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Institutional Prerequisites of Financial Fragility within Minsky's Financial Instability Hypothesis: A Proposal in Terms of "Institutional Fragility"*

by

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ABSTRACT

The relevancy of Minsky's Financial Instability Hypothesis (FIH) in the current (and still unfolding) crisis has been clearly acknowledged by both economists and regulators. While most papers focus on discussing to what extent the FIH or Minsky's Big Bank/Big Government interpretation is appropriate to explain and sort out the crisis, some authors have also emphasized the need to consider the institutional foundations of Minsky's work (Whalen 2007, Wray 2008, Dimsky 2010). The importance of institutions within the FIH was strongly emphasized by Minsky himself, who assigned them the function of constraining the development of financial fragility. Yet only limited literature has focused on the institutional aspects on Minsky's FIH. The reason for this may be that they were mainly dealt with by Minsky in his latest papers, and they have remained, to some extent, incomplete, unclear, and even ambiguous. In our view, a synthesis of Minsky's proposals, along with a clarification and theoretical justification, remains to be done. Our objective in this paper is to contribute to this theoretical project. It leads us to propose that the notion of "institutional fragility" can constitute a useful perspective to complement and justify the endogenous development of financial fragility within the FIH. Eventually, this view may contribute to the debate about international financial governance.

Keywords: Financial Crisis; Financial Fragility; Institutional Fragility; International Financial Governance

JEL Classifications: G01, G20, G28

INTRODUCTION

The current financial crisis has sparked renewed interest in the work of HP Minsky, both in the discourse of regulators and in the economic literature.[1] While most commentators use Minsky's contributions in analyzing the mechanisms of the crisis, some publications also emphasize the value of his work on institutional mechanisms for examining the origins of this crisis (Whalen 2007; Wray 2008; Dimsky 2010). It may seem surprising that the institutional foundations of the Financial Instability Hypothesis (FIH) feature little in the literature, especially in view of the importance Minsky himself attributed to them: "institutions must be brought into the analysis at the beginning; useful theory is institution specific."[2] More specifically, the dynamic described by the FIH is sustained by mechanisms of institutional character.

It will be recalled that the FIH describes an endogenous crisis dynamic involving two "theorems." The first theorem defines the financial fragility criteria based on a well-known balance-sheet typology: "hedge", "speculative" or "Ponzi" finance. This characterization reflects the capacity of economic entities to service their debt from their operating cash flows. Balance-sheet fragility varies with the structure of liabilities (degree of debt) and the quality of the investments, since the entity's profit-making capacity is dependent on the latter. The speculative or Ponzi finance may be due to two situations. The first, "*a priori* speculative," is the result of a non-viable debt structure, which is known when the contract is signed. The second, that might be characterized as "potentially speculative," corresponds to finance whose cost is dependent on potential future changes in market conditions (Arestis and Glickman 2002): thus, the occurrence of maturity mismatch or currency mismatch implies that a depreciation in the domestic currency (a) or an increase in interest rates (b) may make what was initially cautious financing unsustainable, because it is denominated in a foreign currency—the investment giving rise to flows in domestic currency—(a) or because the renewal of a short-term debt (investment being long-term by nature) raises the cost of borrowing (b) the degree to which the finance package depends on market conditions, the make-up of the liabilities, and the quality of the investment thus determine the degree of

[1] C. Noyer, for example, returns to the FIH in the preface to the *Revue de Stabilité Financière* (Banque de France 2009) or the onset of the 2007 liquidity crisis is characterized as a "Minsky moment" (Whalen 2007; Magnus 2007).

[2]Minsky cited by Papadimitriou and Wray (1997). See also Minsky (1992 a), Delli Gatti, Gallegati, and Minsky (1994), Minsky (1996), Minsky and Whalen (1996).

risk inherent in the financing structure, and hence the cautious or fragile character of the economic entities. The greater the number of speculative or Ponzi entities in the "spectrum" of balance sheets, the more fragile the economy: that is the first theorem of the FIH. The second theorem predicts that "over a protracted period of good times, capitalist economies tend to move from a financial structure dominated by hedge finance units to a structure in which there is large weight to units engaged in speculative and Ponzi finance" (Minsky 1992 b, p.8): a dynamic of increasing financial fragility kicks in; it continues up to a threshold that triggers the turn-around in the cycle, which itself is endogenous (Nasica 1997; Brossard 2001)[3]. Because balance sheets in a capitalist economy are interdependent, this turn-around triggers a financial crisis which, in the absence of any effective intervention ("Big Bank" and "Big Government") takes the form of cumulative debt deflation.

The financial instability hypothesis as described by Minsky is therefore part of an endogenous dynamic involving increased financial fragility during the upward phase of the cycle. The drivers of this pro-cyclicality of risk taking lie for Minsky in two factors:

- "the internal dynamics of capitalist economies";
- and "the system of interventions and regulations that are designed to keep the economy operating within reasonable bounds"[4].

These two factors are the characteristics of institutional systems in capitalist economies. The development of financial fragility then appears as a dynamic anchored in the unsuitability or inefficiency of the existing institutional forms. Vice versa, only an appropriate development of the institutional system can stem the crisis dynamic. This may be summarized: "Endogenous interaction can lead to incoherence and the impact of institutions and interventions aim to contain these thrusts towards incoherence." Delli Gatti, Gallegati and Minsky 1994, p.3).

Given the key role of the institutional mechanisms in the FIH and the importance Minsky attributes to them, it may seem surprising that these proposals have not been discussed more.[5] One possible explanation for the comparative absence of these themes in work inspired by Minsky may be that they have been mainly dealt with by Minsky in his latest papers, and they have remained to some extent incomplete, unclear and even ambiguous. In our view, a synthesis of Minsky's proposals, along with a clarification and

[3] Nasica (1997) and Brossard (2001) show that when the level of fragility exceeds a certain level of sustainability, the interest rate rises endogenously, triggering a turn-around in the cycle and fueling the crisis mechanisms.
[4] Minsky (1992b), p. 8.
[5] Padadimitriou and Wray (1997), Arestis (1996), Whalen (1999), Arestis, Nissanke and Stein (2003) or again Thabet (2004) are notorious exceptions to this remark.

theoretical justification, remains to be done. Our objective, in this paper, is to contribute to this theoretical project.

This involves answering three main limitations we see in Minsky's institutional developments. The first is the absence of a clear definition of institutions. The second is the absence of a global approach of the institutional mechanisms underlying the FIH. The third is the character intuitive of Minsky's institutional developments. This paper will address these three points in turn: section 1 proposes a definition of institutional forms of financial systems that is consistent with the Minskyan approach. Section 2 is a summary of the main institutional mechanisms employed by Minsky, integrating them in the endogenous dynamic described by the FIH. Finally section 3 is an interpretation of these results in the light of recent economic work that looks to show both the modernity of Minsky's intuitions and their relevance in the current context.

These proposals are based on a careful reading of Minsky, on a critical examination of subsequent complementary developments about Minsky's contributions on institutions,[6] and on a personal interpretation.

1. MINSKY'S IDEA OF AN INSTITUTION: CENTRALITY AND AMBIGUITIES

Coming up with a definition of the idea of institutions in Minsky's work first involves shoring up the argument that this dimension is both central to his proposal and is formalized rather hazily. That is the purpose of this first point.

i. An Idea that is asserted as Central

The central position Minsky attributed to the question of institutions may be inferred from assertions and recollections about Minsky and from his writings. In a paper paying tribute to Minsky a year after his death, Papadimitriou and Wray (1997) emphasized the fundamental character of the question for him:

> He [Minsky] wanted to distance himself from a tendency in Post Keynesian economics to push institutions into the background in order to develop 'general theories'. […] According to Hy [Hyman Minsky], institutions must be brought into the analysis at the beginning; useful theory is institution-specific." (Papadimitriou and Wray 1997, pp.3-4) (Emphasis added).

