The Economics of Financial Turbulence

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The Economics of Financial Turbulence

Alternative Theories of Money and Finance

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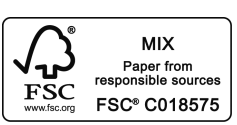

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Introduction

The recent onset of the most severe, synchronized global economic slump since the 1930s depression has rekindled controversies over the contradictory 'laws of motion' of capitalism and the very nature of capitalist money in the wake of the global financial meltdown, which preceded the slump. The evidence suggests that these recurrent crises have become more frequent, severe and prolonged during the neoliberal era from the mid-1970s onward and appear to have coincided with the policies of financial deregulation enacted during this period. Many heterodox critics have argued that the phenomenon of 'financialization' lies at the very core of these recurrent financial crises. The aim of this study is to examine the dynamics of these debilitating phases of financial instability from a theoretical perspective. What are the implications of financialization? Does the present conjuncture signify the final historical vestiges of the neoliberal project? More importantly, what is the nature of specifically capitalist money? These are quite profound questions which attempt to reveal the pathologies of the present phase of capitalist evolution and the inherent instability of deregulated financial markets.

In a broader historical context, capitalist crises are functional and strategic. These crises signify the culmination of one process and the beginning of another. In a continuous, latent process of transformation, all of the subterranean, conflicting forces come to the surface and bring to light the very paradoxes of history itself. Through the dynamics of catharsis and reconstruction, capitalist crises provide the material basis by which profitability is restored once again. The 'slaughtering of capital values', to paraphrase Marx, is a necessary, though irrational means which allows the restructuring of production to establish the material and technological basis for yet another phase of accumulation. The recovery, however, is neither automatic nor entirely endogenous. The outcome will ultimately depend upon the complex relation of class forces. As Dobb quite perceptively contends: 'To study crises was *ipso*

facto to study the dynamics of the system, and this study could only be undertaken as part of an examination of the forms of movement of class relations and of class revenues which were their market expression' (Dobb, 1937, p. 81).

The ascendancy of finance capital after the long period of 'financial repression' during the post-war Keynesian era was an integral element of a much broader strategy by the capitalist state to reassert the hegemony of capital through the policies of neoliberal restructuring. The persistence of severe productive excess capacity, however, was never fully resolved. To be sure, the forcible ejection of superfluous capacity is precisely the functional role performed by capitalist crises to counteract a falling rate of profit and establish the basis for a renewed phase of accumulation. Although the strategy of imposing the rationalizing logic of the market succeeded in winding back the previous gains of the working class, the restoration of profitability inevitably encountered the limits set by the chronic lack of effective demand. In most advanced capitalist countries, income inequalities only worsened over time as real wages stagnated. In order to maintain their real purchasing power in the face of stagnating real wages, workers were compelled to resort more than ever to the privations of debt servitude. Real purchasing power was increasingly augmented by burgeoning levels of household debt (Barba and Pivetti, 2009, p. 122). On the other hand, the wealth effect of rising asset prices transformed millions of ordinary workers into investors and acted as a powerful transmission mechanism in the maintenance of the purchasing power of consumers. In 1987, 25 per cent of US households had a stake in the stock market. By the late 1990s, over half of all US households owned shares, either directly or indirectly through mutual funds (Harmes, 2001). Indeed, the financial assets of mutual and pension funds had grown by almost ten-fold since 1980, estimated at about $US20 trillion in the late 1990s (Gilpin, 2000, p. 32). In the decade 1997–2007, real estate values had more than doubled – from about $US10 trillion to over $US20 trillion. Home mortgage liabilities rose even faster during this period – from $US2 trillion to over $US10 trillion (Wray, 2007, p. 27). This represented an additional $US8 trillion generated by the housing wealth effect (Baker, 2007, p. 2).

Yet these neoliberal victories were always problematic and contingent. As the current crisis unfolds, it is becoming increasingly evident that the neoliberal transformation was to a large extent self-defeating. As the state regains a central role amidst the ruins of bankrupt financial institutions and the desperate attempts by the state to socialize losses and

privatize profits, neoliberal ideology appears to have lost all credibility and legitimacy, not least from the standpoint of capital itself. The current crisis can be said to signify the final lingering remnants of a discredited neoliberal project. The realignment of class forces will doubtless determine how these complex ideological struggles will be consummated. The crisis will also sharpen these contradictory class conflicts and breed anti-systemic social forces. Despite the rather pyrrhic victories over the labour movement and the relative success in restoring the hegemony of capital, the neoliberal strategy could not resolve the fundamental problems of over-accumulation and economic stagnation. The successive speculative asset price and equity booms have to some extent temporarily counteracted these stagnationist tendencies but ultimately proved to be illusory for the mass of the population as the financial meltdown has testified. At the same time, the three decade-long Monetarist struggle against inflation has left in its wake stagnant economic growth; rising levels of structural unemployment; greater job insecurities and income inequities; and the re-emergence of deflationary forces inextricably associated with the chronic depression of effective demand. A brief history of neoliberalism reveals the limits of an ideology imbued with the nostalgic appeal of nineteenth-century laissez-faire, colliding with the realities of twenty-first-century monopoly capitalism.

The basic failure of the neoliberal strategy has been the unfounded faith that the market mechanism would automatically ensure that increased profits generated through the reduction of the wages share of national income were ultimately channelled into productive investment. In retrospect, however, the evidence suggests that the restoration of the rate of profit was achieved overwhelmingly through extensive rather than intensive forms of exploitation, which have had the overall effect of increasing the rate of productivity via the restructuring and rationalization of the labour market. Consequently, the purgative forces induced by an intensification of competition have failed to reignite productive and technological dynamism; or what Schumpeter had alluded to as the gales of 'creative destruction'. Instead of providing the foundations for technological reconversion and industrial upgrading, the sharp increases in aggregate profits were dissipated into corporate mergers and acquisitions, speculative financial engineering, and other forms of rent-seeking and entirely unproductive expenditures. In the aftermath of financial deregulation in the early 1980s, these speculative propensities reached truly astounding proportions and led to an unprecedented series of asset price booms. The business cycle has become almost entirely dependent

upon asset price bubbles. The real vulnerability of this finance-led regime of accumulation is that it has been based upon the greatest equity boom in modern history. The 1990s speculative boom in the USA has already reached its zenith. The bursting of the financial bubble is now reverberating on a global scale.

