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A THEORY OF MINSKY SUPER-CYCLES AND FINANCIAL CRISES*

THOMAS I. PALLEY

New America Foundation

This paper argues that Hyman Minsky's financial instability hypothesis weaves together the medium-term Keynesian dynamic embodied in the Samuelson (1939)—Hicks (1950) approach to the business cycle with the long cycle thinking of economists such as Schumpeter (1939) and Kondratieff. Post Keynesians have devoted considerable attention to the medium-term dimension of Minsky's thinking. The current paper concentrates on the long-swing dimension and introduces the idea of 'Minsky super-cycles'. It is the super-cycle that ultimately permits financial crisis. Whereas financially driven business cycles occur every decade, financial crises occur over longer durations reflecting the longer phase of the super-cycle.

JEL Classification: E30; E32; E12

I. INTRODUCTION

The current economic crisis has been widely viewed as vindicating the work and insights of the late Hyman Minsky. This vindication was celebrated on the front page of the *Wall Street Journal* (18 August 2007) at the very beginning of the crisis in an article titled 'In Time of Tumult, Obscure Economist Gains Currency. Mr. Minsky Long Argued Markets Were Crisis Prone; His Moment has Arrived'.

The current paper seeks to explore and extend the work of Hyman Minsky by surfacing ideas and themes that are clearly present in his work but have not been given enough attention by economists, including those (almost exclusively Post Keynesians) who have recognized his contribution. While there have been many attempts to formalize Minsky's work, those attempts tend to treat him as a narrow theorist of financial business cycles rather than a process theorist of financial capitalism.

This paper argues that Minsky needs to be understood not only through a conventional medium-term business cycle lens, but also through the lens of long-term swings. The medium-term cycle is labeled the 'basic cycle' and it operates through

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Minsky's stages of finance schema: hedge—speculative—Ponzi. The long-swing dynamic is labeled the 'super-cycle'.

The reason for introducing this distinction is to capture the financial instability effects arising from the on-going process of institutional, product and behavioral change. Though Minsky undoubtedly emphasized the basic cycle, reading between the lines it is possible to detect a super-cycle perspective and the notion of a super-cycle is readily incorporated into his argument.

Such an interpretation expands and enriches Minsky's financial instability hypothesis which can now be interpreted as a generalized financial cycle theory. This generalized theory weaves together a medium-term Keynesian-styled dynamic resting on the Samuelson (1939)—Hicks (1950) multiplier—accelerator mechanism with long cycle thinking in the tradition of economists such as Schumpeter (1939) and Kondratieff.

Post Keynesians have devoted considerable attention to the basic cycle dimension of Minsky's thinking. The current paper concentrates on the long-swing super-cycle dimension. The critical innovation is the recognition that it is the super-cycle that ultimately permits financial crisis. Whereas financially driven business cycles occur every decade, financial crises occur over longer durations reflecting the longer phase of the super-cycle.[1] By failing to distinguish these two dynamics Minsky's writings can give the impression that deep financial crises are more common than they are.

II. MINSKY AS PROCESS THEORIST

The foundation of Minsky's thinking is his construction of the economic process. That makes Minsky a theorist of capitalism who theorized it in terms of 'process'. This approach to economics put him at odds with modern economics that constructs capitalism in terms of 'equilibrium', and it helps explain why Minsky was over-looked by much of the economics profession.

The equilibrium approach looks at the economic problem as one of establishing efficient market allocations. To the extent dynamics enter, it is with regard to whether those equilibrium allocations are stable or unstable. Viewed from the equilibrium perspective, process issues (i.e. dynamics) take a backseat and are an add-on to the economic problem.

For Minsky, process is the issue and his theory of process can be summarized as: 'Success breeds excess breeds failure'. Such a construction of the economic process is one of evolutionary instability. Evolutionary factors are present because the economy evolves through stages that breed successive stages. Instability is present because the system periodically ends in failure and collapse, which is why Minsky termed his approach the financial instability hypothesis.

[1] The theoretical view developed in this paper complements Wray's (2008) case study analysis of the current financial crisis, the seeds of which he traces back to the early 1970s and before.

Minsky's construction of the capitalist economic process recognizes features that are both general and historically specific. The generality of the 'success breeds excess breeds failure' process is captured in Minsky's view that 'The more things change, the more they remain the same (Minsky, 1993, p. 2)'. The historical specificity is captured by his accompanying view 'One can never step in the same stream twice (Minsky, 1993, p. 2)'.

The financial crisis of 2008 fits the schema. Its specific details are different from past financial crises but its underlying logic and evolution are structurally similar. Financial capitalism is governed by a general process that is enduring, but the landscape through which the process travels is forever changing and therefore historically specific.

III. MINSKY AS CYCLE THEORIST

Minsky's financial instability hypothesis can be thought of as resting on two different cyclical processes, as illustrated in Figure 1. The first process is labeled the 'Minsky basic cycle', while the second process is labeled the 'Minsky super-cycle'. The basic cycle is widely recognized and rests on the evolution of financing arrangements through successive stages of hedge, speculative, and Ponzi finance. The super-cycle is less well recognized, though it is fully articulated in a paper co-authored with Piero Ferri (Ferri & Minsky, 1992) that deserves far greater recognition. Unfortunately, the critical arguments in that paper were omitted in Minsky's (1992) brief article titled 'The Financial Instability Hypothesis' in which he summarized his theory.

The basic cycle captures the phenomenon of emerging financial fragility as reflected in agents' balance sheets and financing arrangements.[2] The basic cycle is illustrated in Figure 2 and it involves the familiar process of evolution beginning with hedge finance, passing through speculative finance, and ending with Ponzi finance. The basic cycle operates at the level of the individual enterprise.

Much has been written on the basic cycle, and Minsky (1992) carefully defined its stages. 'Hedge finance units are those which can fulfill all of their contractual payment obligations by their cash flows (Minsky, 1992, p. 7)', and it tends to be associated with greater weight of equity financing in the liability structure. 'Speculative finance units are units that can meet their payment commitments on "income account" on their liabilities, even as they cannot repay the principle out of cash flows. Such units need to "roll over" their liabilities (Minsky, 1992, p. 7).' Lastly, 'for Ponzi units, the cash flows from operations are not sufficient to fulfill either the repayment of principle or the interest due on outstanding debts by their cash flows from operations. Such units can sell assets or borrow (Minsky, 1992, p. 7)'.

[2] For Minsky, these agents were business as he gave little attention to household borrowing.

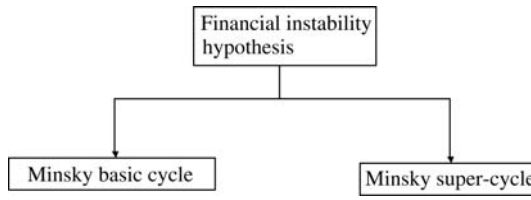

FIGURE 1. The two cycles embedded in the financial instability hypothesis.

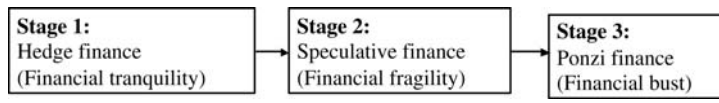

FIGURE 2. Stages of the Minsky basic cycle.

There are many formal models in the spirit of the Minsky basic cycle. These include (to list a few) Foley (1987), Semmler & Franke (1991), Gallegati & Gardini (1991), Skott (1994), and Delli Gatti *et al.* (1994). All of these models emphasize the emergence of gradually more fragile corporate balance sheets that are marked by either reduced liquidity or higher debt-equity ratios. These developments give rise to balance sheet congestion that eventually strangles investment activity. This triggers an economic downturn that generates a de-leveraging process which eventually creates the conditions for another upswing. Palley (1994) presents a model that focuses on households and consumer debt, and in that model it is the growing burden of debt service payments from free-spending debtor households to thriftier creditor households that eventually curtails the expansion.

Minsky's theory of the basic cycle involves important psychological influences. The move between financing stages is in part driven by agents becoming progressively more optimistic. That optimism manifests itself in increasingly optimistic valuations of assets and assessments of revenue streams, combined with increased willingness to take on more risk in the belief that good times are here forever. This optimistic psychology afflicts both borrowers and lenders, and not just one side of the market. That is critical because it means market discipline is weakened.

Historically, long business cycles have tended to generate talk of the 'death of the business cycle'. In the 1990s there was talk of the 'new economy' that was supposed to have killed the business cycle by inaugurating a period of permanently accelerated productivity growth. The 2000s saw talk of the 'Great Moderation' whereby central banks had tamed the business cycle through improved monetary policy based on improved theoretical understanding of the economy. This talk is not incidental. Instead, it constitutes broad evidence of the basic Minsky cycle at work. Improving times generate increased optimism, and that optimism afflicts all including regulators and policymakers. For instance, Federal Reserve Chairman Ben Bernanke (2004) declared himself a believer in the Great Moderation hypothesis.

The Minsky basic cycle is present in every business cycle and operates at the enterprise level. However, it is complemented by the Minsky super-cycle that works over a period of several business cycles and operates at the system level. The super-cycle is a process of transforming business institutions, business practices, conventions, and the structures governing the market in a fashion that eventually gives rise to a major financial crisis.

Though Minsky did not write about financial cycles in terms of a dual cycle, doing so provides a way of coherently embedding his concerns about financial innovation, deregulation, and regulatory change which pepper his work. For instance, it is now widely recognized that securitization—the process of bundling loans and mortgages as single securities that are then resold—was an important factor in the development of the U.S. house price bubble and the financial crisis of 2008. Minsky recognized presciently the financial stability implications of securitization and wrote some notes about it in 1987 (Minsky, 2008).

Another major concern of his was the structures of governance needed to ensure the stability of capitalist economies. Minsky (Ferri & Minsky, 1992) labeled these structure 'thwarting institutions' in that they thwart instability. These thwarting institutions may be public or private and their role is to 'constrain the outcomes of capitalist market processes to viable or acceptable outcomes' (Ferri & Minsky, 1992, p. 1). Frequent bouts of instability of economic outcomes are not observed because 'the economy has evolved usages and institutions, including agencies of government, whose economic impact is to thwart the instability generating tendencies of the economy' (Ferri & Minsky, 1992, p. 11).

Perhaps the most important thwarting institution identified by Minsky was 'big government' which stabilizes aggregate demand. Before the Great Depression government spending in the USA was around 5% of GDP, but since then it has been around 20%.

In the financial sector the most important thwarting institution is the central bank in its role as lender of last resort. Financial regulation that bars excessive risk-taking by direct balance sheet composition restrictions and via measures such as margin requirements, capital requirements, and reserve requirements are other forms of thwarting institutions.

In international financial markets thwarting arrangements such as the Bretton Woods system that established adjustable fixed exchange rates and prevented competitive devaluation are another form. In the modern era of flexible exchange rates, the willingness of central banks to engage in currency swaps and the availability of emergency finance from the International Monetary Fund constitute today's international financial thwarting institutions.

In labor markets, wage setting conventions such as the 'productivity plus inflation rule' (Ferri & Minsky, 1992, p. 14) that help sustain aggregate demand and ward-off under-consumption constitute thwarting institutions. According to that logic the minimum wage, unemployment insurance, and welfare protections are also thwarting institutions. So too are trade unions as they ensure a distribution of income that

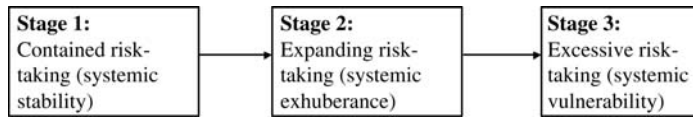

FIGURE 3. Stages of the Minsky super-cycle.

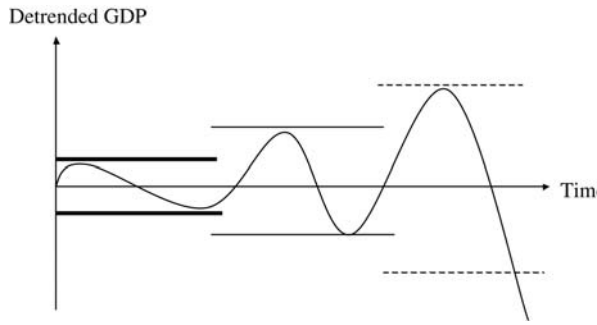

FIGURE 4. A symmetric Minsky super-cycle.

maintains aggregate demand. However, this also illustrates how what qualifies as a thwarting institution will depend on theoretical perspective. Minsky was a progressive Keynesian, which influenced his identification of thwarting institutions.

The process of erosion and transformation characterizing the super-cycle takes several cycles, which is why the super-cycle is a long phase cycle whereas the basic cycle is a shorter phase cycle. However, both cycles take place simultaneously. Figure 3 illustrates the stages of the Minsky super-cycle: systemic stability, systemic exhuberance, and systemic vulnerability. Full-blown financial busts that threaten the survivability of the economy only happen 'once a generation' when the Minsky super-cycle has had time to erode the economy's thwarting institutions. In between these busts only the Minsky basic cycle is visible.

The Minsky super-cycle works over a period of several Minsky basic cycles. This pattern of development is illustrated in Figure 4, which shows a gradually evolving cycle characterized by greater amplitude. This evolving amplitude is accompanied by symmetric weakening of thwarting institutions which is represented by the widening and thinning of the bands determining the system's floors and ceilings. Eventually the thwarting institutions become sufficiently eroded and the embrace of financial excess is sufficiently deep that the economy experiences an uncontained cyclical bust. Once a full scale bust occurs the economy enters a period of renewal of thwarting institutions—which reasonably describes the current period (2009–10) when there is talk of renewed regulation.

This episodic history of construction and erosion of thwarting institutions is illustrated by US legislative financial history. Following the Great Depression there was

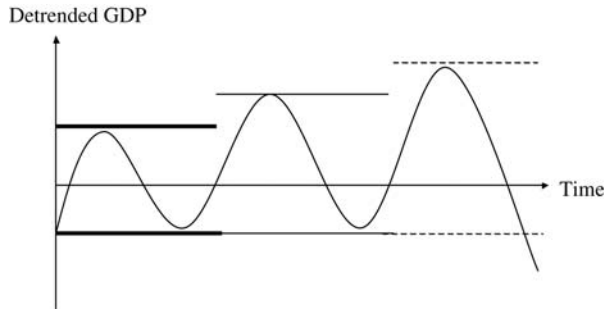

FIGURE 5. An asymmetric Minsky super-cycle.

an extended period of creation of financial thwarting institutions. This included the Glass—Steagall Act (1933); the Securities Act (1933); the Securities Exchange Act (1934); the Trust Indenture Act (1939); the Investment Advisers Act (1940); the Investment Company Act (1940); and the Banking Holding Company Act (1956).

The long process of erosion can be identified with market innovations such as the emergence of the euro-dollar market in the 1960s as a way of escaping US banking regulation; the Garn—St. Germain Depository Institutions Act (1982) that de-regulated the Saving and loan Industry; and the Gramm-Leach-Bliley Act (1999) that repealed the Glass—Steagall Act and parts of the Bank Holding Act. If financial legislative history is an indicator, the creation and erosion of thwarting institutions is an asymmetric process. Creation of thwarting institutions tends to happen in bursts following crisis periods, while erosion and transformation takes place over a long drawn out period.

Figure 4 shows the case where economy undergoes cycles of symmetrically widening amplitude prior to the bust. However, there is no requirement for this. Another possibility is that cycles have asymmetrically changing amplitude. This alternative case is shown in Figure 5 and it gives Minsky's endogenous financial instability hypothesis an upward bias. Evolving excessive psychological optimism combined with financial innovations and regulatory change that remove constraints, together allow increasing financial excess that creates stronger booms. If paired with institutional arrangements like the Keynesian revolution in economic policymaking that put a floor under the economy, the super-cycle becomes asymmetric. Thus, it allows more upward movement while constraining downward movement, at least until the 'big one' eventually hits.

Yet another possibility is a super-cycle of constant amplitude and gradually weakening thwarting institutions that eventually ends with a financial crisis. This richness of dynamic possibilities speaks to both the theoretical generality and historical specificity of Minsky's analytical perspective. That perspective illustrates the dynamics of the process but how the process actually plays out is historically specific.

Analytically, the full Minsky system can be thought of as a combination of three different approaches to the business cycle. The basic dynamic rests on a

finance-driven version of Samuelson's (1939) multiplier—accelerator formulation of the business cycle. The thwarting institutions involve floors and ceilings and link Minsky's thinking to Hicks' (1950) construction of the trade cycle. The super-cycle aspect is then captured by shifting and weakening of floors and ceilings, which provides links to economists such Schumpeter (1939).

The thwarting institutions are explicitly present in the floors and ceilings, but they may also be present in the coefficients of the multiplier—accelerator model which determine the responsiveness of economic activity to changes in such variables as expectations and asset prices. Minsky (see Delli Gatti *et al.*, 1994) referred to all three types of cycle and his own early formal modeling (Minsky, 1957a,b) made use of these modeling approaches.

However, the problem with formal modeling is it imposes too deterministic a phase length on what is in reality a historically idiosyncratic process. Adding stochastic disturbances jostles the process but does not adequately capture its idiosyncratic character which Minsky described as 'One never steps in the same stream twice'. Modeling, which is the modern economist's obsession, may simply not be up to the task. Minsky realized this; 'A model *per se*, however, is nothing else than a device for organizing thoughts. When deemed necessary, our description of financial developments will be richer and more detailed than that incorporated into the model (Delli Gatti *et al.*, 1994, p. 4)'.[3]

IV. DETAILS OF THE MINSKY SUPER-CYCLE

The Minsky super-cycle can be thought of as allowing more and more financial risk into the system. The cycle involves twin developments of 'regulatory relaxation' and 'increased risk-taking' that is shown in Figure 6. The process of regulatory relaxation can be identified with increasing the supply of risk, while the process of increased risk-taking can be identified with increases of both supply and demand for risk.

The process of regulatory relaxation and increased supply of risk has three dimensions. The first is regulatory capture. Thwarting institutions limit the activities of financial institutions. If economically binding, these limitations reduce profits. That creates an economic incentive to capture regulatory agencies to weaken regulations. Such a process of capture has clearly been evident over the past 25 years, and is now even acknowledged by mainstream economists (Johnson, 2009). Wall Street has stepped up its lobbying efforts and there is a revolving door between Wall Street on one side and government on the other—in particular the Federal Reserve, the Treasury, and the Securities Exchange Commission.

[3] Models should be judged on the thought organizing and thought illumination criterion. The trouble is they are increasingly judged on whether they are a 'mirror of reality'. Not only is the creation of such a mirror an impossible task, using a mirror of reality criterion for modeling results in dismissing 'thought organizing' modeling while simultaneously encouraging misguided 'mirror of reality' modeling. This tendency has likely worked to keep Minsky's ideas out of mainstream economics.

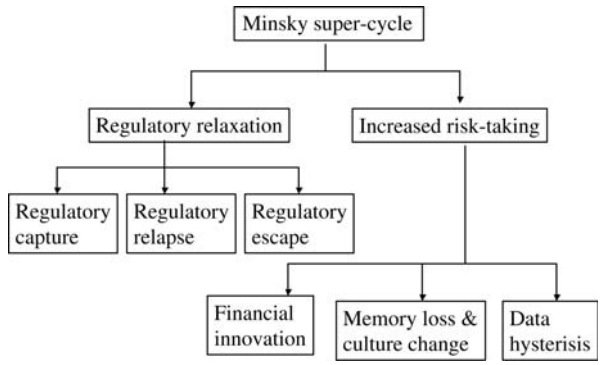

FIGURE 6. Details of the Minsky super-cycle.

The second dimension is regulatory relapse. Regulators are human and part of society, and like investors (see below) are subject to memory loss and reinterpretation of history. Thus, regulators forget the lessons of the past and buy into the rhetoric of death of business cycle. The result is willingness to weaken regulation on grounds that things are changed and regulation is no longer needed. This shift in policy may be supported by developments in economics, driven by similar social forces, which provide an intellectual justification for such regulatory change.

The third dimension is regulatory escape. Thus, the supply of risk can increase through financial innovation that escapes the regulatory net because it was not conceived of when regulation was established. Innovation causes activity to spill outside the domain of thwarting institutions, and addressing innovation requires constant updating of regulation. This is the story of the shadow banking system and derivatives. However, the forces of regulatory capture and regulatory relaxation work against regulatory updating by challenging the will to maintain a comprehensive coherent system of regulation.

Effective regulation is a dynamic game played between market and regulator, and the market always seeks to escape regulation. If regulation is economically binding in the sense of limiting activities market participants would otherwise undertake, markets are likely to eventually innovate around the regulations. In effect, good regulation inevitably sows the seeds of own destruction by providing an incentive to innovate, and this microeconomic logic is part of the Minsky super-cycle.

The process of increased risk-taking also involves three dimensions. The first is financial innovation that provides new products which allow more risk-taking. Over the past two decades the household sector has been introduced to home equity loans, lower mortgage down-payments, and a shift in pension arrangements from defined benefit plans to defined contribution plans where the ultimate payment depends on investments made. Financial markets have also created and expanded the use of a host of new products that facilitate financial risk-taking. These include securitization and tranching of securities, derivatives, and options. All of these

products allow households, business, and financial institutions to take on new patterns and changed levels of financial risk.

A second dimension of increased risk-taking is memory loss and culture change that increases the demand for risk. The passage of time contributes to forgetting of earlier financial crisis and that makes for a new willingness (taste for) to take on risk. The experience of the Great Depression permanently reduced the demand for equities among the 1930s generation, but baby boomers who never experienced the depression have been enthusiastic stock investors.

The phenomenon of memory loss is evident in the gradual decline and disappearance of the so-called 'equity premium'—the excess return to stocks relative to bonds. As preferences for stock investing have been re-built, that has driven up the price of stock and reduced its relative return.

Another related factor is culture change, which may rely on memory loss as one of it drivers. This phenomenon is evident in the development of a 'greed is good' culture epitomized by fictional character Gordon Gecko in the movie, *Wall Street*. Similarly, investing has developed into a new form of entertainment and is reflected in phenomena like day trading and emergence of TV investment adviser personalities like Jim Cramer. Finally, culture change is evident in attitudes toward home ownership which is now as much interpreted as an investment opportunity as provision of a place to live.

The changing behaviors associated with memory loss and culture change fit with behavioral and evolutionary economics. Thus, the basic cycle and super-cycle may see herd behavior as patterns of imitation develop, while the super-cycle may see evolutionary mechanisms that lock in proclivity to risk-taking via success and promotion. Managers and entrepreneurs who make profits come to dominate. Since risk-takers tend to make more profit, cautious investment managers and entrepreneurs will tend to fall behind over time and the population of managers and entrepreneurs will be increasingly dominated by high rollers.[4] This process is reported by Zakaria (2008):[5]

> Boykin Curry, managing director of Eagle Capital, says 'For 20 years, the DNA of nearly every financial institution had morphed dangerously. Each time someone pressed for more leverage and more risk, the next few years proved them 'right.' These people were emboldened, they were promoted and they gained control over even more capital. Meanwhile, anyone in power who hesitated, who argued for caution, was proved 'wrong.' The cautious types were increasingly intimidated, passed over for promotion. They lost their hold on capital'.

The third and final dimension of increased risk-taking is data hysteresis, which is an inevitable feature of Minsky's view that the structure of the economy is continuously changing. That process of change inevitably generates data hysteresis. Crisis is followed by a period of rebuilding of risk thwarting institutions that reduces risks and

[4] This mechanism has similarities with the noise trader mechanism described by De Long *et al.* (1990).
[5] My thanks to Steve Fazarri for bringing this quote to my attention.

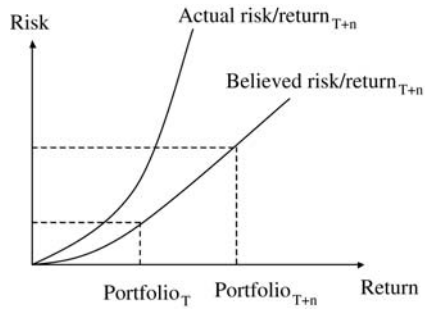

FIGURE 7. The changing pattern of risk and risk-taking.

changes the data outcomes the system generates. Thereafter, there follows a long period marked by an uneven process of regulatory capture, regulatory relapse, regulatory escape, financial innovation, memory loss, and culture change. These developments mean the data generating process is subject to continuous change so that time series analysis becomes a wholly inappropriate guide for action. However, that does not stop people using such analysis.

This problem is illustrated in Figure 7 that shows stylized risk-return trade-offs. As appetite and opportunities for risk-taking increase because of memory loss, financial innovation, deregulation, etc., agents move up the believed risk-return schedule. However, they are blind to the fact that the actual risk-return schedule has shifted because of changed structural conditions—including increased risk-taking by all. Most importantly, this blindness applies on all sides of the market, including regulators, so that both market discipline and policy discipline increasingly fail to protect against the build-up of positions that ultimately generate crisis. As shown by the chatter about the 'great Moderation', stories about the death of the business cycle and this time is different are believed by all, market participants and policymakers.

V. MINSKY'S BROAD INTELLECTUAL APPEAL

Minsky's thinking about the economic process has broad and wide appeal, making it attractive to many different schools of thought. The Minsky super-cycle describes the economy as passing through stages in which thwarting institutions are eroded and the process eventually ends in crisis.

This emphasis on institutions makes it consistent with institutionalist economics. The 'stages plus crisis' framework also resonates with the social structures of accumulation (SSA) school articulated by neo-Marxists such as (see for instance Kotz *et al.*, 1994). It also resonates with the French regulationist school (see for instance Boyer & Saillard, 2002) that sees capitalism as organized by different regimes of production.

Minsky is a natural complement to both SSA and regulationist thinking and adds to their thinking. First, he brings a focus on finance which has been relatively absent

in SSA and regulationist thinking. Second, Minsky can be thought of as introducing a 'double stage' approach that includes both long and short stages. Regimes can be thought of as defining the long stage. Regimes then undergo short stages of evolution—success breeds excess breeds failure—that end in crisis.

Minsky's construction of the emergence of different of stages of the cycle also fits neatly with an evolutionary approach to economics. Additionally, the role of changing psychology and expectations in driving the shift from hedge to speculative to Ponzi finance links Minsky to the new field of behavioral economics in which psychological factors and biases play a critical role.

Furthermore, the Minsky super-cycle is also consistent with the concept of hysterisis that has been emphasized by Post Keynesians (see Setterfield, 1997a,b). For Minsky, history is a one way train and experience changes beliefs, understandings and priors in a way that cannot be reversed. Thus, the process of memory loss regarding prior crises is fundamentally hysteretic. So too is the changing pattern of data that results from changing behavior and changes in the institutional structure. This emphasis on history and the connection to hysteresis also connects with the ergodic–non-ergodic distinction that has been raised by Davidson (1991) and which challenges the legitimacy of using probability theory to describe the likelihood of realizing different states of the world.

Minsky was an avowed Keynesian and his approach is consistent with Keynesian economics that takes as its point of intellectual departure that capitalist economies are susceptible to crisis and are not automatically self-adjusting. New Keynesians (Bernanke *et al.*, 1996, 1999; Kiyoaki and Moore, 1997) have also tried to incorporate Minsky's thinking into their models through the notion of a financial accelerator. The logic is changes in asset prices increase the value of collateral enabling increased borrowing that raises debt and ultimately gives rise to balance sheet congestion that causes downturns.

The new Keynesian financial accelerator succeeds in creating a financially driven business cycle but it is fundamentally different from Minsky's financial instability hypothesis. That is because New Keynesian models are philosophically inconsistent with Minsky because they are stable equilibrium models that by definition cannot incorporate the financial instability hypothesis. In a new Keynesian world rational agents would form expectations that peer into the future, recognize the economy is headed on an unstable path, and immediately bring those implications to the present forcing in place alternative stable arrangements.[6] This construction of the economic process fundamentally contradicts Minsky's construction which is about the gradual inevitable evolution of instability that agents are blind too yet is inherent in the structure and patterns of behavior.

Neo-classical rational expectations methodology that now dominates macroeconomics is methodologically incapable of incorporating Minsky's financial instability

[6] An alternative resolution is that of jumping to the stable saddle path solution. That trick is implausible in terms of what people in the real world understand about the economy, and it also does nothing to address the fundamental issue which is about the character of the economic process.

hypothesis. That is because it has in mind a different construction of the economic process—one that is stable. Cycles can be generated by adding mechanisms like the financial accelerator, but Minsky is about more than cycles. Likewise instability can be created by adding stochastic disturbances—'shocks'—but that completely misrepresents Minsky's instability which is rooted in evolutionary process. In the neo-classical world crises can only occur because of shocks: hence the emphasis on fat tailed probability distributions, perfect storms, black swans and other metaphors of chance. That is a fundamentally different construction of crisis from that contained in Minsky's financial instability hypothesis.

Square pegs cannot fit in round holes. Minsky is an intellectual square peg. Neo-classical rational expectations macroeconomics is an intellectual round hole. If the current financial crisis is indeed a vindication of Minsky's view of capitalism, then it means that neo-classical rational expectations macroeconomics is fundamentally flawed as a description of capitalism.

VI. THE FINANCIAL INSTABILITY HYPOTHESIS AS A REFLEXIVE PROCESS

Section II described Minsky as a process theorist. In many regards Minsky's construction of the capitalist process is a fundamentally post-modern construction in that it embodies reflexivity. Reflexive processes are circular processes between cause and effect, whereby an effect bends back to impact the source of the initial action. It is related to the concept of feedback.

The Minskyian construction of the economic process in terms of 'success breeds failure' can be applied more widely than just the financial business cycle. For instance, one application might be to popular understandings of unions and their economic effects. In the period after the great Depression trade unions were seen as a necessary institution for correcting excessive income inequality generated by the market and which threatened to undermine the system. Over time, as unions succeeded in bringing down income inequality people may have begun to believe that the problem of income inequality was permanently solved so that unions were no longer needed. Consequently, public support for unions may have declined, causing unions to shrink, and the problem of income distribution to return.

A similar logic can be made regarding the economics of Keynes and Keynesian economic policies. After World War II, Keynesian economics emerged triumphant, with the New Deal and the war having shown how demand management could restore full employment. This triumph was followed by a 25 year period in which the economy experienced historically fast growth, stable conditions, and low unemployment. However, that success may have led people to believe that the economic problem was permanently solved and to forget the history behind this success. This memory loss may in turn have contributed to the retreat from Keynesianism and fostered the return

of *laissez-faire* understandings and economic policy.[7] In effect, Keynesian success at taming the economy helped create the space for re-birth of instability.

The financial instability hypothesis, the evolution of attitudes about unions, and thinking about Keynesianism all embed a common Minskyian meta-process. People's understanding of the economy evolves through time and people are involved in making the outcomes that change their understandings. At the same time their initial understandings contributed to those outcomes. Thus there is a feedback loop that runs as follows: initial understandings → outcomes → new understandings.

This feedback loop is fundamentally reflexive. It is central to the Minsky super-cycle, and it has also been emphasized by the financier George Soros (1987). The looping process affects all—borrowers, lenders, regulators, and policymakers. It also affects economists and their knowledge claims. Thus, when the boom is on economists can get caught up in the optimism of the boom—as perhaps evidenced by Federal Reserve chairman Ben Bernanke's endorsement of the 'Great Moderation' hypothesis (Bernanke, 2004).

Even more importantly, as members of and participants in society, economists and policymakers will get caught up in the long-wave that drives the super-cycle. That has implications for the contribution of economic policy to the erosion of thwarting institutions. Thus, the success of thwarting institutions in generating stable outcomes will create an environment in which agents and economists think the system is fundamentally changed. Market participants may then start to take on more risk as well as making political demands for new rules that allow more risk-taking. Economists and policymakers may endorse this by arguing things are changed and the thwarting institutions are no longer needed or never really contributed to stability. This is reflexivity operating on a grand scale.

VII. POLICY IMPLICATIONS

Hyman Minsky was first and foremost a theorist of the process of financial capitalism. However, his work also carries deep prescriptions for thinking about policy and policymaking. These policy prescriptions run significantly counter to the prescriptions generated by new classical and new Keynesian macroeconomics which have dominated economics for past 30 years.

Policy prescription 1: Policymakers should exercise self-conscious skepticism toward the euphoria that accompanies business cycle. Such euphoria is an inevitable product of the logic of the financial instability hypothesis.

Policy prescription 2: Capitalist economies need significant regulation containing financial speculation and financial excess because the economy has an automatic behavioral tendency to instability. If Milton Friedman is the philosophical advocate of

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a deregulated economy, Hyman Minsky is the philosophical advocate of a regulated economy. For Friedman the case for deregulation is to be found in the first welfare theorem of competitive general equilibrium theory. For Minsky the case for regulation is to be found in the financial instability hypothesis. That justification is fundamentally distinct from the conventional market failure justification for regulation which is rooted in competitive general equilibrium theory.

Policy prescription 3: A Minskyian perspective emphasizes policy discretion over policy rules. Models, numbers, and rules are insufficient for policymaking. There is no substitute for judgment in policymaking because the economy is governed by an evolutionary dynamic that has an inevitable tendency toward instability. Rules based policy is unable to recognize and respond to this process. Instead, there is need for discretion combined with thwarting institutions. Indeed, those thwarting institutions might be considered Minsky's equivalent of rules.[8]

In sum, Minsky's financial instability hypothesis is a theory of economic process under financial capitalism. That process has an inevitable tendency to generate instability, through the combination of the Minsky basic cycle and the Minsky super-cycle. This means there is a key role for policy to thwart instability. The challenge for policymakers is both to identify incipient sources of instability and to ward-off market participants whose private economic interests lead them to advocate abolition of the thwarting institutions that prevent instability. That advocacy can take the form of direct capture of regulators, policymakers, and politicians, as well as indirect capture implemented through capture of economic discourse.

REFERENCES

Bernanke, B. (2004) *The Great Moderation*. Washington, DC: Remarks at the meetings of the Eastern Economic Association.

Bernanke, B., Gertler, M. & Gilchrist, S. (1996) The financial accelerator and the flight to quality. *Rev. Econ. Statist.*, **78**, 1–15.

Bernanke, B., Gertler, M. & Gilchrist, S. (1999) The financial accelerator in a quantitative business cycle framework. *Handbook of Macroeconomics*, vol. 1 (Taylor, J. B. & Woodford, M. eds). Amsterdam, New York and Oxford: Elsevier Science, pp. 1341–1393.

Boyer, R. & Saillard, Y. (2002) *Regulation Theory: The State of the Art*. London: Routledge.

Davidson, P. (1991) Is probability theory relevant for uncertainty? A Post Keynesian perspective. *J. Econ. Perspect.*, **5**, 129–143.

Delli Gatti, D., Gallegatti, M. & Minsky, H. P. (1994) Financial Institutions, Economic Policy and the dynamic Behavior of the Economy. Working Paper No. 126. New York: The Jerome Levy Economics Institute of Bard College.

De Long, J. B., Shleifer, A., Summers, L. H. & Waldman, R. J. (1990) Noise trader risk in financial markets. *J. Political Economy*, **98**, 703–738.

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FERRI, P. & MINSKY, H. P. (1992) Market Processes and Thwarting Systems. Working Paper No.64, The Jerome Levy Economics Institute, Bard College, Annadale-0n-Hudson, NY and published in *Structural Change and Economic Dynamics*, **3**, 79–91.

FOLEY, D. K. (1987) Liquidity—profit rate cycles in a capitalist economy. *J. Econ. Behav. Organ.*, **8**, 363–376.

GALLEGATI, M. & GARDINI, L. (1991) A non-linear model of the business cycle with money and finance. *Metroeconomica*, **42**, 1–32.

HICKS, J. R. (1950) *A Contribution to the Theory of the Trade Cycle*. Oxford: Clarendon Press.

JOHNSON, S. (2009) The Quiet Coup. *The Atlantic Monthly*, May 2009.

KIYOYAKI, N. & MOORE, J. (1997) Credit Cycles. *J. Political Economy*, **105**, 211–248.

KOTZ, D. M., MCDONOUGH, T. & REEICH, M. (eds) (1994) *Social Structures of Accumulation: The Political Economy of Growth and Crisis*. Cambridge: Cambridge University Press.

MINSKY, H. P. (1957a) A linear model of cyclical growth. *Rev. Econ. Statist.*, **41**, 133–145.

MINSKY, H. P. (1957b) Monetary systems and accelerator models. *Am. Econ. Rev.*, **47**, 859–883.

MINSKY, H. P. (1992) The Financial Instability Hypothesis. Working paper No. 74, The Jerome Levy Economics Institute of Bard College, New York, 1992 and published in Arestis P. and Sawyer M. (eds), *Handbook of Radical Political Economy.* Aldershot: Edward Elgar.

MINSKY, H. P. (1993) Financial Integration and National Economic Policy. Paper presented at the Post Keynesian Workshop. Knoxville: University of Tennessee.

MINSKY, H. P. (2008) *Securitization, Policy Note 2*. New York: The Levy Economics Institute of Bard College.

PALLEY, T. I. (1994) Debt, aggregate demand, and the business cycle: an analysis in the spirit of Kaldor and Minsky. *J. Post Keynesian Econo.*, **16**, 371–390.

SAMUELSON, P. A. (1939) Interactions between the multiplier analysis and the principle of acceleration. *Rev. Econ. Statist.*, **21**, 75–78.

SCHUMPETER, J. A. (1939) *Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process*. New York: McGraw-Hill.

SEMMLER, W. & FRANKE, R. (1991) Debt financing of firms, stability, and cycles in a dynamical macroeconomic growth model. *Nicholas Kaldor and Mainstream Macroeconomics* (NELL, E. & SEMMLER, W. eds). London: Macmillan.

SETTERFIELD, M. (1997a) Should economists dispense with the notion of equilibrium. *J. Post Keynesian Econ.*, **20**, 47–76.

SETTERFIELD, M. (1997b) *Rapid Growth and Relative Decline: Modeling Macroeconomic Dynamics with Hysteresis*. London: Macmillan.

SKOTT, P. (1994) On the modeling of systemic financial fragility. *New Directions in Analytical Political Economy* (DUTT, A. K. ed). Cheltenham: Edward Elgar.

SOROS, G. (1987) *The Alchemy of Finance*. New Jersey: John Wiley & sons, Inc.

WRAY, L. R. (2008) *Financial Markets Meltdown: What Can We Learn from Minsky?* Public Policy Brief No. 94. New York: The Levy Economics Institute of Bard College.

ZAKARIA, F. (2008) There is a Silver Lining. *Newsweek*, October 11, 2008.

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