[6] Especially Arestis and Glickman (2002); Arestis, Nissanke and Stein (2003); Whalen (1999); Nissanke and Stein (2003); Thabet (2006).

Tracing the construction of his theoretical proposals over half a century, they underscore the omnipresence of institutions in Minskyan analysis, which, they claim, is one of Minsky's main contributions to economics, as they put it: "The Economic Contributions of Hyman Minsky: Varieties of Capitalism and Institutional Reform."

The question of institutions is addressed in the very first significant publication by Minsky (1957). He posits the principles of the intervention of institutions in the development of instability: institutional innovation, coupled with the motive of profit, is a potential source of instability. Institutional innovation, which can take the form of both new form of financing and new substitute to liquid assets, decreases the liquidity of the economy. Apart from this first formulation, which was to be refined subsequently, the argument attests to the preliminary character of this question in Minskyan analysis.

However, it was in his final writings that Minsky most clearly placed institutions at the heart of his analysis and his Financial Instability Hypothesis (FIH). The titles of papers published between 1992 and 1996[7] illustrate this primacy: "The capital development of the economy and the structure of financial *institutions*" (Minsky 1992 a),

> "Financial *Institutions*, Economic Policy and the Dynamic Behavior of the Economy" (Delli Gatti, Gallegati and Minsky 1994),
>
> "Uncertainty and the *Institutional Structure of Capitalist Economies*" (Minsky 1996),
>
> "Economic Insecurity and the *Institutional* Prerequisites for Successful Capitalism" (Minsky and Whalen 1996). (Emphasis added)

This final paper, whose evocative title suggests that institutional development may be a way out of the endogenous mechanisms of financial instability, may be seen as a legacy for economists looking to pursue his analyses: understanding the role of institutions of financial systems is the pathway Minsky indicated for taking his "Financial Instability Hypothesis" forward.

The idea of institutions, which therefore appears central, being both preliminary to and omnipresent in Minsky's work, is dealt with somewhat ambiguously though. Papadimitriou and Wray, who devoted a 1997 paper in tribute to Minsky's "institutional" contributions to economics, yet do not really provide a clear definition or description of its mechanisms. A reading of Minsky and more especially of his final papers leaves a feeling of a "work unfinished," in which Minsky opens up the way for further inquiry, as an extension

[7] H.P. Minsky died on 24 October 1996.

of his own development and to which this paper it is hoped will contribute.[8] Minsky posits the hypothesis that institutions play a fundamental role in the process of financial fragilization; he describes the major principles of this; but work is still required to synthesize, formulate and define these elements within the FIH and sometimes to clarify them too. What follows is an endeavor to do this.

ii. The Notion of Institutions: Functions Rather than a Definition

One of the sources of imprecision in the analysis of institutions in Minsky lies in the absence of any formal definition of institutions. Institutions are characterized principally by the function Minsky ascribes to them: that of stabilizing the economy by countering the process of financial fragilization at work in the FIH. This stabilizing function is described on several occasions. It consists in warding off or halting the process of financial instability in the FIH, as Minsky asserted in 1986:

> Instability is due to the internal processes of our type of economy. The dynamics of capitalist economy […] leads to the development of conditions conducive to incoherence […]. But incoherence need not to be fully realized because institutions and policy can contain the thrust to instability." (Minsky 1986 a, p.11)

This function is taken up and clarified subsequently:

> In a world where the internal dynamics imply instability, a semblance of stability can be achieved or sustained by introducing conventions, constraints and interventions into the environment." (Ferri and Minsky 1991 p.20)

> To contain the most evident evils that market systems can inflict, capitalist economies have developed sets of institutions and authorities, which can be characterized as the equivalent of circuit breakers. These institutions in effect stop the economic processes that breed the incoherence, and restart the economy." (Delli Gatti, Gallegati and Minsky 1994, p.5)

Minsky thus ascribes a stabilizing function to institutions as "circuit-breakers," designed to counter the crisis dynamic or to halt the mechanisms behind it. The articles from 1992 to 1996 mentioned before point to two ways in which institutions ensure this function: one for cure, the other for prevention, each being described and analyzed in detail. The first

[8] It is hoped that this partly 'interpretative' paper will not denature the spirit of Minsky's proposals. At any rate, the approach here seems consistent with that favored by Minsky, as related by Padimitriou and Wray (1997): "Hy [Hyman Minsky] had little use for pure exercises in "history of thought", rather, he always argued that he stood "on the shoulders of giants", like Keynes, Schumpeter, and Simons. […] Whether he got their theories "right" was a matter of little consequence to him, for he used their contributions only as a springboard for his own analysis."
And their wish for their paper applies to the present paper: "Thus, it is with some trepidation that we attempt to do what Hy avoided and even disdained: to lay out the ideas of a giant--and surely Hy does qualify as a giant on whose shoulders we can stand. However, we note that he did enjoy being the topic of analysis and was always kind to authors even when they got Minsky 'wrong'. Thus, we have reason to believe that he would have enjoyed the following, even where it may be flawed."

(cure) consists in public intervention in the event of crisis in the form of a lender of last resort ("Big Bank") and socialization of investment ("Big Government"). The aim is to "restart the economy" and to influence agents' expectations so as to halt the self-sustaining debt deflation mechanisms. Minsky uses the image of electronic circuits to summarize this first stabilizing function:

> The economic incoherence containing mechanisms may be considered to be analogous to electronic circuits that prevent perverse feed backs: by halting endogenous processes they impose new initial conditions within which the structure will generate an alternative, presumably more satisfactory, future. (Minsky 1992 a, p. 12)

The second means by which institutions can intervene against the instability dynamic is "preventive." Institutions act on the "destabilizing" forces of financial systems, that is, the process of financial fragilization underlying the FIH (the second theorem). Depending on the form and effectiveness of the institutions of the financial systems, the fragilization process develops or on the contrary is curbed. In the FIH, the endogenous crisis dynamic depends in part therefore on the degree of effectiveness of the institutional forms within the financial system. The causal relationship between the effectiveness of (stabilizing) institutions and the development of the instability dynamic is thus asserted:

> [T]he aptness of institutions and interventions will largely determine the extent to which the path of the economy through time is tranquil or turbulent. (Delli Gatti, Gallegati and Minsky, 1994 p. 7)

From the description of the stabilizing function Minsky attributes to the institutional system, it can also be inferred that the recurrent character of crises is also the result of the variable "aptitude" of institutions to play their part: instability is supposedly not inexorable but depends on how effective institutions are. This perspective markedly alters the understanding to be had of the FIH and explicitly sets institutions at the heart of its dynamic. The FIH is often likened to a "*grim prophecy*" in which one crisis inevitably follows another. It appears on the contrary that the endogenous character of the renewal of episodes of crisis is dependent on the institutional system in place. Let us recall the rationale behind the FIH. The endogeneity of instability rests on a self-sustained dynamic of financial fragilization in the upward phase of the cycle. When financial fragility reaches a certain "threshold," the cycle turns around and a cumulative debt deflation dynamic kicks in. The integration of the role defined above in the institutions within this dynamic leads to it being considered that the

actual realization of the financial fragilization process, which is endogenous to the capitalist system, depends on the effectiveness of the institutional system, that is, on its aptitude to counter the dynamic. The inclusion of institutions in the FIH thus suggests a new agenda. In this perspective, the FIH is still taken to be endogenous, in the sense that the crisis is not the result of external shocks; however, endogenous does not mean inexorable: the instability dynamic depends on the appropriate action (or otherwise) being taken by the institutions. Minsky posits the bases of this analysis:

> The financial instability hypothesis is a model of a capitalist economy which does not rely upon exogenous shocks to generate business cycles of varying severity. The hypothesis holds that business cycles of history are compounded out of (i) the internal dynamics of capitalist economies, and (ii) the system of interventions and regulations that are designed to keep the economy operating within reasonable bounds. (Minsky 1992 b, p.8).