The myth of the market – depicted by the high priests of neoclassical economics as the bearer of allocative efficiency and the source of competitive and innovative dynamism – was in reality an ideological device to conceal the real interests of powerful corporate oligopolies. The consolidation of class rule involved the gradual redistribution of wealth through tax cuts, privatization and deregulation, from ordinary wage earners to the upper echelons of wealthy shareholders and their subaltern corporate-class allies. Regardless of its party-political incumbents, the neoliberal state relentlessly pursued the dystopian vision of an informal empire of free enterprise (Arrighi, 1978a). The mantra of free trade and the drive to deregulate labour markets accompanied these neoliberal nostrums, while wholesale privatizations provided a fertile terrain in the expanded reproduction of capital into formerly state-owned and regulated sectors (that is, transportation, education, utilities, social infrastructure and services, natural resources and so on). These processes of 'accumulation through dispossession' have been starkly portrayed by Harvey: 'If the main achievements of neoliberalism have been redistributive rather than generative, then ways had to be found to transfer assets and redistribute wealth and income from the mass of the population towards the upper classes, or from the vulnerable to richer countries (i.e., accumulation by dispossession)' (Harvey, 2006, p. 43).

The ascendancy of finance capital was the driving force behind neoliberalism. The powerful rentier interests, who had been in long hibernation during the post-war 'golden era' of Keynesianism, now assumed centre stage, propagating the doctrines of 'shareholder value' and 'sound finance'. The onset of stagflation in the 1970s and 1980s as a result of successive oil price shocks witnessed the rise of Monetarism as rentiers clamoured to restore the value of their financial assets from the depredations of inflation and the threat posed by the labour movement as it sought to increase the relative share of wages. Indeed, Kalecki had already foreseen the political aspects of full employment in his seminal article in 1943. Kalecki argued that full employment would not be tolerated by the 'captains of industry' because of the threat this would pose for the maintenance of worker discipline in the factories and would ultimately weaken the role performed by the reserve army of labour in

depressing wages (Kalecki, 1943). The rise of Monetarism was precisely the panacea that Kalecki had uncannily foreseen, which would ostensibly restore profitability and shareholder value. The revival of pre-Keynesian economic doctrines witnessed the revival of Say's law of the market in its modern guise as the 'efficient markets hypothesis'. The ideology of these laissez-faire doctrines was embellished with the dogma of budget surpluses, the abandonment of full employment policies and the winding back of the state. In the absence of countervailing modes of state regulation and governance, market fundamentalism inevitably destroyed the post-war Keynesian institutions and modes of regulation (Boyer, 1996, 108). The persistence of high levels of unemployment, more volatile financial panics and the emergence of semi-permanent overcapacity have characterized the neoliberal era since the mid-1970s.

> In modern complex economies, a large and growing part of money capital (i.e., money invested with a view to earning more money) is not directly transformed into productive capital serving as a means by which surplus value is extracted from the productive utilization of labour power. Instead it is used to buy interest-bearing or dividend-yielding financial instruments ... . Many capitalists are being offered an enormous variety of financial instruments to choose from – stocks and bonds, certificates of deposit, money-market funds, titles to all sorts of assets, options to buy and sell, futures contracts, and so on. There is no presumption, let alone assurance that money invested in any of these instruments will find its way, directly or indirectly, into real capital formation. It may just as well remain in the form of money capital circulating around in the financial sector, fuelling the growth of financial markets which increasingly take on a life of their own. (Magdoff and Sweezy, 1987, pp. 96–7)

The crisis of over-accumulation means that markets have become saturated and in order to reinvest profitably, financial markets become the channels through which a growing proportion of capital is held and reinvested in its liquid form, while an ever-growing volume is devoted almost entirely to short-term speculation. To be sure, the successive waves of financialization since the mid-1970s have been marked by speculative and predatory asset price booms and busts. Financial deregulation unleashed these powerful redistributive forces of accumulation by dispossession. The quite extraordinary rise in private indebtedness reduced whole populations into debt peonage and attracted millions into the vortex of speculative manias emanating from the stock market casinos. Ordinary workers were now drawn into the maelstrom of the financial markets as their

wealth, in the form of real estate and mutual/pension funds, was increasingly subjected to the vicissitudes of these volatile markets. In short, the logic of financialization has penetrated the ordinary lives of wage earners and inserted the ideology of the market in the reproduction of capitalist social relations. This process was reinforced by the dominant ideology of neoliberalism, which was pursued remorselessly by the neoliberal state as it proceeded to open up the public sphere to private investment and ownership. With the curtailment of state intervention and public investment, privatization and the policies of deregulation gradually destroyed the institutions and regimes of regulation established during the post-war Keynesian era.

Financialization propagated the doctrine of shareholder value, which soon began to govern the imperatives of corporate governance. Short-term financial gains based upon the maximization of share market returns soon eclipsed and eventually undermined long-term investment strategies. A self-serving managerial class, motivated by short-term, speculative gains in the form of stock options and bonuses, emerged as the new corporate predators. The pursuit of short-term shareholder value was frequently invoked to promote the downsizing of the workforce and the distribution of retained earnings to shareholders (Lapavitsas, 2008, pp. 25–6). This strategy also led to the recurrent waves of hostile mergers and acquisitions during the equity booms of the 1980s and 1990s and ultimately to the massive over-valuation of market capitalization spurred by booming equity prices and sustained by unprecedented leveraging operations. This whole process supported and accentuated the stock market boom of the 1990s and generated the illusory enrichment created by temporary asset price bubbles and the equally hallucinatory wealth effects induced by the financial euphoria. Initially led by the pension and mutual funds and later emulated by the more risk-seeking hedge funds, the theology of shareholder value mobilized and converted millions of ordinary workers into shareholders. Neoliberal ideology alone could not have mobilized this vast popular movement. As Minsky notes: 'The pension and mutual funds have made business management especially sensitive to the current stock market valuation of the firm. They are an essential ingredient in the accentuation of the predatory nature of current American capitalism' (Minsky, 1996, p. 363).

In terms of stock market capitalization, the value of financial assets and finance-based income has risen dramatically since the neoliberal era. In the USA, for instance, stock market capitalization as a percentage of GDP increased from its long-term average of about 50 per cent

during the post-war era to more than 128 per cent in 2002 after peaking at 185 per cent at the zenith of the dot.com bubble in 1999. The ratio of profits of financial institutions to the profits of non-financial corporations rose from about 15 per cent on average in the 1950s and 1960s to almost 50 per cent in 2001 (Crotty, 2005, p. 85). Another indicator of the degree of financialization is the level of private debt or the relative size of the US credit market. In 1981, for instance, the value of the US credit market was estimated at 168 per cent of GDP. By 2007, this figure was over 350 per cent. At the same time, the share of total corporate profits accrued in the financial sector expanded from only 10 per cent in the early 1980s to 40 per cent in 2006 (Crotty, 2008, p. 10). The increasing reliance of large corporations on the issuing of debt via the open financial markets rather than borrowing from the commercial banks reinforced this whole process of financialization. The commercial banks were therefore deprived of their traditional sources of lending to corporations and began to engage in direct speculative operations in the real estate and equity markets. The other major new outlet for the commercial banks was the saturation of the household credit markets in mortgages and consumer credit. After financial deregulation, commercial banks also expanded their presence in financial market mediation through transactions in securities, derivatives, insurance and so on. Doubtless the most astounding evidence of financialization was the astronomical rise of derivative contracts. The volume of the derivatives market in the USA alone rose from about three times global GDP in 1999 to an estimated eleven times of global GDP in 2007. Credit default swap derivatives were estimated at $US62 trillion in 2007 (Crotty, 2008, p. 10). As Bryan and Rafferty elaborate:

> In global currency markets daily turnover has grown 50-fold since the early 1980s, and is now about $US1.9 trillion a day. Two thirds of this is transacted in derivatives markets, with three quarters of this derivatives trade (half the overall market) made up of foreign exchange swaps. To put this daily $US1.9 trillion turnover in some perspective, the annual value of international trade is less than $US6 trillion; equal to roughly 3 days trade in foreign exchange markets. (Bryan and Rafferty, 2006, p. 55)

The overall effect of the decoupling of financial intermediation by the commercial banks has been to render the entire banking system more fragile (Toporowsky, 2008b, pp. 9–10). As Minsky warned quite presciently, financial innovation through the process of 'securitization' has shifted the whole structure of the financial system towards a state of

perilous and chronic instability: 'In securitization, the underlying financial instruments (such as home mortgage loans) and the cash flows they are expected to generate, are the proximate basis for issuing marketable paper. Income from paper (cash flows) is substituted for the profits earned by real assets, household incomes, or tax receipts as the source of the cash flow to support paper pledges' (Minsky, 2008, p. 4). Financial deregulation accelerated this Minskyian process of pushing the financial system into a zone of extreme instability. The repeal of the Glass-Steagall Act in the USA in 1999, which had prevented commercial banks from engaging in investment banking activity, represents a historical landmark in the annals of recent financial history. To be sure, the elimination of this legislation, which was enacted amidst the collapse of the US banking system in the 1930s, was the culmination of over three decades of radical financial deregulation. In retrospect, there is a very sound argument to suggest that the financial turmoil of 2008–09 signifies the final destructive cataclysm of more than three decades of disastrous neoliberal economic policies.

The aim of this study is to critically examine alternative, heterodox theories of money and finance. For the prevailing neoclassical and Monetarist theories, money is essentially a 'veil' over barter to reflect differing exchange ratios between commodities. From this perspective, money is assumed to be neutral in the long run. The supply of money is treated as an exogenous variable, which is created by the central bank. The prevailing wisdom asserts that financial crises are random, exogenous events, which arise out of central bank policy errors or emanate from extraneous shocks to an otherwise self-correcting market economy to incorporate a whole spectrum of historical contingencies including wars, natural disasters, oil price shocks and so on. Indeed, the very assumptions of neoclassical theory, informed by the efficient markets hypothesis, tend to rule out the very possibility of endogenous financial crises. Consequently, the endogenous causes of these crises are either ignored or simply treated as random historical events. In stark contrast to the neoclassical/Monetarist view, there are numerous heterodox theories which seek to explain the occurrence of these financial crises as a result of the inner workings of the capitalist system. Endogenous money can be construed as specifically capitalist money and increasingly takes the form of pure credit. Since the banking system is capable of issuing credit money *ex nihilo,* a complex network of credit/debt relations emerge and elevate the role of money as an abstract, dematerialized unit of account. Credit money is therefore an

increasing function of private financial institutions, while the expansion of credit supersedes the limits imposed by the monetary unit (either as commodity money or as state money issued by the central bank). The breakdown of this chain of payments, however, causes a financial crisis. Money now reverts to its role as a means of payments and as a store of wealth.

The neoclassical reinstatement of Say's law implies the general impossibility of crises. The conditions necessary for the neutrality of money assume a pure commodity economy in which money is conceived merely as a medium of exchange. In a monetary economy, however, money also performs the role of store of value and means of payment. Under these conditions, Say's law ceases to apply. Indeed, the sole object of a capitalist economy is to realize exchange-values in the form of money. In Marx's circuit, M-C-M´, the ultimate aim of the individual capitalist is to increase his or her monetary wealth. A pure barter economy is the very antithesis of a sophisticated monetary economy. Crises are therefore inherent features of a monetary economy governed by investment cycles. Under a finance-led regime of accumulation, these realization crises become quite endemic. In other words, the greater the mediation of financial circuits, the sharper is the separation of the production of surplus value from its realization.

Since the very possibility of endogenous financial crises is ruled out by the assumptions of neoclassical and quantity theories of money, it is necessary – if not essential – to examine the various alternative heterodox theories of endogenous money. Although there is considerable divergence within the heterodox tradition, these theories share the critical and central contention that money is neither neutral, nor is the monetary sphere necessarily separate from the so-called 'real' economy. Quite the contrary: money is the most active element of an advanced capitalist economy. Money does indeed matter. Modern money is endogenous – it is created and destroyed purely on the basis of its demand. A monetary circuit initiates the process of production from the very moment that a bank creates a loan to a private enterprise and sets in train the streams of income in the form of profits, wages and rent. The circuit is closed when the firm pays back the initial debt to the bank and credit money is destroyed.

The structure of this volume is organized around the various heterodox strands of endogenous money. Most of these theories originate in the seminal writings of Karl Marx and J.M. Keynes. The first two chapters are devoted to Marxian perspectives on money, credit and crisis.

Chapter 1 examines Marx's original theory of value from the standpoint of a monetary economy. This chapter provides a coherent foundation for the analysis of a monetary circuit, which incorporates the theory of value. Since money validates social abstract labour, value cannot be measured solely in terms of socially necessary labour-time but as its monetary expression measured in terms of the monetary unit. The introduction of a monetary circuit restores the centrality of money in Marx's analysis of the accumulation of capital. This view is quite consistent with Marx's original theory of value and supersedes the commodity theories of money, which informed classical political economy during Marx's own era. Indeed, it can be surmised that Marx was one of the original theorists of endogenous money. Chapter 2 extends the analysis of a monetary economy to examine Marx's theories of money, credit and crises. This chapter reveals that Marx's original theory of endogenous money represents a radical departure from the prevailing doctrine of Say's law and the reigning orthodoxy of the quantity theory of money. In Volume 3 of *Capital,* Marx develops a theory of the trade cycle, which incorporates the credit cycle and provides some of the most insightful analyses of these inherently destabilizing tendencies produced by recurrent financial manias. It would be reasonable to contend that Marx's analysis of capitalist crises prefigures the modern Keynesian and post-Keynesian tradition.

Chapter 3 introduces the original Keynesian theory of money and uncertainty. Keynes's formative liquidity preference theory is examined and the problem of uncertainty, as opposed to probabilistic risk, is restored to its pre-eminent role in Keynes's unique non-ergodic vision of a monetary economy. There are also some parallels between Marx and Keynes in relation to Keynes's earlier 1933 monetary theory of production and in their respective treatments of money as a store of wealth. The evolution of chartalist forms of state money in Keynes's earlier analysis in the *Treatise* also provides a starting point for subsequent post-Keynesian theoretical renovations. Chapter 4 extends and elaborates on Keynes's original contributions within the post-Keynesian and Circuitist literature. The ongoing debates and controversies over the issues of uncertainty, liquidity preferences and Keynes's finance motive inform many of these theoretical contributions in the heterodox literature. Chapter 5 represents the penultimate development of these controversies and deals directly with the central thesis of this study. The aim is to construct a theoretical synthesis which incorporates Kalecki's principle of increasing risk and Minsky's finan-

cial instability hypothesis. The debt-deflation theory of depressions – first formulated by Veblen and later refined by Fisher – augments Minsky's financial instability hypothesis and provides a valuable analytical framework by which to interpret the cumulative causation of economic depressions.

The final two chapters are devoted to a more concrete, historical narrative of the current financial crisis. These chapters analyse the historical origins of the global slump through the lens of the heterodox tradition of endogenous money and the theoretical currents, which inform the dynamics of financialization. Indeed, the current crisis reveals quite starkly the limitations of existing neoclassical theories of general equilibrium and debunks the Monetarist myth of monetary neutrality. Quite ironically, policy makers throughout the world have sought some guidance in the revival of neo-Keynesian theories and have attempted to relearn some of the lessons of the 1930s depression. Whether these short-term expansionary fiscal and monetary policies will be sufficient to stabilize the slump and reactivate a synchronized recovery still remains to be seen. For the first time in over six decades, the world economy is now at the threshold of a severe synchronized downturn, which has engulfed the three major poles of accumulation in East Asia, the European Union and the USA. The only question that remains is over the severity of the emerging slump. In other words, will the onset of debt-deflation characterize the advanced capitalist countries? Furthermore, is there a real likelihood that the world economy could relapse into another phase of depression?

The ultimate object of this study is to provide a critical alternative view of the real causes of these destructive crises and by doing so, to expose the false apologetics of prevailing orthodoxies. A return to pure theory cannot be avoided. Ideas, as Keynes once remarked, are more powerful than is often presumed by the conventional wisdom. The 'struggle to escape from habitual modes of thought and expression' to paraphrase Keynes (1936, p. viii), doubtless informs the critique developed in this volume. Unlike the natural sciences, however, a paradigm shift in economic theory normally occurs in the event of a major historical catastrophe. The uncomfortable reality is that economic theory continues to be captive to ideology and the existing structure of political power. On a more optimistic note, however, the end of the neoliberal era could create the conditions for a radical rethinking of prevailing orthodoxies. Indeed, the Keynesian revolution was only made possible because of the depredations of the 1930s depression and the bitter polit-

ical lessons that had indelibly imbued the consciousness of the new post-war political order. The cornerstone to this post-war Keynesian consensus was the doctrine of full employment. To reclaim full employment as the prime macroeconomic objective would be tantamount to declaring the final obituary for the failed neoliberal project.

PART I

Marxian perspectives

1. A monetary theory of production

Nowadays people know the price of everything and the value of nothing.
Oscar Wilde, *The Picture of Dorian Gray* (1891)

INTRODUCTION

The essential aim of this chapter is to reinterpret Marx's theory of value from the standpoint of a modern monetary economy. In the tradition of the 'Rubin' school, it will be argued that the concept of abstract labour provides an analytical link between the two moments of the circuit of capital: between the process of the valorization of capital, on the one hand, and the realization of exchange-value, on the other. Marx's original theory of value will be reconstructed to establish a connection between the concept of abstract labour and money. Consistent with Rubin's (1972) interpretation, it will be argued that the law of value constitutes essentially two dialectical moments: (1) the potential or latent rate of exploitation in the sphere of production; and (2) the social validation of production as exchange-values. Abstract labour mediates this transformation from potential to actual value. Concrete labour becomes abstract in the exchange between commodities and money. Since money represents the validation of social abstract labour, the magnitude of value as embodied labour-time cannot be measured independently from the sphere of exchange. Money is the sole measure of abstract labour (Bellofiore, 1989, p. 10). This new interpretation makes it possible to formulate a non-commodity theory of money and sheds new insights into some of the perennial controversies over the essential properties of capitalist money.

THE MONETARY EXPRESSION OF EXCHANGE-VALUE

In Marx's original treatment, the quantitative dimension of the theory of value is expressed by the socially necessary labour-time required to produce a commodity. 'The value of any commodity – and this is also of the commodities which capital consists of – is determined not by the necessary labour-time that it itself contains, but by the *socially* necessary labour-time required for its reproduction' (Marx, 1990, Vol. 3, p. 238, emphasis in original). While it is possible to quantify the concrete labour-power expended to produce a particular commodity, the 'socially necessary labour-time' embodied in the commodity-form is synonymous with the concept of abstract labour. From the standpoint of its use-value, concrete labour is merely the qualitative dimension of particular heterogeneous forms of labour expended in the labour process. Abstract social labour, on the other hand, possesses an independent, homogeneous property, which is commensurable and exchangeable with other commodities (Gleicher, 1983, p. 111). As Kliman elaborates: 'The commodities are different not only as useful concrete things, but (for the same reason) also as the products of the different sorts of useful, concrete labouring activities. Only as products of "human labour in the abstract" are they the same' (Kliman, 2000, p. 105).

At a very abstract level of analysis, Marx theorizes that commodities have something in common, which can be quantified and measured. In the formal relations of exchange-value, Marx argues that the principle of equal exchange operates in the sense that qualitatively different commodities exchange for their equivalent values. Since use-value merely reflects differing qualities between commodities, it cannot denote a universal quantitative relation, even though capitalist production would not be possible in the absence of use-values. Indeed, production in any mode of production would not occur if commodities ceased to possess any use-values. 'Labour, then, as the creator of use-values, as useful labour, is a condition of human existence which is independent of all forms of society; it is an eternal natural necessity which mediates the metabolism between man and nature, and therefore human life itself' (Marx, 1990, Vol.1, p. 133). The act of exchange reveals the dual character of the relative and equivalent forms of the commodity. The equivalent form expresses the embodiment of abstract social labour (Marx, 1990, Vol.1, p. 150). Marx argues that the internal opposition between use-value and exchange-value inherent in the commodity-form 'gets

represented on the surface by an external opposition between the commodity that is a use-value and another that represents its value in exchange' (Marx, 1990, Vol.1, p. 153). As the intricate web of exchange becomes more complex, an 'expanded' form of value emerges in which one commodity assumes the role of a universal equivalent. The derivation of money therefore arises from the monetary expression of socially necessary labour-time. In other words, money becomes the abstract representation of value.

The determination of value as abstract labour-time establishes an analytical link between the sphere of exchange and the process of capitalist production. Since value embodies the universal attribute of the commodity-form, it is no longer possible to differentiate one commodity from another, despite the quite evident differences in the demand and the formation of simple use-values. 'The common factor in the exchange relation, or in the exchange-value of the commodity, is therefore its value ... . What exclusively determines the magnitude of the value of any article is therefore the amount of labour socially necessary, or the labour-time socially necessary for its production' (Marx, 1990, Vol.1, p. 129). The value form, in this sense, represents the social form of the commodity in its intrinsic capacity to enter into the process of exchange. The general equivalent form, according to Marx, represents the monetary expression of exchange-value.[1] It follows that if abstract labour is designated as the substance of value and accordingly, the quantity of socially necessary labour-time measures the value of commodities, the 'value of labour' becomes entirely tautological and superfluous. 'It is therefore the quantity of labour required to produce it, not the objectified form of that labour, which determines the amount of the value of a commodity ... . Labour is the substance, and the immanent measure of value, but it has no value itself' (Marx, 1990, Vol.1, p. 677).

From the standpoint of society as a whole, the exchange-value of commodities represents the total amount of abstract labour-time necessary for its production. Abstract social labour embodies both the direct process of producing commodities from the necessary inputs and indirectly in the production of these inputs themselves. Consequently, the total sum of abstract labour-time denotes the immanent measure of a commodity's exchange-value, or what Marx designates as value. The process of valorization occurs independently and logically precedes the formation of prices of production. At this stage, the process of valorization occurs in the sphere of production as individual capitalists extract surplus-value and distribute the potential profits between themselves.

The central problem for Marx in Volume 1 of *Capital* is to explain the origins of profit rather than how these profits are allocated between capitals on the basis of the prices of production. Production and circulation are therefore quite distinct and separate moments (Graziani, 1997, p. 26).

Value is realized in the sphere of exchange insofar as the potential abstract labour governs the magnitude of value in the process of production but has not as yet 'materialized' in the form of exchange-values. Value can only be socially validated as exchange-value as long as it is mediated by the market. As Bellofiore argues: 'Thus the key concept of the new reading of Marx is the notion of value as the social validation of private labour in exchange' (Bellofiore, 1989, p. 8). Both the qualitative and quantitative dimensions of value are inseparable: abstract labour cannot be confined to the sphere of production but requires its social validation as exchange-value (Messori, 1997, p. 65). Whereas the process of production creates potential value, the sphere of exchange realizes value in its elementary commodity-form. As Brown argues: 'The social division of labour is sustained only because the labour-time necessary for production of each commodity has emerged as a social substance, congealed as value, conferring on commodities the power of exchangeability in definite proportions. By realising this power and regulating exchange ratios, commodities as values externally enforce social labour relations in commodity producers and thereby make possible the evident, if crisis ridden, avoidance of total economic collapse' (Brown, 2008, p. 140).

For this reason, Marx makes the critical distinction between labour and labour-power. The latter represents the quantitative, commodity-form, which also expresses the exchange-value (wages) of workers (Park, 2003, p. 165). It follows that money wages are the exchange-value of labour-power measured in a monetary unit. The labour-time equivalent of the basket of goods bought by the worker from the money wage is variable capital or necessary labour, which is measured in labour-time (Desai, 1998, p. 10). The peculiar characteristic of labour-power is inscribed in its unique ability to create exchange-values (De Angelis, 1998, pp. 278–9). Conceived in its commodity-form, capitalists purchase labour-power in order to produce surplus-value. The wages received by workers endows them with purchasing power, which allows labour-power to reproduce itself. Consequently, the very essence of exploitation is expressed by the difference between labour embodied in the goods consumed by the worker and the labour-power expended in the capitalist process of production.

The quite distinct dialectical moments between the process of valorization, on the one hand, and the realization of exchange-value, on the other, inform Marx's analysis. Viewed as social labour or abstract labour, value can only be realized in the sphere of exchange. As Rubin states: 'Labour only takes the form of abstract labour and the products of labour the form of values, to the extent that the production process assumes the social form of commodity production, i.e., production based on exchanges' (Rubin, 1978, p. 123). Rubin argues that value is realized in exchange but that the substance of value is always imminent in the process of production. The Marxian theory of value cannot determine directly the set of relative equilibrium prices of production. Since value is immaterial but objective, it cannot be determined directly. Value is analogous to the law of gravity and merely exists in the relation between commodities. The monetary expression of exchange-value is the only means by which value is measured socially. The emergence of the money-form represents the crystallization of value, which governs the very logic of a capitalist economy (Harvey, 2010, p. 37). But the money-form is itself also problematic because of the contradiction between its function as a measure of value, on the one hand, and its role as a medium of circulation, on the other. Prices of production express money as a measure of value and are instead derived by a uniform or average rate of profit in the economy as a whole after the valorization of capital. According to Rubin's interpretation: 'Marx analyses the "form of value" separately from exchange-value. In order to introduce the social form of the product of labour in the concept of value itself, we are forced to split or divide the social form of the product which has not yet concretised in a specific object, but represents as it were the abstract character of a commodity' (Rubin, 1978, p. 132).

In Volume 1 of *Capital,* Marx argues that the rate of exchange for a specific commodity is undertaken in order to realize its money-form denominated in a monetary unit. The entire object of capitalist exchange is to convert surplus-value into profit in its money-form. In the classical system, this critical distinction is abstracted, if not entirely ignored, to assume simple commodity exchange to derive a set of equilibrium prices.[2] In other words, the money-form is inverted into its opposite: the ratios of exchange merely reflect definite ratios of supply and demand. Furthermore, the failure to distinguish between labour and labour-power leads into a blind alley. Labour-power is not a produced commodity, which needs to be 'transformed' into prices of production, nor should one assume that as an input, labour-power accrues an average rate of

profit. This rather crude form of commodity fetishism obscures the real intrinsic nature of capitalist exploitation. By ignoring the use-value and exchange-value character of the commodity-form, classical theory's original fallacy equates exchange-value with labour-time inputs; value becomes its measure.

> Value is created in production, materialised in commodities, *regardless of the actual money prices which these commodities are sold*, only the same mass of commodities (and hence the same amount of Value) exists after the sale as before. Different price relations will therefore give rise to different distributions of the total commodity product, and of the total sum of Values, but they cannot by themselves change these totals. (Shaikh, 1977, p. 113, emphasis in original)

The process of valorization therefore constitutes the logical primacy over the formation of prices of production. The law of value in this sense regulates the distribution of labour between different branches of production. Competition between capitals tends to equalize prices towards an average set of production prices in the long run (Nagatani, 2004, p. 66). But as Marx emphasizes, the prices of production should not be confused with market values expressed in money terms (Mandel, 1990, Vol. 1, p. 27). In the sphere of circulation, the process of valorization produces a mass of surplus-value, which is then exchanged between capitalists. At this stage, the redistribution only occurs between competing capitalists. Individual capitalists calculate their returns on the basis of the rate of profit rather than the rate of surplus-value (Medio, 1977, p. 384). In equilibrium, commodities are exchanged based upon their prices of production rather than their values. The analysis moves away from the process of valorization in which the focus is on the relations between capital and labour and towards the sphere of circulation, which governs the relations between capitalists themselves.

The market brings about the equalization of profits in which the profit rate is measured in relation to the total capital used by individual capitalists. In Volume 1 of *Capital*, the analysis is informed by the assumption that labour values are proportional to prices (Shaikh, 1977, p. 106). In Volume 3 of *Capital*, however, the correspondence between the magnitude of value and the socially necessary labour it embodies no longer applies when viewed from the standpoint of the capitalist class as a whole. The essential object of Marx's theory of value is to demonstrate that profit originates from the sphere of production rather than from circulation. But the rate of profit for the individual capitalist might also

depend upon factors within the sphere of circulation. The Marxian methodology begins with the sum total of 'social capital' and proceeds to derive an analysis of individual capitals, which are themselves the bearers of competition. The methodological order of determination is therefore from the abstract to the concrete (Moseley, 2004, p. 38). For Marx, the central aim was to demonstrate that the law of value continues to operate at a more abstract level of analysis as the focus shifts from the process of production to the sphere of exchange and circulation, which corresponds with Volumes 1 and 3 of *Capital* respectively.

> The general rate of profit is determined therefore by two factors: (1) the organic composition of the capitals in the various spheres of production, i.e. the different rates of profit in the particular spheres; (2) the distribution of total social capital between these different spheres, i.e. the relative magnitudes of the capitals invested in each particular sphere, and hence at a particular rate of profit, i.e. the relative share of the total social capital swallowed up by each particular sphere of production. In volumes 1 and 2 we were only concerned with the *values* of commodities. Now a part of this value has split away as the *cost price,* on the one hand, while on the other, the *production price* of the commodity has also developed, as a transformed form of value. (Marx, 1990, Vol. 3, p. 263, emphasis in original)

As soon as commodities enter into the sphere of circulation as exchange-values, the problem of measurement itself arises because of the operation of market prices, which might not reflect the actual values embodied in the process of production.[3] Production prices, in the original Marxian conception, as well as in the classical tradition of Smith and Ricardo, constitute the cost price in addition to the average rate of profit.[4] Market prices tend to fluctuate as a result of the laws of supply and demand and gravitate towards equilibrium production prices. But the transformation of values into prices of production does not imply any change in the abstract, socially necessary labour-time required to produce commodities (Uno, 1980, p. 79). To quote Marx: 'Since it is the total value of the commodities that governs the total surplus-value, while this in turn governs the level of average profit and hence the general rate of profit – as a general law or as governing the fluctuations – it follows that the law of value regulates the prices of production' (Marx, 1990, Vol. 3, p. 281). Prices of production which deviate from values merely reflect redistribution between individual capitals of the existing surplus-value produced. In this process, the general, aggregate rate of profits tends to be equalized as capital migrates from sectors experiencing a relatively low rate of profit to those sectors enjoying a

higher rate of profit. Since the price of production of a commodity enters as an element into the cost price of other commodities, prices of production will necessarily diverge from their values (Dumenil, 1980, pp. 436–7). There always exists the possibility of a quantifiable incongruity between price and the magnitude of value.

> With the transformation of the magnitude of value into the price this necessary relation appears as the exchange ratio between a single commodity and the money-commodity which exists outside it. This relation, however, may express both the magnitude of value of the commodity and the greater or lesser quantity of money for which it can be sold under the given circumstances. The possibility, therefore, of a quantifiable incongruity between price and magnitude of value, i.e., the possibility that the price may diverge from the magnitude of value, is inherent in the price form itself. This is not a defect, but, on the contrary, it makes this form the adequate one for a mode of production whose laws can only assert themselves as blindly operating averages between constant irregularities. (Marx, 1990, Vol. 1, p. 196)

Prices of production in this sense gravitate towards and reflect market prices to the extent that these prices are determined by the competitive forces of supply and demand between individual capitalists rather than by the direct imperatives which govern the production of surplus-value by 'social capital' as a whole (Harvey, 1999, p. 68). Indeed, the misconception that the prices of production are the cause of market prices is to conflate causation with 'calculation' (Fine, 1986a, p. 6). Prices of production are simply a tendency produced by the actual movement of market prices. The prices of production therefore represent a modified form of value or the market expression of the underlying essence of value-production. Profit, for Marx, 'is that disguise of surplus-value which must be removed before the real nature of surplus-value can be discovered. In the surplus-value, the relation between capital and labour is laid bare' (Marx, Vol. 1, in Meek, 1956, p. 95). But the actual conversion of surplus-value into average profit implies that most commodities are not sold 'at their values' but rather at the prevailing market prices, which tend to diverge from their values. As Harvey quite cogently contends: 'Market prices perpetually and necessarily deviate from values; if they didn't, there would be no way of equilibrating the market' (Harvey, 2010, p. 61). The tendency towards the equalization of profit in the economy as a whole necessarily implies that prices will logically diverge from values but total surplus-value will be redistributed between different branches of production through the equalization of average prices.

In stark contrast to the classical conception of absolute value embodied by labour, Marx argues that value itself is merely a socially determined relation and thus historically specific to a particular mode of production. It was precisely because the classical theorists were unable to interpret the value-form as the 'outward appearance' of social production that they confined themselves to an analysis of the magnitude of value (Rosdolsky, 1977, p. 123). Unlike the classical school, Marx stressed that abstract labour constitutes the social, materialized substance of value. The category of value under capitalistic conditions can only manifest itself as exchange-value and cannot be derived from the exchange of simple use-values (Pilling, 1986, p. 35). In other words, the form of appearance of value as it manifests itself as a market relation tends to conceal and mystify the real nature of class relations and exploitation in the actual creation of surplus-value within the sphere of production. The classical economists failed to distinguish concrete and abstract labour; whereas an 'embodied' labour theory of value occurs within all societies, abstract labour is specific to capitalism (Brown, 2008, p. 143). Thus, while it is possible to empirically observe concrete embodied labour, abstract labour can only be analysed indirectly through its social effects (Gerstein, 1986, p. 52). To quote Marx: 'It is their value that makes all commodities commensurable and this value is both hidden as a "phantom-like" objectivity and passed on in the process of commodity exchange' (Marx, 1990, Vol. 1, p. 128). Hilferding quite lucidly reveals the problems associated with this fallacy of composition in the classical line of reasoning as well as the limitations inherent in the methodological individualism of the neoclassical school.

> Every theory of value which starts from use-value, that is to say, from the natural qualities of the thing, whether from its original form as a useful thing or from its function, the satisfaction of a want, starts from the individual relationship between a thing and a human being instead of starting from the social relationships of human beings one with another ... . Such an outlook is unhistorical and unsocial. Its categories are natural and eternal categories. (Hilferding, 1975, p. 175)

The ultimate object of capital is to transform mere use-values into exchange-values and to convert surplus-value into profit through the well-known circuit, M-C-M´. All capitalistically produced commodities are, by their very essence, value-objects insofar as their intrinsic value is expressed in the form of positive equilibrium prices in the formation of a uniform rate of profit (Sekine, 1980, p. 294). The contradiction

between the use-value and exchange-value of the commodity-form is externalized by the rise of the money-form, which acts as the abstract representation of value. Money therefore constitutes the opening and closing moments in the general process of circulation in the valorization of capital. Marx's methodology is to move from the most abstract categories of analysis to the more concrete.[5] The commodity-form is transformed into the money-form and, assuming the realization of surplus-value into profit, into the capital form.

The concept of abstract labour forms the very foundation of Marx's theory of value. Indeed, the dual nature of labour conceived both as concrete labour producing use-values and abstract labour realized in the sphere of exchange constitutes the very core of Marx's immanent critique of the classical economists. This reformulation of the theory of value from its classical origins signifies a radical scientific departure. Marx's theory can be said to represent an epistemological rupture from classical economics (Althusser and Balibar, 1979, p. 149). This paradigmatic shift was a necessary prelude in the discovery of the general category of surplus-value. In this sense it would be grossly erroneous to categorize Marx's theory of value within the classical tradition. For Marx, the problem of value as an expression of abstract labour is not a problem of numeraire, but a problem of essence (Mandel, 1990, Vol. 1, p. 18). In the final analysis, the concept of value is intrinsic to the commodity-form; the alienated form of labour-power reflects the very essence of capitalism conceived as the manifestation of commodity fetishism.

THE MONETARY CIRCUIT

Marx's theory of money can only be fully grasped within the general context of value theory. In other words, it is essential to establish an intimate connection between abstract labour and money. The derivation of money assumes an independent form of value and expresses the means by which market prices are denominated. Under capitalist social relations, the derivation of money presupposes that value assumes its autonomous form. Since commodities express values in their substance, the monetary expression of exchange-value constitutes the commensurable universal equivalent. It follows that the prices of commodities, which represent the exchange ratios between commodities and money (that is, the expanded form of value), are determined by the relative quantities embodied in socially necessary labour-time measured in the

equivalent monetary unit. Labour-time embodied in use-values can only be validated socially in the form of money and thus as exchange-values mediated by the market (Trigg, 2006, p. 31). Marx's theory of value reveals the inextricable link between abstract labour and money. In the words of Shaikh: 'The money-price of a commodity is the "golden" reflection, the external measure, of its exchange-value. It is what Marx calls the *form* taken by Value during exchange' (Shaikh, 1977, p. 114, emphasis in original).

Marx argues that social custom and norms will determine which form of commodity money is selected through the process of excluding all other commodities other than one particular commodity, which then acts as the universal equivalent. Money is ultimately sanctioned by the state and enjoys a monopoly over the purchasing power of commodities. To quote from Lapavistas: 'The universal equivalent as monopolist of the ability to buy is the social bond of commodity owners, the *nexus rerum* of capitalist society' (Lapavistas, 2005, p. 97). As long as abstract labour is validated socially, the universal equivalent necessarily assumes an autonomous, independent form of value. In Marx's own era, gold represented the universal equivalent, while Marx treated paper money as a 'symbol' for gold (Junankar, 1982, p. 108). Money acts as the common denominator, as the measure of values and as the necessary means by which the magnitude of the value of commodities are expressed socially (Rosdolsky, 1977, p. 137). The quantity of money in circulation therefore adjusts to the sum of prices through the 'law of reflux' by either hoarding or dishoarding within the financial system or through changes in the velocity of circulation (Moseley, 2005b, p. 4).[6]

The process of circulation creates the illusion that money itself makes commodities commensurable. But beneath the appearance or the 'phenomenal form' of exchange-value, abstract labour determines the materialized substance of value: 'Because all commodities, as values, are objectified human labour, and therefore in themselves commensurable, their values can be communally measured in one and the same specific commodity, and this commodity can be converted into the common measure of their values, that is into money' (Marx, 1971, pp. 66–7). In the general circuit M-C-M´, money mediates the process of circulation in which the real social character of production is subsumed by the private acts of individuals engaged in buying and selling.

> Money is active in positing commodities as values. This prefigures the dominance of buying in order to sell (M-C-M´) in developed capitalist relations.

> In M-C-M´, money cannot possibly be seen as passive because a monetary increment is set as the aim of the circuit. Money is the most active thing there is in the economy, an important goal of any theory of money should be to explain this. (Arthur, 2006, p. 33)

Indeed, the monetary system itself can also be a means of deferred payment or the modern expression of circuits of credit. Implicit in Marx's law of value and the reproduction of capitalist social relations is the concept of a monetary circuit. In order to purchase the necessary means of production and set in train the production process, capitalists need to have access to lines of credit. Workers are deprived of the ownership of the means of production and as Marx stresses, only receive their monetary wage after the circuit M-C-M´ is completed. Since the sole aim of production is to realize exchange-values in their monetary equivalent, capitalists need to obtain finance from the banking sector. Assuming the realization of surplus-value into profit, capitalists are then able to close the circuit by repaying their initial debt to the banks (Graziani, 1997, p. 35). From this perspective, Marx's original commodity theory of money appears to be incompatible with the concept of a monetary economy. The essential features of a capitalist monetary economy assume that the overriding imperative of production is to realize exchange-values in terms of a universal equivalent, which Marx denotes as a form of commodity money (that is, gold). But commodity money fails to distinguish between real and money wages. