of holding assets with a longer term than their respective liabilities. Financial institutions have also to face risks associated with interest rates volatility, rumours, confidence swings, and default prospects of their debtors. In one phrase, they also face – and in a most acute form – the trade-off between *returns* and *liquidity* (Minsky: 1982, chapter 6, Eatwell and Taylor: 2000, chapter 1).

The different perception of these different risks will, therefore, determinate their *liquidity preference*. Financial unit’s expectations and strategies are formed, therefore, according to multiple rationalities or in Minsky’s terms: each agent has “a model of the model”. There isn’t such a thing as rational/convergent expectations in financial units strategy making. The whole picture gets more complex – and potentially more unstable – when finance for investments (an *a fortiori* for innovations) enters the picture. Some investments work out, and others don’t, but the debt-financed owners of both face the same cash commitments. Thus as some productive units realize that past investment has not relaxed their illiquidity as they anticipated, some financial units will have to refinance them and, doing so, will face the possibility of becoming more fragile themselves and having to work out their balance sheets. There is no way of correctly anticipating that.

Therefore, the *confidence element* intrinsic in each and every financial operation turns the nature of financial business a highly speculative one, allowing for the possibility of financial units to become Ponzi units themselves depending not only on the relationship between their *animal spirits* and the success rate of their “clients”, but also, and heavily, on the degree of confidence placed on them by other market participants²².

Here enters financial innovation. From a schumpeterian perspective, it is a competitive weapon, not only to escape Central Bank’s regulations, but also to enable financial institutions to compete against each other. However, and in unlike most technological or organizational innovations, financial innovations are capable to create profit opportunities without yielding the

situation where future events are unknown.

²² Note the growing importance of this framework for the “financial profile” of the *new economy*.

productivity increases or efficiency improvements that generally spill over to the whole economic system. Rather, they can carry a heavy, destabilising, downside by means of performing a *destructive creation* role rather than a *creative destruction* one.

Our best example for that matter are derivative contracts. Since the financial liberalization commenced in the mid-1970's, as an aftermath of the collapse of the Bretton-Woods System, financial innovation has taken mainly the form of financial derivatives, a plethora of financial operations structured on the basis of key financial figures as interest rates, exchange rates, stock-market indexes, credit and commodity's prices. Futures, options, swaps, credit-enhanced bonds and reference assets are some of its 'nicknames' (cf. Chew: 1996, Kregel: 1998 p 691-2, Eatwell and Taylor: 2000, chapter 2).

Derivatives were initially conceived as "hedge instruments" that is to say, as uncertainty reduction devices against un-forecasted fluctuations in "key prices" (interest and exchange rates mainly). It didn't take very long, however, for financial institutions to realize that those instruments and operations could be also used to increase their liquidity by creating, for instance, liabilities that were exempt from required reserve or assets that had reduced capital requirements, and to enable them to *speculate* against *future fluctuations* by way of *anticipating* them. Currency devaluations, commodity's prices, interest rate movements or stock prices fluctuation are the usual suspects here (cf. Chew, 1996, Roberts, 1999).

Lets consider the dynamics of financial innovation from the perspective of the banks. From the perspective of *each bank*, derivatives increase profit opportunities since the bank can strategize aggressively, by increasing its leverage capacity, by speculating heavily against all sorts of future fluctuations, and hedge itself against unwanted risks. Alternatively, the bank can buy the degree of risk it believes is acceptable, earning a correspondent revenue (for instance, the option price). But, like in Minsky's schematic case, the bank will always face a trade-off between risks and returns, since a full protection would be necessarily a "profit-cancelling" operation. The bank has, thus, to decide how much risk would be manageable in order to keep its profitability, *but* this evaluation is always subjective (and subjected to multiple rationality's and strategies) as Minsky has relentlessly remarked with his concept of "margins of safety"²³.

From the perspective of the *banking industry*, derivatives introduce a substantial amount of complexity into the system. They create second and third levels of subjectiveness in regard

²³ Which means that the whole operation is really an uncertainty-bounded, rather than a risk-bounded one.

to risk management (actually *uncertainty management*) strategies but, at the same time, allow banks to "pass" most of the burden (the risk attached to the operations) to their clients. As Kregel very aptly explained:

"Banks also offer derivative contracts to their clients in what is termed the "over-the-counter" (OTC) market. But, there is no market involved in these contracts, which may involve the stipulation of standard futures and options contracts outside of the organised market on a bilateral basis with individual clients. However, the majority of OTC activity involves individually tailored, often highly complex, combinations of standard financial instruments packaged together with derivative contracts designed to meet the particular needs of clients. These contract packages involve very little direct lending by banks to clients, and thus generate little net interest income. However, they have the advantage, given the necessity of meeting the Basle capital adequacy requirements, of requiring little or no capital, or of being classified as off-balance sheet items because they do not represent a direct risk exposure of bank funds. In addition, they generate substantial fee and commission income. Rather than committing own capital, the banks serve in these transactions as intermediaries whose services involve not only matching borrowers and lenders, *but as market innovators creating investment vehicles that attract lenders and borrowers*. This activity often requires banks to accept some of the risks associated with the derivatives in order to produce packages that permit them to intermediate between independent borrowers and lenders" (Kregel: 1998,679. Our emphasis).

From the "financial schumpeterianism" that we are suggesting, its quite clear that the evolution of the financial system, combining financial innovation and financial deregulation, and where derivatives are used specially as speculative devices against an uncertain future, has simultaneously reinforced the conditions which led to financial fragility, and made financial regulation more difficult. In Kregel's words:

"...it is the role of most derivative packages to mask the actual risk involved in investment, and to increase the difficulty in assessing the final return on funds provided.²⁴ As a result, certain types of derivatives may increase the difficulties faced by private capital markets in effectuating the efficient allocation of resources. By extension, if they make investment evaluation more difficult for primary lenders, they may also create difficulties for financial market regulators and supervisors" (Kregel: 1998,679).

²⁴ For example, Chew (1996, p. 57) observes that "Structured notes are the epitome of how investment technology helped and continues to help money managers circumvent guidelines that were framed to protect the interest of small, unsophisticated investors ..."

Looked at from a schumpeterian perspective, the competitive pressure that springs from financial innovation is extreme since the products that a bank uses to decrease its required reserves or regulatory capital in order to increase its earnings are easily replicated through reverse engineering, being based on techniques that are generally known in the markets and are sold publicly to clients.²⁵ Financial innovation diffusion occurs, thus, almost instantaneously, since patent protection is difficult to attain and information is rapidly diffused (by product imitation) among institutions.

In addition to that, the regulatory capability of Central Banks has also been partially eroded by another structural change in the financial systems, namely the direct lending from large investors (pension funds, insurance companies) to major companies, where corporate bonds are used instead of traditional banks lending. These sophisticated traders evolved their own risk management evaluation systems, and, like banks, they can decide the margins of safety they want to expose themselves.

So, in Schumpeterian terms the profits from being a first mover are ephemeral and difficult to monopolise –once created, they almost instantaneously evaporate through imitation (cf. Burlamaqui and Lagrota, 1998: part 5). Therefore, continuous product innovation is required for banks to create surplus profits, conquer new clients, and improve competitive position against other banks. But since they cannot protect these gains, the major movement in competitive strategy has been a process of rapid bank consolidation as it is easier to buy competitors than to gain a dominant advantage over them, hoping in the process to expand on the basis of economies of scale and scope, and specially through building organizational capabilities (cf. Kregel and Burlamaqui: 1999,p 30-33).

So, financial innovation allows a bank to create surplus profits, conquer new clients, and improve its competitive position against other banks. It notwithstanding cannot *preserve* these profits. Banks, thus, are compelled to *compete heavily with the other profit making strategy they are left with: market-share competition*. As in many other business sectors, banking

²⁵ Two examples make this point. The well known negotiable CD, offered to business clients by First National City Bank, was developed and marketed by Walter Wriston who is said to have become head of City Bank as a result, but it was quickly offered by all commercial banks to their clients. The use of securitisation of bank assets through the creation of special purpose vehicles was pioneered by Salomon in mortgage banking after the collapse of the savings and loan banks, but was soon extended to all assets, including C and I loans and is now employed by all banks. Nonetheless, first movers usually tended to retain advantages because even though the techniques were rapidly reproducible, the human skills were not and replication usually involved the poaching of first mover bank personnel by competitors.

presents increasing returns, as a bigger bank has access to a wider variety of financial instruments, clients, sources of funds and, not a minor advantage, greater influence over Central Bank decisions.

It should be noted, however, that banks still play a major part on these *financial engineering operations*. No more as financial intermediaries (receiving interest payments) but now receiving (handsome) fees as coordinators of the “deal”. It should be also noted that in these operations, banks do not take additional risks (those risks are “bought” buy investors and companies), but also increase their revenues and expand economy’s liquidity. As far the risk is not eliminated, but just traded between different agents, the endogenous trend to financial fragility remained on the *system* - and in fact *increased* due to the “complexification” and overlapping of these risk (uncertainty) management strategies²⁶.

The main use of derivative contracts came to be the creation of “towers of leverage” far more dangerous (*speculative* in Minsky’s terms) than the pre-financial liberalization existing ones. The core business the so-called “hedge funds” became, ironically, to spread risk over risk-averse individual investors (Eatwell and Taylor: 2000, p 85). From a Keynes-Minsky perspective, its quite clear that the extensive usage of derivative contracts firmly upgraded the financial instability attached to the sort of financial dynamics that Keynes described as the “beauty contest”.

It should be clear by now that financial innovation plays a crucial role in shaping and reshaping the financial system’s tendency towards financial fragility, and increased *financial vulnerability*. As far as these innovations are not exogenous but, instead, stem from competitive strategies crafted by the banking system, a *schumpeterian competition approach* turns to be highly suitable for a *financial fragility framework*. Two extremely sharp statements taken from a seminal paper by Minsky himself written more than forty years ago, but clearly anticipating the current scene, illustrate the point:

²⁶ The competitive strategies of banks also change, since they are selling “knowledge” and “expertise”, very subjective and “intangible” attributes that are obtained through their association with big financial deals, like a M&A or large privatization “marathons”. The definition of fees, so on, can be scarcely related with operational costs, since they will reflect the organizational capabilities, managing and marketing strategies of the banks involved, as well as the competitive conditions surrounding each deal. Its quite clear that a “capabilities approach” to the financial firm would suit perfectly here which makes it a very “hot” research theme to be developed by both “financial fragility” and evolutionary scholars.

“Such a pyramiding of liquid assets implies that the risks to the economy increase, for insolvency or even temporary illiquidity of a key nonbank organization can have a chain reaction and affect the solvency or liquidity of many organizations” (1982 [1957], 173).

And:

“Changes in financial institutions and money-market usage are the result of either legislation or evolution. Legislated changes are typically the result of some real or imagined malfunctioning of the monetary-financial system and hence they usually are accompanied by discussions of their impact. *Evolutionary changes occur typically in response to some profit possibilities which exist in the money market*” (1982 [1957], 162 Our emphasis).

From the above exercise, it seems safe to say that the “financial fragility” framework and the evolutionary perspective in economics share the same core assumptions, way of theorizing, and key results. It is, therefore, quite puzzling how they travelled the same roads and fought the same enemies without ever borrowing from each other or, better, without forging an “strategic theoretical alliance”.

A promising development of the financial fragility framework rests on its application to the sphere of international finance. More specifically, it can be a useful tool to analyse the instability of capital flows and its consequences on countries macro-economic imbalances, firm bankruptcies and generalized solvency problems²⁷. This could – and should – be easily absorbed by evolutionary economics as its “macro-dimension” something which is, currently, clearly underdeveloped in our research agenda. Another very promising development, we suggest, is its extension, through an M&A intellectual process, with the Evolutionary perspective in economics in order to you are putting forward a relevant and interesting joint research agenda. It is to prospects of the latter to which we now turn.

5- Blending Minsky's Macrotheory with Evolutionary Economics: A Research Agenda

“The task confronting economics today may be characterized as a need to integrate Schumpeter's vision of a resilient intertemporal capitalist process with Keynes' hard insights into the fragility introduced into the capitalist accumulation process by some inescapable properties of capitalist financial structures ” (Minsky, 1986)

²⁷ Its increasing relevance to the world economy has been driving some of Minsky's colleagues, especially Jan Kregel but also S. Keen, G. Dymski, R. Pollin, J.Eatwell and L. Taylor to work in this direction Minsky (1994) himself moved to this direction. See Kregel 1996,1998_a 1998_b, and 1998_c , Dymski and Pollin: 1994, Keen: 1995, 1996, Eatwell and Taylor: 2000. See also, specifically on the Latin America debt crisis of the 80's, Felix :1994.

Though an ongoing, actually just opened, research project, our “blending exercise” points to a few interesting findings and suggestions. First of all, it shows very clearly that Minsky's framework is explicitly an evolutionary one where change, and its conflicts, is the core of the analysis. The evolution of the financial structure is both endogenous and institutionally shaped, and the bias towards instability is a normal condition of capitalist economies. Stability only occurs by way of institutional building but is always provisional²⁸. Here, we can introduce a link with schumpeterian analysis suggesting that financial units have – just as manufacturing firms- different visions, organizational capabilities, and strategies about how to connect present capabilities with future competitiveness. They have different interpretations of their environment, perceive opportunities at a different pace, and evaluate them in different ways (in Shackle's phrase, they have different *expectational timings*).

Taking this into account, financial evolution should be seen, we suggest, as in other evolutionary models, as creating asymmetries which induce evolution which re-creates uncertainties. Peter Allen (1993: 112) has already sharply signalled to this direction:

“Ignorance of the future and differing opinions allow exploration to occur, and hence permit discoveries, or more accurately “creations” to occur. But, as this happens, the system is changed, and there is fresh uncertainty about the future. Ignorance permits learning, but learning permits new ignorance. This offers a much more realistic picture of the complex game that is being played in economic and financial systems, and one which our models can begin to quantify and explore.”

From our blending perspective, an innovation-based theory of the financial industry and a “dynamic capabilities” theory of the financial firm would be extremely interesting research topics to be developed. Secondly, when we blend the two approaches, the concept of uncertainty becomes much more operational. It can be broken into a “types of uncertainty” framework allowing to qualifications as production uncertainty, competitive uncertainty, financial uncertainty, and others (technological, legal, institutional, macroeconomic). Lets exemplify by mentioning two types. For firms holding asset positions, there is the risk of an actual return on investment projects (manifested as a drop in sales revenue) below the expected return. This is *competitive uncertainty*. If they have debt, there is also the risk attached to losses coming from adverse price movements and interest rates in financial markets. This is *financial uncertainty*.

²⁸ “Economic policy must be concerned with the design of institutions as well as operations within a set of institutions. Institutions are both legislated and the result of an evolutionary process” (Minsky, 1986: p. 7).

Trough our blending perspective, it is easy to see the connection between them: competitive uncertainty can be aggravated or even “surpassed” by financial uncertainty (Minsky’s point), but financial uncertainty can also rise from creative destruction processes performed by financial innovation (the “Schumpeterian” point). A way to generalize the idea, is to say that all competitive strategies leave financial trails²⁹, and all financial moves have competition as their driving force. Moreover, since financial markets carry forward the accumulated contractual obligations of all past investment decisions, they become *the conduits through which disappointed expectations transmit instability to the economy as a whole*³⁰. Under this framework, the connections between finance and development should be re-assessed and uncertainties should be given a much more important role in evolutionary theorizing (meaning for instance that the scope for predicting should be taken very cautiously).

Thirdly, when we place competition at the centre of the analysis, it explains a crucial aspect of financial institutions behaviour. As the Schumpeterian competition framework shows, firms are always trying to create profit opportunities and increase their market share building up, therefore, competitive asymmetries in regard to their competitors. The result is permanent rivalry. In the financial realm, this same logic of competition also applies and both banks and other financial institutions are under severe pressure to perform, deciding under uncertainty (they don’t know which of the loans made, or operations closed, *today* are going to become “good” or “bad” *in the future*) and lacking coordination³¹.

This materializes as firms being forced to progressively adopt riskier behaviours if they intend to maintain – and improve – their competitive positions. The alternative, to remain heavily hedged, will almost surely imply losing market-share and, as a limit situation, to be creatively destroyed by more aggressive competitors. Thus, in order to keep their market share

²⁹ cf. Minsky: 1982,1986, and Dymksi and Pollin:1992.

³⁰ In an open economy environment- especially in emerging economies subjected to massive capital flows - radical uncertainties are there for everybody: both banks and firms, Central Banks, and Nations. *Hedge debt structures can be converted into speculative ones, and originally rational speculative strategies can become dangerously Ponzi ones*, triggered by unforeseen exchange rate movements and/or an increase in the FED’s interest rate.

³¹ As Dymksi e Pollin (1992: p. 45) have noted: “[e]ven if market participants did have full knowledge of the Minsky model, and were aware that financial crisis will occur at some point, that still would not enable them to predict *when* the financial crisis will occur. In the meantime, aggressive firm managers and bank loan officers will be rewarded for pursuing profitable opportunities and gaining competitive advantages. Cautious managers, operating from the understanding that boom conditions will end at some uncertain point, will be penalized when their more aggressive competitors surpass their short run performance”.

and profitability against the competitive strategies adopted by others, financial firms will be pushed to increase their leverage ratios and to progressively adopt more aggressive strategies, (like the derivative-based ones) in order keep up with competition. In this scenario, *to join the herd* instead of being some sort of *recurrent irrational behaviour* is in fact, as Keynes himself suggested in chapter 12 of the General Theory, the feasible rational behaviour to follow³². The research topic to be developed here should be “financial rationalities under schumpeterian competition”, and the following statement should be scrutinized:

When financial institutions are strategizing aggressively they exhibit multiple rationalities; when they are strategizing conservatively they display herd behaviour.

Fourthly, its quite clear that Minsky’s economics is fully concerned with the impact of structural uncertainty in economic decision-making and economic performance. From that perspective, very much like Schumpeter in his 1942’s “radical manifesto”, it also states that equilibrium theorizing is definitively *not* the best tool to access the dynamics of capitalism- in fact it is inadequate. As he didactically put it:

“The ideas that events occur in calendar time (today follows yesterday and the day before) and that the world is not linear [...] are now the common property of all serious sciences. It is about time that formal Economics stops being an arcane form of apologetics and becomes serious. [...] Economists need to think in terms of systems in which outcomes are path and initial condition dependents and where government interventions and the operations of the regulatory system change the initial conditions for the future of dynamic system from what they otherwise would have been. ***In this way of looking at the economy the idea of equilibrium is of questionable relevance.***” (1990: 1-2, our emphasis);

The research topic to be developed from that perception is bold: an economics without equilibrium (but filled with institutions).

Fifthly, the economics without equilibrium suggested by the blending approach should be, as stated above, an “economics of instability and uncertainty”. While the Schumpeterian perspective allows for the perception of economic dynamics as turmoil, where technological and organizational creative destruction spreads uncertainty everywhere, the financial fragility’s framework shows a straith connection between financial institution’s behaviour and economic instability. The plea for a radical departure from orthodoxy made by both Schumpeter and

³² In an essay celebrating Minsky’s contributions, Fazzari (1992: p. 8) states it very clearly: “in day to day conversations, its clear that Minsky has little patience with interpretations of his cyclical perspective that tie predictions of endogenous instability to “irrational” behaviour on the part of investing firms or financing agents. The behaviour at the micro level may be quite rational, even essential to survival. Banks must seek to expand finance and maintain market power to maintain their position in the competitive struggle. They may be quite aware of increasing systemic fragility, but this problem is a financial externality over which individual agents have no control ”.

Keynes on the basis of analyses of innovation and money is greatly reinforced by Minsky's analysis of banking and finance.

Lastly, if we apply our blending approach to contemporary capitalism or, better, to the *new economy* slice of it, we realize how useful it can turn to be if properly developed. To mention just one aspect lets recall on one hand, Schumpeter's characterization of investment decisions under changing conditions "especially under conditions that change or may change at any moment under the impact of new commodities and technologies" as "shooting at a target that is not only indistinct but moving – and moving jerkily at that" (1996 [1942], 88), and on the other hand Minsky's typical Ponzi unit as one who's "investments are always cash flow negative, and therefore submitted to increasing debt, and who's profits are solely based upon the resale of assets at higher prices". When the two propositions are merged, we have a very promising entry point to access the *Nasdaq's* dynamics, foreign derivative-based lending to Russia or Thailand³³, or the current IPO's fever across new high-tech companies inside the U.S and abroad³⁴.

The "vision" that emerges from that perspective could be one stating the "Ponzification of Capitalism"³⁵, a very distinct vision from Schumpeter's thesis in Capitalism, Socialism and Democracy but, notwithstanding, a distinctly Schumpeterian one. However, when we also recall the inherent limits of predicting in economics, than, we just pause, and withdraw.

³³ Regarding a typical lending operation to a Thai Bank, intermediated by a U.S bank, Kregel's explains: "It is virtually impossible for the US investor to evaluate the use of the funds made by the Thai bank, and there is little incentive for the US bank to do so, since once the issue is sold, the foreign credit and foreign exchange risks are borne by the US investor. The investor is not only subverting prudential controls (on its balance sheet these assets would be classified as exposure to a US entity, with investment grade credit risk), but is in all probability evaluating the return without any adjustment for the foreign exchange risk, even if that risk is recognised as such. There is thus little economic interest or possibility for the market to either assess the risk or the returns of the investment" (1998 c: 681).

³⁴ The latest Lehman Brothers report on *Amazon* is very didactic. It highlighted Amazon's "weak balance sheet, poor working capital management, and massive negative operating cash flow" (cf. L.B report summarized on *The Guardian*, June, 27, 2000). The company numbers reported are: More than US\$ 2.1 bn of junk-bonds debt supported by only US\$ 25.6 m of equity –and that around 20% of the company's assets consist of balance-sheet "goodwill", sums that emerge when a company acquires another company for more than it is worth, writing off the difference against earnings. Far from being ploughed back into business, hundreds of millions of dollars of income are being used simply to service the company's enormous debt. This is exactly the type of profile to which the label *Ponzi* applies.

³⁵ When we point to that, we have in mind players in derivatives who very often make small investments in cash and borrow heavily to finance their asset purchases giving the assets themselves as collateral for their loans; or the fact that today, one third of individual investors on the U.S Stock exchange count on *expected* valuations of their portfolio as base for their *current* debt-enlargement practices.

6- Conclusion

" The task confronting economics today may be characterized as a need to integrate Schumpeter's vision of a resilient intertemporal capitalist process with Keynes' hard insights into the fragility introduced into the capitalist accumulation process by some inescapable properties of capitalist financial structures "
(Minsky, 1986)

Summing up, the main results of our "blending perspective" are a) the establishment, through schumpeterian competition, of a direct link between financial innovation and financial fragility, b) the economy's increasing financial fragility arising as the result of the *rational* behaviour of *each* agent trying to achieve higher profitability and improve its competitive position, c) the establishment of a direct link between financial institution's behaviour and economic instability, d) the suggestion of a new, more comprehensive and perhaps more sophisticated, framework to reflect upon the relationship between finance and development e) the expansion of the research agenda of both approaches by way of cross-fertilization .

To close the paper, let us just suggest that "destabilizing stability", Minsky's favourite slogan, is basically a rephrasing and reframing of Schumpeter's thesis of "capitalism as a victim of its own success", as expressed in his 1928 article and in the 1942's book. Moreover, the "financial fragility hypothesis" should be considered, as stated above, a necessary *macro-dimension* of evolutionary economics. However, the reverse is also truth, namely, that both schumpeterian competition and a dynamic capability's theory of the firm should be absorbed by Post-Keynesian theorizing as its *micro-meso* counterpart .

7- Bibliography

- Allen, P. (1993), "Evolution: Persistence Ignorance from Continual Learning", in Day, R. and Chen, P. (1993), *Nonlinear Dynamics and Evolutionary Economics*, New York, Oxford University Press, pp. 101-112.
- Brenner, R.: 1987. *Rivalry ; in Business, Science, Among Nations*. Cambridge Univ. Press.
- Burlamaqui, L : (1999). " The Institutional Structure of East-Asian Capitalism and its Crisis - A Polanyian approach" in *Proceedings of the European Association for Evolutionary Political Economy - Prague 1999* (also in [http : eape.tuwien.ac.at](http://eape.tuwien.ac.at)).
- Burlamaqui, L and Lagrota, C.(1998). "Evolutionary Macrofinance" paper given in the workshop-Conference *Production Capitalism vs. Financial Capitalism - Symbiosis and Parasitism: An Evolutionary Perspective*, SUM/Oslo. September.
- Chew, L, (1996). *Managing Derivative Risks: The Use and Abuse of Leverage*, New York: John Wiley,
- Collis, D and Montgomery, C :1998. *Corporate Strategy- A Resource-Based Approach*. McGraw Hill.
- Crotty, J. (1994), "Are Keynesian Uncertainty and Macrotheory Compatible? Conventional Decision Making, Institutional Structures, and Conditional Stability in Keynesian Macromodels", in Dymski and Pollin (1994), pp. 105-142.
- Darity Jr., W., (1992), "Financial Instability Hypothesis", in Newman, P., Milgate, M., and Eatwell, J. (eds.), (1992), *The New Palgrave: Dictionary of Money and Finance*, London, Mcmillan, vol. 3., pp.75-6.
- Davidson, P. (1978), *Money and the Real World*, Londres, Mcmillan (2nd ed.).
- Dopfer, K. (1994). "The Phenomenon of Economic Change : Neoclassical vs Schumpeterian Approaches", in Magnusson ed.
- Dosi, G. (1990). "Economic Change and Its Interpretation, or, Is There a "Schumpeterian Approach" ? in Heertje, A and Perlman, M eds *Evolving Technology and Market Structure*. Michigan University Press.
- Dosi, G: (2000) *Innovation, Organization and Economic Dynamics*. E. Elgar.
- Dymski, G. and Pollin, R. (1992), "Hyman Minsky as a Hedgehog: The Power of the Wall Street Paradigm", in Fazzari, S. and Papadimitrou, D. (1992).
- Dymski, G. and Pollin, R. (eds.) (1994) *New Perspectives in Monetary Macro-economics: Explorations in the Tradition of Hyman Minsky*, Ann Harbor, The University of Michigan Press.
- Eatwell, J and Taylor, L: (2000). *Global Finance at Risk*. Polity Press
- Fazzari, S. (1992), "Introduction: Conversations with Hyman Minsky", in Fazzari and Papadimitrou (1992), pp. 3-12.
- Fazzari, S. and Papadimitrou, D. (eds.) (1992), *Financial Conditions and Macro-economic Performance: Essays in Honor of Hyman Minsky*, Armonk, M.E.Sharpe.
- Felix, D. (1996), "Financial Globalization versus Free Trade: The Case for the Tobin Tax", UNCTAD Review.
- Felix, D. (1994), "Debt Crisis Adjustment in Latin America: Have the Hardships Been Necessary?", in Dymski and Pollin (1994), pp. 169-200.
- Foss, N (ed) (1997). *Resources, Firms and Strategies*.. Oxford University Press.
- Gray, H. and Gray, J. (1994), "Minskyan Fragility in the International Financial System", in Dymski and Pollin (1994), pp. 143-168.
- Keen, S. 1995: "Finance and Economic Breakdown: Modeling Minsky's 'Financial Instability Hypothesis' ." In *Journal-of-Post-Keynesian-Economics*;17(4), Summer 1995, pages 607-35.

- Keen, S: 1996. "The Chaos of Finance: The Chaotic and Marxian Foundations of Minsky's 'Financial Instability Hypothesis'" in *Economies-et-Societes*;30(2-3), Feb.-March, pages 55-82.
- Keynes, J. (1936), *A Teoria Geral do Emprego, do Juro e da Moeda*, São Paulo, Nova Cultural (ed. 1985).
- Keynes, J. (1937) "A Teoria Geral do Emprego", in Szmrecsányi, T. (org), (1984), *John Maynard Keynes*, São Paulo, Ática, pp. 167-79.
- Kindleberger: (1974), *The World in Depression*, MIT Press
- Kregel, J. (1994) "Capital Flows: Globalization of Production and Financing Development", UNCTAD Review.
- Kregel, J. (1996), "Some Risks and Implications of Financial Globalization for National Policy Autonomy", UNCTAD Review.
- Kregel, J. (1998 a), "Yes, It' Did Happen Again - A Minsky Crisis Happened in Asia", Jerome Levy Institute Working Paper.
- Kregel, J. (1998 b), "East Asia is not Mexico: the Difference Between Balance of Payments Crisis and Debt Deflations", Forthcoming in *Tigers in Trouble: Financial Governance, Liberalization and Crises in East Asia*, edited by Jomo, K.S, Zed Press.
- Kregel, J. (1998 c), "Derivatives and Global Capital Flows: Applications to Asia", *Cambridge Journal of Economics*, November.
- Kregel, J. and Burlamaqui, L (1999). "Finance, Competition, Instability, and Development". Paper given at the Other Cannon Group Conference, Venice, January 2000.
- Lazonick, W. (1991), *Business Organization and the Myth of the Market Economy*, Cambridge University Press.
- Magnusson, L ed. (1994). *Evolutionary and Neo-Schumpeterian Approaches to Economics*. Kluwer Press.
- Mehrling, P. (1998), "The Vision of Hyman Minsky". Not published.
- Minsky, H. (1957), "Central Banking And Money Market Changes", in Minsky:1982.
- Minsky, H. (1975), *John Maynard Keynes*, New York, Columbia Univ. Press.
- Minsky, H. (1978), "The Financial Instability Hypothesis: An Interpretation of Keynes and an Alternative to "Standard" Theory", in Minsky, H. (1982a), *Can "IT" Happen Again: Essays on Instability and Finance*, Armonk, M. E. Sharpe., pp. 59-70.
- Minsky, H. (1980), "Finance and Profits: The Changing Nature of American Business Cycles", in Minsky, H. (1982), pp. 14-58.
- Minsky, H. (1982), *Can "IT" Happen Again: Essays on Instability and Finance*, Armonk, M. E. Sharpe.
- Minsky, H. (1986), *Stabilizing an Unstable Economy*, New Haven and London, Yale Univ. Press.
- Minsky, H. (1990), "Financing Activity in the 1990's: The Impact of Financial Structures and Initial Conditions upon System Performance", mimeo.
- Minsky, H. (1994), "Integração Financeira e Política Monetária", in *Economia e Sociedade*, vol. 3.
- Minsky, H. (1996), "Uncertainty and The Institutional Structure of Capitalist Economies" Jerome Levy Institute , Working Paper n° 155
- Moss ,S:1981. *An Economic Theory of Business Strategy , An Essay in Dynamics Without Equilibrium*, Halsted Press, John Wiley & Sons.
- Nelson, R and Winter, S: (1982), *An Evolutionary Theory of Economic Change*, Harvard University Press.
- Papadimitrou, D. (1992), "Minsky on Himself", in Fazzari and Papadimitrou (1992), pp. 13-26.
- Penrose, E: 1995[1959]. *The Theory of the Growth of the Firm*, Oxford.
- Roberts, R (1999). *International Finance*. Orion Press .London.
- Rumelt, R, Schendel, D, and Teece, D. (eds) (1995). *Fundamental Issues in Strategy*, Harvard Business Press.
- Schumpeter, J: 1996 [1942] *Capitalism, Socialism and Democracy*, Routledge.
- Schumpeter: 1951[1928] "The Instability of Capitalism" in Clemence, R ed.
- Shackle, G.L.S. (1992 [1972]): *Epistemics and Economics*. Transactions Books. London.
- Shionoya. Y :(1997), *Schumpeter and The Idea of Social Science* , Cambridge University Press.

- Swedberg, R: (ed) (1991) Joseph A. Schumpeter - The Economics and Sociology of Capitalism.
- Swedberg: 1991 *b.*..Schumpeter, A Biography. Princeton Univ Press, N. J.
- Teece,D; Pisano,G and Shuen, A: (1997) [1992]. "Dynamic Capabilities and Strategic Management". in Foss (ed) (1997).
- Tobin, J. (1989), "Review of Stabilizing an Unstable Economy", Journal of Economic Literature, vol. XXVII, n° 1, pp. 105-8.
- Vickers, D: (1994). Economics and the Antagonism of Time. Michigan University Press.
- Winter, S: (1986). "Comments on Arrow and Lucas" *in* Hogarth and Reder eds. Rational Choice: The Contrast between Economics and Psychology. Chicago University Press.