Components (i) and (ii) account for two institutional mechanisms that can be identified in the cyclic dynamic of the FIH. Before discussing their role in the FIH, we will, in the next section, try and clarify the notion of institution itself in Minsky's approach.

2. THE NOTION OF INSTITUTIONS: PROPOSED DEFINITION BASED ON COMMONS

Minsky's analysis gives little space to the definition of institutions. Minsky concentrates rather on examining how institutions perform the stabilizing function he attributes to them. A tentative definition may, however, be inferred from Minsky's references and from the cursory characteristic features he proposes. We suggest that bringing together these features and the approach of American Institutionalists, especially of Commons, yields a consistent characterization of institutional forms as mobilized by Minsky.

The coherence we see in this lies first in Minsky's assertion, in one of his last papers (Minsky 1996). The reference to the American Institutionalists and to Commons in particular is explicit. He emphasizes Commons' affinities with Keynes and subsequently with his own analyses.[9] Citing Keynes, Minsky asserts this closeness of views:

> Keynes' letter to John R. Commons illustrates the affinity between the economics of Keynes and the American Institutionalist. This affinity is as relevant now as it was when Keynes wrote to Commons: 'The current crisis of performance and confidence in the rich capitalist countries make it necessary, once again to think about the institutional prerequisites for successful capitalism'. (Minsky 1996, p. 1)

[9] For a discussion of the ties between Keynes and Commons, see also Tymoigne (2003).

The anchoring of the institutional foundations of Minsky's analysis in the approaches of the American institutionalists is also supported by Thabet (2003) and by Arestis, Nissanke and Stein (2003). The institutional forms that Minsky (summarily) describes the ways they are involved and the analysis "in history" seem to confirm this lineage. Let us run through these three points.

i. Characterization of Institutional Forms and Modes of Action

As defined by Commons (1931), institutions are collective actions that guide (or control) individual actions. They include control that may refrain action and incentives that may prompt action (Guéry 2001). In a complementary way, these collective actions (guiding or controlling) correspond to two forms of institutions (Commons 1931), encompassing the rules and the organizations from which they emanate or which are tasked with enforcing them:

- "*unorganized custom*" or informal institutions, including in particular social practices, routines and habits as well as norms;
- and "*going concerns*" or formal institutions, including, say, government, central banks, etc.

What makes these rules and organizations institutions in Commons' sense is their "guiding" action (control and incentive) for individual actions. This perspective recurs in Minsky. It is particularly explicit in the model he proposes with Delli Gatti and Gallegati (1994): agents' behavior is defined as reflecting their search for profit (incentive inherent to the market system) and the constraints resulting from institutions' actions ("impact of interventions, controls and constraints," ibid p.8.). The terms used are an affirmation of the reference to Commons.

The features characterizing institutions, provided by Minsky, succinct as they are, also seem to refer to Commons' definition. Minsky breaks down institutional forms into three categories (Delli Gatti, Gallegati and Minsky 1994, p. 6):

- the authorities ("*legislation*") that lay down the law;
- "*administrative actions*" (that control its enforcement);
- "*the institutions and usage that are due to the past behavior of market participants*".

These are described as corresponding to the rules, to the organizations that define them and to those that oversee their application. These three components thus fit plainly, if not explicitly, into the two categories defined by Commons. The third form may be likened to the informal institutions or "unorganized custom" defined by Commons (institutions and

usages), while the first two correspond to informal institutions or "going concerns" (administrations and authorities).

The reference to Commons, asserted or inferred from the terms and the characteristic features provided by Minsky in various papers seems to help to clarify the conceptual framework of his approach and the definition of institutional forms. However, just what these institutional forms cover still has to be specified and described. The subsequent developments of Arestis answer this.

Arestis, Nissanke and Stein (2003) and Nissanke and Stein (2003) examine the role of institutions in financial crises as an extension of Minsky's work. Their analysis is explicitly rooted in Minsky's FIH. They draw on a definition of institution from the work of the American institutionalists (by reference to Commons and Veblen), which is consistent with our own reading of things. They base their study on an analysis of the development of financial systems, adopting a historical perspective that is also characteristic of Minsky's approach (as shall be seen in subsection (ii).

More specifically, Arestis (2003 et al.) clarify Minsky's summary description of the three "institutional forms." They identify five components of the institutional structures of financial systems: (a) norms, (b) incentives, (c) rules, (d) oversight and (e) the regulatory organizations that lay down rules and laws, defined as:

- Usages or norms are habits of thought that arise, in the context specific to each financial system, from "social esteem and sanctions" associated with the exercise of financial professions;

- Incentives are the rewards and penalties resulting from the behavior of agents. Financial variables such as interest rates are one dimension of the incentives influencing the actors in financial systems. Promotions, losses (or gains) in social esteem, legal repercussions, threats of ostracism, etc. are also forms of incentive operating within financial systems;

- Rules or regulations are legal bounds that delimit the financial operations performed. They include prudential regulation, accountancy and auditing standards, obligations as to insurance and net worth, licensing procedures, interest rate supervision, interbank markets, financial securities, but also property law and bankruptcy law;

- Oversight capacities are the ability of members of the control organizations to maintain effective control. Their mission is to ensure compliance with the rules and regulations. They include in particular auditors and supervisory agencies of financial market actors;

- Regulatory organizations are legally recognized bodies tasked with laying down rules and laws. They include in particular the state's regulatory agencies.

This institutional structure of financial systems, broken down into five forms, fits in with Minsky's three categories. The first three (usages, incentives and rules) come under the notion of "incentives and usage" proposed by Minsky. The other two (oversight and regulatory organizations) coincide with the two categories used by Minsky (administration and authorities) and make them explicit. Table 1 summarizes this extension. The resulting categorization is a formalization of the institutional structure of financial systems. In conjunction with the fundamental reference to Commons, it provides, we feel, a theoretical framework and it extends and clarifies the definition of institutional forms in Minsky's approach.

Table 1 – Institutional Structure of Financial Systems

<table>
<tr><th>Commons</th><th>Minsky</th><th>Arestis, Nissanke and Stein (2003)</th></tr>
<tr><td rowspan="3">Unorganized custom</td><td rowspan="3">"Institutions & usage"
(orthodox barrier)</td><td>(a) Norms</td></tr>
<tr><td>(b) Incentives</td></tr>
<tr><td>(c) Regulations</td></tr>
<tr><td rowspan="2">Going concerns</td><td>"Administrative action"
(enforcing rules & norms)</td><td>(d) Capacities (surveillance)</td></tr>
<tr><td>Authorities ("Legislation")
(edicting rules & norms)</td><td>(e) Regulatory Organizations
(edicting rules & norms)</td></tr>
</table>

ii. An Analysis "in History"

A last fundamental element of definition of Minsky's institutional approach lies in an "in history" approach. This characteristic of what defines Minsky's institutional approach also asserts, in our view, the lineage in the analyses of the American Institutionalists. Minsky's "in history" approach is anchored in an analysis which seeks its validity in economic facts through history: any economic analysis must be context specific. This finds its concretization in the analysis of the economic context through that of the forms of capitalism or the "stage of development of capitalism" reached by the economy under study. This concern is an essential characteristic of Minsky's economic analysis of institutions as also attested by Papadimitriou and Wray (1997):

> Minsky realized the importance of explaining the new form(s) of capitalism with which he was concerned, and, in particular, with identifying the reasons why the forms of post-war capitalism were so different from that which existed before WWII. Again, the difference is institutional. (p.15)

This historical approach reasserts, in our view, the proximity between Minsky and Commons and more specifically between Minsky and Keynes' reading of Commons, as shown by Thabet[10] (2004 p.8):

> Keynes was inspired by Commons' non-Marxist conceptualization of the economic process, circumscribed by the existence of 'three epochs, three economic orders, the third being that upon which we are entering'.

Minsky takes up this approach identifying the epochs or economic orders that followed the first three epochs identified by Keynes. He identified them as stages of capitalism; he formally described the criteria for identifying them and situated them (Minsky and Whalen, 1996; Whalen, 1999). To the three epochs, Minsky added new stages that extended the Keynesian historical approach—inspired by Commons—through to the 1990s.

Minsky more especially formalized this approach in his last papers, rooted in the "institutional" line he was working on. Minsky and Whalen (1996) developed a "theory of capitalist development" later formalized by Whalen (1999). This theory fulfills the objective of conducting "an analysis grounded in history and institutional reality" (Whalen ibid, p.2). It is also consistent with the theoretical anchorage we attribute to Minsky's institutional analysis which recalls that Keynes, like the American Institutionalists, defines the "problem" the economic theory must explain as a path through the development of a cumulative capitalist economy through history.

The historical line taken by Minsky involves two components: the first is to develop an economic analysis designed as a process occurring over the course of time; the second is to consider that capitalist dynamics may take on many forms[11] (Whalen 1999). The articulation between the development of capitalism, institutional forms, financial innovation and dynamics at work in financial systems is therefore at the heart of this history-based approach.

Minsky elaborates this analysis of the development of capitalism by studying the changing economic systems of the United States between 1929 and the 1990s. This led him to identify five stages in the development of capitalism: (1) merchant capitalism, (2) industrial capitalism, (3) banker capitalism, (4) managerial capitalism and (5) money manager capitalism (5). Each of these stages corresponds, in the United States, to a period

[10] Thabet documents the connections between this quotation from Keynes and Commons' writings.
[11] By reference to an advertisement for the Heinz brand and its 57 condiments, Minsky repeated that "capitalism comes in as many varieties as Heinz has pickles". Reported by Whalen (1999), p.3.

from 1929/1933 through to the 1990s.[12] Beyond this classification, the value of this approach lies to our mind in the characterization of the forms of capitalism by five clearly defined criteria (cf. table 2 below). These criteria are aimed principally at identifying the form (and bodies) of finance that dominate the financial systems. It seems to us that criterion (ii)—pivotal sources of financing—is the decisive factor in determining the forms of capital in question. This criterion also has the advantage of being quantifiable[13].

This specification of the historical context through the "characterization of the stage of development of financial systems" is, in our view, a fundamental characteristic of Minsky's institutional approach. By identifying the significant changes in financial systems it also points to the institutional adjustments required to counter the financial fragilization dynamic.

[12] This development is associated with the growing use of outside financing by firms, a change in the ownership structures of firms and of their forms, and growing financial innovation (cf. table 2 below). This analysis leads Minsky to explain the differences observed in terms of stability and growth between the pre- and post-1945 periods and to judge the financial situation, the institutions and economic policies of the US in the 1990s, an age, for him, of "money manager capitalism."

[13] Wray (2008) illustrates this and emphasizes its relevance in the present context. Wray (2008) does not formally mobilize all of the institutional factors examined here. However, he does concur in the need to give ample scope to the historical context. He takes up Minsky's classification of the stages of capitalism to characterize the context. The identification of a form of capitalism is based mainly in his study on a measure corresponding to Whalen's criterion (ii) (source of finance): he evaluates the distribution of assets in the financial system by type of organization (deposit banks, insurance companies, pension funds, mutual funds, non-bank lenders, brokers). Wray's results seem to confirm the relevance of this characterization of the historical context, their current applicability and so their modernity. They also confirm, in our view, that the "historical context" may be defined and evaluated on the basis of the change in forms of financing of the financial systems, this criterion (ii) of Whalen being preponderant as we see it.

Table 2 - STAGES OF CAPITALIST DEVELOPMENT (Whalen 1999)

	MERCHANT CAPITALISM	INDUSTRIAL CAPITALISM	BANKER CAPITALISM	MANAGERIAL CAPITALISM	MONEY-MANAGER CAPITALISM
What Distinctive Activity is Financed?	Transportation of Goods; Acquisition of Inventories; Goods Production	Industrial Expansion (Acquisition of Factories and Machines)	Industrial Consolidation (Trusts and Mergers)	Macroeconomic Growth and Stability	Increase of Stock —Market Values and Corporate Profits (Often Involves Merger, Buyout or Break-up)
What is the Pivotal Source of Financing?	Commercial or Merchant Bank	Investment Bank	Investment Bank	Central Bank	Institutional Investment Funds (Pension & Mutual Funds)
What is the Fundamental Enterprise or Entity Financed?	Proprietorship and Partnership	Industrial Corporation	Combined Corporation	Private Sector (Financed through the Banking System; Conglomerate Form Dominates in Business)	International Corporation
What Group Holds the Greatest Economic Power?	Power is Dispersed (Merchants and Bankers)	Investment Bankers	Investment Bankers	Corporate Managers (Assumes Government Macroeconomic Coordination)	Money-Fund Managers
What is the Distinctive Input?	Labor	Machinery	Management (Coordination of the Industry and the Firm)	Macroeconomic Coordination by Government; Microeconomic Coordination by Business Managers	Expertise in Finance and Accounting

Source: Whalen (1999 p.11)

This detailed (and sometimes interpretative) reading of Minsky, of recollections of his convictions, as recounted by academics who worked with him, and of the work of scholars who extended his research, seems to us to provide a formal and theoretical framework for understanding the role of institutions with respect to the financial instability hypothesis. A connection with the American Institutionalist approach and more especially with Commons is indicative of a line of descent that is besides explicitly stated and provides a framework and a definition of what Minsky's institutional approach covers, through three main characteristics:

- the analysis must be made “in history”, through a characterization of “the stage of development of financial systems”;

- institutions act by guiding (“control”, “constraint” and “incentives”) the actions of economic agents;

- institutions are defined as “institutional forms” rooted in the “going concerns” and “unorganized custom” described by Commons.

It remains to be specified what these institutional forms include. The developments, of Minskyan inspiration, by Arestis meet this need for clarification that we saw in Minsky’s definition of institutions.

The first limit we saw in Minsky’s institutional approach lay in the absence of any clear definition of what this approach involved. While Minsky asserted the function he assigned to institutions was to stabilize the economy by countering the fragilization dynamic of the FIH or by halting the debt-deflation mechanisms in the event of a crisis, the definition of institutional forms, their characterization and more generally the right way to analyze them were not the subject of any formalized presentation. However, a number of elements, contributing to such a definition are present. But they are dispersed in several publications, providing avenues for interpretation rather than any clear framework.

This first section, by providing a synthesis of these elements, helps in our view to address this point. By doing so, we have asserted the proximity between those characteristic elements and the work of the American Institutionalists, and of Commons in particular. This proximity attests to a lineage that is explicitly stated for that matter. Accordingly, this analysis allows us to propose a characterization of institutional forms and of the line of analysis of the role of institutions in the FIH included in Commons’ contributions. The institutions are defined by five institutional forms corresponding to the extension of the going concerns and unorganized custom of Commons and by a dynamic analysis of these forms grounded “in history.” This perspective seems to both clarify Minsky’s approach and to confirm its theoretical coherence, while its piecemeal and imprecise character made this doubtful, thus answering “our” first limit (absence of any clear definition).

It is now time to examine the ways these five institutional forms are involved and how this historical dynamic contributes to an understanding of the FIH. Although more explicit and developed, these elements remain piecemeal and there is not, to our knowledge, any overall summary of them. The next section will set about making such a synthesis and lead us to propose a notion of “institutional fragility” before, in a final section, discussing the insights and theoretical justification provided by recent research.

3. MEANS OF INTERVENTION OF INSTITUTIONS IN THE FIH: THE NOTION OF "INSTITUTIONAL FRAGILITY"

In Minsky's financial instability, during long periods of prosperity, economic entities take up "speculative" positions: financial fragility gradually increases. Macroeconomic instability is presented as being fundamentally endogenous. But two complementary processes, of an institutional character, are actually behind financial fragilization. If we recollect Minsky's fundamental hypothesis, these two mechanisms are identified as the internal dynamics of capitalist economies and the system of interventions and regulations:

> The financial instability hypothesis is a model of a capitalist economy which does not rely upon exogenous shocks to generate business cycles of varying severity. The hypothesis holds that business cycles of history are compounded out of (i) the internal dynamics of capitalist economies, and (ii) the system of interventions and regulations that are designed to keep the economy operating within reasonable bounds. (Minsky 1992 b, p.8)

The first dynamic (i) corresponds to what might be identified as "spontaneous" mechanisms and the second (ii) as "intentional" mechanisms. These two "dynamics" correspond respectively to the action of informal (usage and incentives) and formal (rules, authorities and regulatory organizations) institutional forms presented above. We describe in turn what each of these two mechanisms consists in.

i. "Internal Dynamics of Capitalism": The Procyclicality of Risk Taking

The first mechanism behind financial fragilization relates the occurrence of an upward economic cycle ("a protracted period of good times") to the trivialization of risk taking. This mechanism results from the intervention of the first two institutional forms of the scheme proposed here: (b) incentives and the usages (a) norms, that is, "informal" institutional forms.

Capitalist financial systems contain within themselves, for Minsky, a number of risk-taking incentives: differentials in interest rates (short rates lower than long rates) and financial innovation (development of new financial instruments, financial engineering), provide possibilities and incentives for committing to speculative positions (long rate–short rate arbitrage, for example). More generally, as greater risk is rewarded by greater returns and the fundamental hypothesis is that agents are out to make profits, it follows that agents have incentives to take risks; that is the first characteristic inherent to capitalism.

In "normal times," this incentive to take risks is countered by an "orthodox barrier" of prudent usage. Such "financial orthodoxy" is constituted by custom and usage (a) about coordination and decision making within the financial system. It overarches the prudential

principles on which banks, financial intermediaries and firms base their financing decisions and their investment choices. Now, for Minsky, in the course of extended periods of prosperity, such "usages" are relaxed under the effect of the euphoria of success, leading to an underestimation of the risk of default and the adoption of optimistic expectations of profit. In this schema of financial decision making, the aggregate level of risk in the financial system therefore results from the agents' appraisal of risk, which Minsky names the "orthodox barrier." This implies that, according to the degree of confidence the agents have in the system, what counts or does not count as prudent investment and financing structures (debt) depends on the usage within the various financial entities. Now, in good times such cautious usages are relaxed: risk is underestimated. The explanation Minsky proposes lies in the idea that risk taking increases because

> Successful operation of the economy, defined as an interval in which no serious financial crisis and no serious depression occur, is taken to imply that the current institutional structure is less crisis and depression prone than the structure of earlier times. (Minsky 1991 p.17)

Consequently risk taking is trivialized, the quality of investments declines (selection of increasingly risky projects) and speculative and Ponzi financing develops.

The combination of (a) incentive to take risk and (b) relaxation of prudential usage in good times is therefore an inherent (endogenous) force of the capitalist system, which is behind financial fragilization for Minsky, and which he denotes as (i) the "internal dynamics of capitalist economies" (Minsky 1992 b, p.8). This first institutional mechanism of financial instability describes the modes of intervention of "informal" institutional forms (institutions and usages).[14] It corresponds to a dynamic within the system or a "spontaneous" dynamic.

ii. "System of Interventions and Regulations" and the Evolution of Capitalism

The second dynamic sustaining the financial fragilization process under the FIH arises from the action of the system of interventions and regulations, that is, from the formal institutions (c) regulations, (d) oversight capacities, and (e) regulatory organizations. If the system is effective, it acts as a "circuit breaker," that is, it counters the first mechanism (the internal dynamics of capitalist economies) which promotes risk taking: these institutions are a stabilizing force. But under the effect of innovation and development of capitalism, Minsky argues that the structure becomes inoperative.

[14] Delli Gatti, Gallegati & Minsky (1994) proposed a model of this mechanism. It shows that the change in usage and behavior arising from a degraded and optimistic perception of risk determines financial fragilization and explains the incoherent behavior of the financial system (crisis and cumulative depression).

If the institutional system is complete (and effective), then the cyclical risk-taking dynamic is contained. To prevent instability, it "would suffice" to develop a complete institutional system, which notably includes prudential rules, observance of the rules and of the effective regulatory instances. To be complete, the institutional structure must apply to all of the agents of the financial system: banks, financial intermediaries, investment funds, etc. This control therefore involves prudential regulation of banks but also shows up the need to regulate the other actors of the financial system and more especially the agents that emerge from the evolution of financial systems and financial innovation.

This is the stumbling block for the effectiveness of the institutional system: such a system can only be effective if it is constantly adjusting to the development of the financial system and to innovation. This idea is asserted by Minsky:

> [T]he Keynesian view recognizes that agents learn and adapt, so that a system of intervention that was apt under one set of circumstances can become inept as the economy evolves. (Minsky 1991, p.7)

The effectiveness of an institutional system can only be evaluated in a historical perspective, based on the analysis of the stages of development of the financial system in question. So under the effect of the evolution of financial systems (change in the form of capitalism), an institutional structure that might so far have countered the dynamic of financial fragilization becomes inoperative as it is no longer suited to the new form the financial system has attained.

Innovation (both financial and organizational) is behind such changes and is in itself a source of institutional unsuitability. The institutional forms governing the financial system cannot adapt fast enough to organizational change and to innovation. This explains the second dynamic sustaining financial fragility: under the effect of the development of financial systems, formal institutions ("the system of interventions and regulations") become ineffective and no longer sufficiently counter the endogenous dynamic of risk taking. This second mechanism is a failure of the action of formal institutions in a changing historical context, which may also be characterized as a failure of "intentional" mechanisms.

iii. The Notion of Institutional Fragility and the FIH Reformulated

The stabilizing action of formal institutional forms in Minsky's approach is therefore subjected to their adaptation to the development of capitalism. If these regulatory institutional forms become inoperative, then an endogenous dynamic of financial fragilization, that sustains the endogenous financial instability predicted by Minsky in the

FIH is set in place. Two institutional dynamics power the financial fragilization of the FIH (summarized by diagram 1 below):

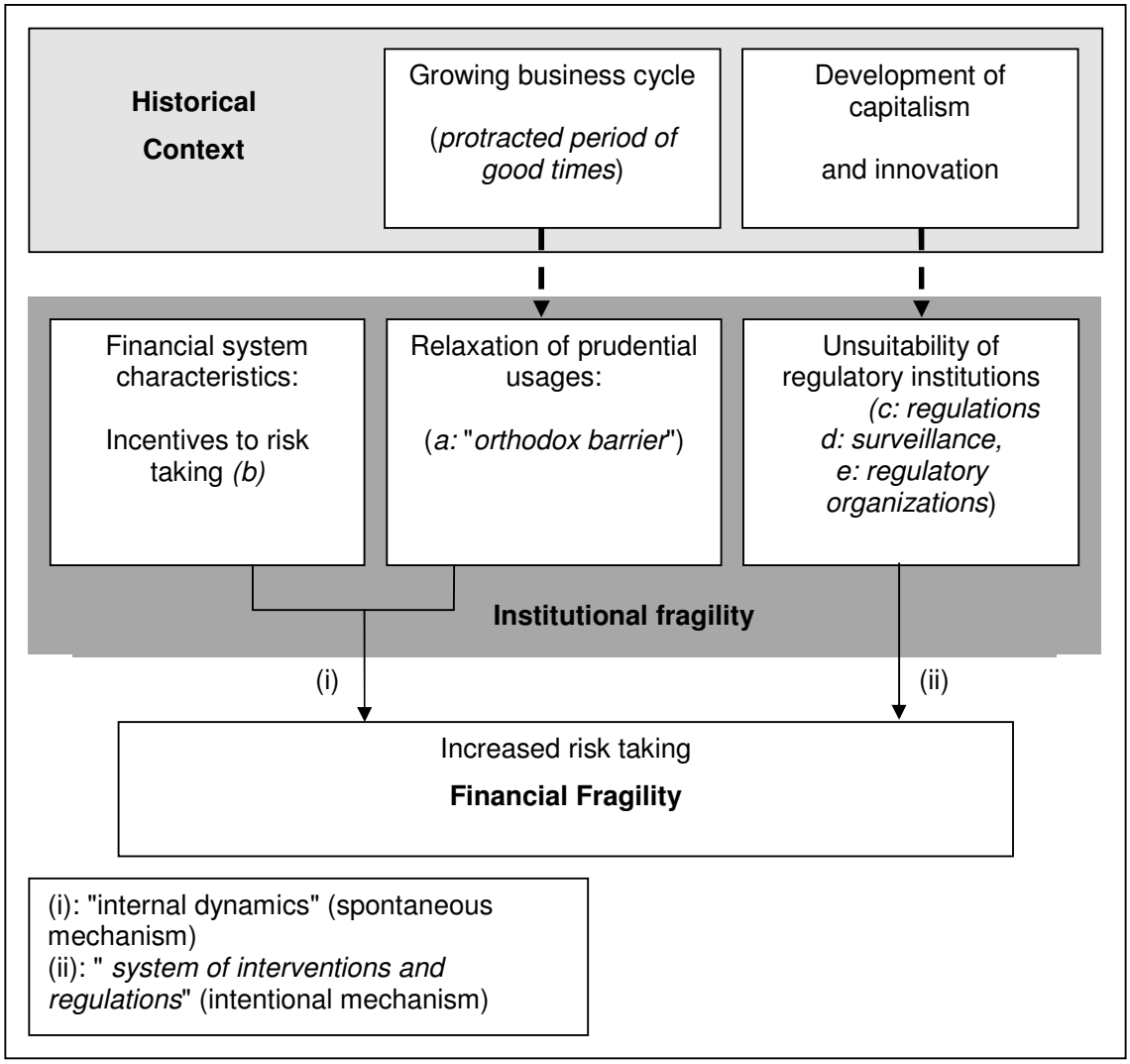
a. (i) the internal dynamics of capitalist economies or spontaneous mechanisms: incentive to risk taking (a) inherent in the financial system is no longer countered by prudential usage (b) in the upward phase of the economic cycle;
b. (ii) the unsuitability of the system of interventions and regulations, that is, the failure of the intentional mechanisms: the formal regulatory institutions (c, d, e) become inoperative under the effect of the evolution of the financial system and of innovation.

These two mechanisms, anchored in the changing forms of financial systems and in innovation constitute what we shall name "institutional fragility". This, we argue, underlies the process described by Minsky in his Financial Instability Hypothesis (FIH), as he very explicitly suggests:

> Innovation, the key to capitalist development is not just a technique and product phenomena: Financial institutions and usages are also subject to innovation. New financial institutions and practices are introduced and have an impact upon the asset and liability structures. They also have an impact upon the overall stability of the economy. (Minsky 1991, p.18)[15] (Emphasis added)

[15] Minsky refers explicitly here to Schumpeter.

Diagram 1 – Institutional Dynamics Underlying the Fragilization Process
In Minsky's Financial Instability Hypothesis



4. INSIGHT FROM RECENT THEORETICAL DEVELOPMENTS

While the institutional approach developed by Minsky, which we endeavor to explain in this paper, is of limited scope in the economic literature, the question of institutions and their possible stabilizing (or destabilizing) role on financial systems has been widely discussed. The work on this has attempted in particular to examine the impact of "failings" of market mechanisms: both information failings (asymmetric information in particular) and failings in the supposed "rational" behavior of agents (behavioral bias). Although the theoretical framework that generally prevails over such analyses and the resulting conclusions seem irreconcilable with Minsky's hypotheses and work, it does seem to us even so that the

mechanisms they identify and describe deserve to be discussed in the light of what has been set out above. Can these works provide insight or theoretical justifications for Minsky's largely intuitive analyses? It seems to us that the question is worth asking and calls for nuanced answers.

i. Asymmetric Information

A first question lies in the analyses in terms of asymmetric information. Minsky himself is rather ambiguous in the treatment he proposes and in its roles in analyzing the institutional mechanisms of financial fragility. The existence of imperfect information is a major foundation for recent approaches to the institutions of financial systems. The analysis of institutions proposed notably by research based around the Augmented Washington Consensus is based on the hypothesis that "effective" institutions can manage asymmetric information and counter destabilizing effects. The stabilizing function of institutions is therefore derived from the presence of incomplete information within financial systems, which those institutions may mitigate.

Although most of this work was done later than Minsky's, the early elements of these analyses were already known to him. Minsky's position on this issue is particularly ambiguous. He explicitly dismisses the hypothesis of rational agents (an assumption that he considers "heroic,") although without ascribing this rejection to the occurrence of imperfect information. In his view, agents do have "a model of the model" but that model is not the right one. The "model of the model" relates to the representation agents have of the workings of the financial system, its rules and what is or is not prudent; this model relates to what affects agents' behavior (and therefore the notion of institutions as used by Minsky) and not to the occurrence of asymmetric information that would preclude agents from acting in a fully rational manner. Minsky thus explicitly dismisses approaches based on asymmetric information as the basis for analysis:

> [T]he asymmetric information approach to constructing a meaningful macroeconomics is logically flawed. (Minsky 1992 a, p.9)

However, in other writings, he uses this notion to describe the behavior of agents. Thus the model developed by Delli Gatti, Gallegati and Minsky (1994) assumes that:

> Our agents possess incomplete (and in particular asymmetric) information (p.4).

It seems to us that the Minsky-inspired analysis by Arestis, Nissanke and Stein (2003) answers this ambiguity and clarifies the position of asymmetric information in a Minsky-style institutional approach. First, they explicitly distance themselves from institutional approaches based on the hypothesis of imperfect information. They summarize their argument:

> While information gathering is an important aspect of institutional design, it is only one dimension of financial institutions. We propose going beyond the ideas that underlie those of the imperfect information school […], to an institutional-centric theory of the transformation of […] financial system. (Arestis, Nissanke & Stein 2003, p.12)

Limiting the involvement of institutions in financial systems to tempering incomplete information is not enough, for other mechanisms are in play. This does not mean that asymmetric information does not occur or is not involved but it does imply that other factors must be taken into account in order to understand the action of institutional forms. In particular, this means considering the importance of the change in financial systems "in history" and developing a dynamic analysis of institutional forms. Here we find what is for us one of the fundamental components of the Minskyan approach: the institutional mechanisms are part of a dynamic that is rooted in the forces inherent to capitalism, wound up in the economic cycle and the evolution of stages of development of capitalist systems. The occurrence of asymmetric information does not seem to be in contradiction with the Minskyan analysis; however, it casts limited light on it, the fundamental aspect of the understanding of institutional mechanisms residing in financial systems' internal dynamics.

ii. The Contribution of Work on Behavioral Biases

Most work on behavioral or cognitive bias postdates Minsky's. It does seem to us, however, that it can provide useful theoretical insight in justifying the first institutional mechanisms of the FIH by which financial fragilization is the combined outcome of incentive to take risks inherent in capitalism and the trivialization of risk in the upward phase of the cycle. This observation is essentially intuitive in Minsky. We revisit this idea and interpret it in the light of that more recent work.

It should first be noted that this first process develops, for Minsky, in view of the hypothesis that agents seek to maximize their profit. In this context, because of an inverse direct relationship between profitability and risk inherent in capitalism, it turns out that agents have a "natural" incentive to increase their level of risk so as to increase their profits.

It is assumed, therefore, independently of the structure of interest rates that Minsky mentions, that agents have an incentive to take risks. This incentive may, however, be reinforced or sustained by elements of the context, that is, in particular by the degree of development of the financial system and the phase of the economic cycle through which the economy under study is going. The incentive to take risk is therefore, as we see it, a starting hypothesis of Minsky's approach. It is interesting to note that it is then the analysis of the financial context that explains the importance of this factor (to what extent this incentive to take risk can be materialized): innovation, term structure of interest rates, etc., lead to a situation-specific analysis of the importance of this incentive.

For Minsky, the incentive to take risks may, however, be tempered by other institutional forms, the leading one of which is the "orthodox barrier," that is, the rules of prudence. The dynamic that then powers this institutional fragility, that is, the failing of this institutional arrangement to counter risk taking, lies in the dynamics of the economic cycle: in the upward cycle, prudence is relaxed. Minsky illustrates this observation but does not really account for it. It seems to us that this proposal may be reformulated in more modern terms as the "procyclicality of risk taking." Major recent work on the analysis of such procyclicality confirms, in our view, Minsky's idea while providing the justification that was missing from his proposals.

Work on the procyclicality of risk taking, especially at the International Settlements Bank (Borio et al. 2001; Borio, 2003) looks to explain why financial risk (risk of borrower default or non recovery of bank claims, risk of asset price collapse) is underestimated in the upward phase of the cycle (and overestimated when it reverses). Such underestimation of risks is attested notably by the weakness of spreads, the excessive growth in liabilities, the artificial inflation of collateral or the reduction of provisions in good times. This dynamic can be explained by a flawed evaluation of overall risk, resulting either from a mistaken perception of risk *per se* or an unsuitable response to perceived risk. More specifically, financial institutions, banks and investors on the financial market are in a much better position to estimate the relative risk of the different categories of securities or institutions than to estimate the systematic risk involved in the aggregate growth of risk of a turn-around in the economic (and financial) cycle (Borio 2003). In microeconomic terms, this can be explained by a set of cognitive biases, confirmed by experiments in cognitive psychology.

Two types of bias may explain a poor perception of risk (Borio et al. 2001):

- "disaster myopia" that results in particular from underestimating the risk of massive shocks of very low but non-zero probability, and overestimation of the memory of more recent events;

- "cognitive dissonance" that refers to the tendency to interpret information with bias so that it reinforces beliefs the economic agent already holds.

Such cognitive biases support a procyclic perception of risk. During the expansion phase, the memory of risk declines while in parallel new information is interpreted as reinforcing the belief in continued and non-temporary expansion. Short-term cyclical movements are then perceived as the components of a new long-term tendency. Conversely, when the cycle turns around, the information about defaults contradicts the former paradigm and leads to a sudden huge turn-around.

Moreover, even if the risk is correctly perceived, the response to risk may prove inadequate overall, even if it is adequate individually.

> [It] points to actions that, when taken in isolation, may appear reasonable, if not compelling, but that collectively add up to undesirable social outcomes. In other words, risk may be correctly perceived, but the response to it may not, in the aggregate, be appropriate. This outcome may result from a failure to internalise the consequences of the actions of others, the impossibility of coordinating responses or simply the fact that the costs would be borne by other groups in society. (Borio et al. 2001, p.9)

So it may be logical for a bank to continue lending during the upward phase of the cycle, so as not to lose customers, say; but the cumulative identical action of all banks ultimately leads to a systemic risk, (“failure to internalise the consequences of the actions of others”).

Lastly, some individual actions appear “reasonable” so long as other agents act likewise. This refers to the so called "herding behavior" by which agents align their actions on those of their peers. One reason for such mimetic behavior may be the occurrence of asymmetric information: an agent will logically follow the decisions of another agent he believes to be better informed. But imitation also fits in with behavioral factors, without asymmetric information being needed to bring it out. Mimetic behavior is also reinforced by the managerial system in place in financial entities. A mistake by an isolated agent will be more severely sanctioned than a collective error (by the old financial adage that it is better to be wrong with everyone else rather than right all alone). Management sanctions of the individuals responsible will thus be lesser if there are many bankruptcies, in the same way that the intervention of the authorities to support struggling economic entities will be more likely if the financial distress is widespread (if there is a risk of a systemic crisis). The incentives to act the way others are acting may be particularly strong. The system of remuneration (reward structure especially) based on relative performance (Borio et al. 2001)

and managerial constraints resulting from the profit objectives of financial institutions and financial rating companies further reinforces herding behavior by agents.[16]

All of these factors, which are justified by the existence of cognitive biases (myopia, cognitive dissonance, herding behavior) help to explain the possibility of a misperception of risk or an inappropriate response from agents of a correct perception of risk, making risk taking procyclical. Notice that these findings differ markedly from those traditional approaches in terms of asymmetric information. The occurrence of asymmetric information justifies increased risk and the scale of the movement in response to an imperfect evaluation of the risk (adverse selection, moral hazard, herding behavior). However, these mechanisms are not specifically related to the economic cycle and are insufficient, we feel, to justify the procyclicality of risk taking, thus the tendency to financial fragility development during the upswing phase of economic cycles. That does not mean that asymmetries of information cannot be involved in agents' decisions, further reinforcing estimated bias of risk (because of incomplete information) and behavior that fail to match even a correct perception of risk (adverse selection, moral hazard, copycat action).

The contribution from work on cognitive biases also helps us to interpret Minsky's intuitions in what we think are convincing terms and to justify in part the first institutional mechanism at work in the FIH: during the upward phase of the cycle, the occurrence of cognitive bias leads to an under-evaluation of risk (and an increase in risk actually taken even if correctly perceived). The occurrence of asymmetric information may further reinforce this mechanism. This results in procyclic risk taking which fuels the development of financial fragility.[17]

Yet the contribution of this work, and more especially the understanding of the factors justifying the procyclicality of risk, is not enough to account for the overall line proposed by Minsky. The occurrence of imperfections in terms of information or behavior sheds some light and justifies part of the institutional mechanisms described by Minsky and that underlie

[16] E. Tetreaux (2005), discussing the stock exchange bubble of 2000 on the European markets, provides an edifying testimony about the incentive and need for a financial analyst, even a market maker, to support the general trend, that is, to go with the crowd, including if in contradiction with his own perception of the risk (rational incentive to profit from the rise as long as it continued; management pressures based on the need to sell transactions, forcing the financial analyst to support the risk even though the risk measurements indicated substantial over valuation and a sizeable default risk of firms whose share values continued on up).

[17] Underestimating risk implies a reduction in risk premiums (and so a reduction in the discounting rates used to determine the value of investment projects and assets). This implies first of all that the project values are overestimated. The, projects that are increasingly risky are carried out in the upward cycle. At the same time, the reduction in the risk premium implies a reduction in the cost of borrowing, which favors resort to debt. Lastly, underestimating risk in this way, by overestimating the value of assets, results in an overestimation of solvability (= an underestimation of financial fragility) due to the overestimation of assets value in the balance sheets ; this promotes further use of debt financing, since borrowers appear to be more solvent than they are.

the FIH. These, however, are only meaningful in an overall approach to financial systems and in the understanding of what the inherent forces of capitalism are. This perspective, outlined by Minsky, leads to conclusions that are removed from those generally inferred from analysis in terms of imperfection. The challenge is not, to tend towards financial stability, to "resolve" these imperfections, but to conceive of them as inherent forces of capitalism that need to be countered. This involves constructing a complete and effective system of interventions and regulations, adjusting to the evolution of capitalist systems. This perspective seems to reinforce Minsky's analysis of those divergences:

> If the theory that takes the invisible hand conjecture as a guide to the way the economy works is valid, then intervention or regulation can only do mischief. If the theory that takes the capital development of the country may be ill done as a guide to the way the economy works is valid, then regulation and intervention can be beneficial. Furthermore, if the consequences of doing the capital development poorly is serious, then it is politically necessary to create and apply appropriate regulations and interventions. […]
>
> The Keynesian view leads to the proposition that the natural laws of development of capitalist economies leads to the emergence of conditions conducive to financial instability. Law and policy makers need to be aware of institutional evolution and to develop instruments to contain the potential for both inflationary surges and deflationary disruptions. Potential instability is a basic system characteristic. (Minsky 1991, pp.5-6)

CONCLUSION AND OUTLOOK

Our first objective, in this paper, was to propose a synthesis of Minsky's "institutional" approach. This has led us to pull together sometimes scattered, imprecise or even ambiguous elements, that appear more significantly in Minsky's last publications, but were never really formalized by him. Our job has therefore been to bring these pieces together and interpret them so as to propose a homogenous synthesis to summarize what this approach would have been had Minsky formalized it. This proposal revolves around three points:

a. first, a definition of institution in Minsky may be laid down by reference to Commons; the institutional structure of financial systems is characterized by five forms, two informal (incentives and usages) and three formal (rules, authorities and regulatory organizations) and requires an analysis "in history";
b. second, this institutional structure was assigned the function of stabilizing the financial system and countering the endogenous financial fragilization process that underlies the FIH;
c. third, this function is performed through two complementary mechanisms, which result from the intervention of institutional forms of financial systems and the

historical context. The first mechanism corresponds to the internal dynamics of capitalism, that is the combination of incentive to take risk inherent in capitalism and the relaxation of prudential usages during good times. The second mechanism is fuelled by the action of systems of intervention and regulation, that is, by formal regulatory systems (rules, authorities and regulatory organizations). Under the effect of the process of the development of capitalism and of innovation, the regulatory institutions become inoperative and no longer counter the dynamic of risk taking. These two mechanisms are therefore driven by the evolution of the historical context, which is itself characterized by two factors: the cyclic dynamic in place and the stage of development reached by the financial system.

This analysis can be summarized in a scheme providing an evaluation of the effectiveness of the institutional structure, that is, of its capacity to stabilize the financial systems. This is determined by two institutional mechanisms (spontaneous and intentional), the action of which must be evaluated in the historical context specific to the financial system studied. The evaluation of this effectiveness constitutes a chart of the institutional fragility depicted in table 3 below and that can form a basis for an analysis in terms of international financial governance.

Table 3 - Institutional Fragility

<table>
<tr><td></td><td>Historical context specific to the financial system

- Phase of the economic cycle
- Stage of development of the financial system</td></tr>
<tr><td rowspan="2">Informal institutions
=>spontaneous mechanism

"Internal dynamics of capitalism "</td><td>Incentives (to take risks)</td></tr>
<tr><td>“Prudential” usages
(perception of and response to risk)
"orthodox barrier"</td></tr>
<tr><td>Formal institutions
=>Intentional mechanism

"System of interventions and regulation "</td><td>Rules
Authorities
Regulatory organizations</td></tr>
</table>

The line followed in this paper is, we feel, first of all, of theoretical interest insofar as to our knowledge, this work of synthesizing Minsky's institutional approach has not been done to date. Partial readings having been made, (Whalen 1999; Arestis, Nissanke and Stein 2003; Papadimitriou and Wray 1997 and 1999) providing valuable input. However, we feel that those works do not provide an overall and homogeneous vision of Minsky's contribution to the analysis of institutional forms of financial systems.

This line also casts new light on Minsky's FIH and seems to us to contribute to reply to one of its limits. Although Minsky had the objective of demonstrating that financial instability is "endogenous," it seems to us that the FIH is in itself insufficient to formally prove such endogeneity. A first criticism relates to the endogeneity of the turn-around of the cycle (endogeneity of the rise in the interest rate). An answer was provided to this criticism by Nasica (1997) and by Brossard (2001), who show that the increase in the interest rate (that triggers the turn-around in the cycle) is endogenous in character. A second limit to the endogeneity of instability in the FIH lies, in our view, in the explanation of factors at the origin of the development of financial fragility (second theorem of the FIH: fragility increases in periods of prosperity). The analysis made in this paper seems to bear out this hypothesis, first by formalizing the (institutional) mechanisms behind it and second by demonstrating the endogenous character of those mechanisms, justified by the existence of cognitive bias, by financial innovation, the evolution of financial systems and more generally the dynamics inherent to capitalist economies. The notion of institutional fragility and the reformulation of the FIH proposed are a clarification.

The main proposals here can be summarized as follows. First, we establish that Minsky's institutional approach is grounded in the works of the American Institutionalists and in particular of Commons. This leads us to propose a definition of institutional forms of financial systems divided into five categories, under Commons' "unorganized customs" and "going concerns."

Secondly, we analyzed the means of intervention of these institutional forms in the FIH. Minsky describes two separate dynamics. The first (Ferri and Minsky 1991) lies in the identification of two institutional mechanisms that condition and supply the development of financial fragility: (i) "the internal dynamics of capitalism," and (ii) "the systems of regulation and intervention." We describe these mechanisms with the support of subsequent work by Arestis, Nissanke and Stein, 2003, and Nissanke and Stein, 2003 and fit them into the proposed definitional framework. Minsky's second institutional dynamic resides in a historical approach to the development of capitalism (Minsky and Whalen 1996). This leads

to the identification of "stages" of development of financial systems and to formalizing the criteria with which to identify the phases of change, changes which are behind a form of "institutional fragility," As far as we know, these two approaches have not been brought together before. We attempt such a synthesis here, relating the development of institutional mechanisms conditioning the development of the FIH to an historical analysis of financial systems. This leads us to bring out a dynamic by which the key changes in the financial systems, under the effect of innovation and the profit motive, lead to the stabilizing institutional mechanisms being ill-adapted or even in abeyance. We characterize this situation as "institutional fragility." In the presence of such fragility, the two institutional processes that drive the FIH take form, initiating the endogenous clockwork that will lead to crisis. This proposal, which consists in defining and describing what we call "institutional fragility," is an extension of the financial instability hypothesis that allows us to reassert and justify its endogenous character.

Thirdly and finally, we have shown that these mechanisms, which remain mainly intuitive in Minsky's work, find partial justification in recent development on asymmetric information, cognitive bias and procyclicality of risk. This analysis leads us to emphasize the relevance and modernity of the FIH and to fit into a robust theoretical framework its prediction that financial fragility increases over protracted periods of good times. This contribution, however, cannot mask Minsky's approach and the recommendations that result from it: the point is not to resolve these imperfections but to consider them as an integral part of the internal dynamics of capitalism, which are to be countered by intervening via institutions and regulations.

This analysis seems to us to open up a number of perspectives. In particular, it seems that this approach suggests complementary ways to analyze the causes of the current international financial crisis. The intensification of the process of international financial integration coupled with recent evolutions of financial systems (change in the sourcing and holding of credit, bank cash flows increasingly depending on commissions rather than on interest; generalization of securitization, growing importance of the shadow banking system, explosion of complex derivatives by mutual agreement, especially CDS and CDO, opacity of certain actors, notably hedge funds) may be a change towards a new "stage of capitalism" and so constitute a situation of institutional fragility. A comparison between the crisis scenario and Minsky's predictions seems particularly eloquent in this respect.[18]

[18] See Desmedt, Piégay and Sinapi (2010) for a more specific analysis of these elements.

This suggests that the development of financial fragility before the crisis and the depth of the current crisis originate in part in the existence and development of such institutional fragility. It also indicates the need, in addition to the traditional forms of intervention (lender of last resort, public investment) to adjust the institutional forms and in particular to rethink international financial regulation. Our work provides the groundwork for a scheme of analysis of international financial governance, in line with ongoing debate. Pursuit of this analysis requires additional work, so that, pursuant to the role Minsky attributes to them[19], "government sponsored institutions and government interventions can play a positive role, in that, if well used, they contain the degenerative tendencies of capitalist economies."

[19] Delli Gatti, Gallegati and Minsky (1994).

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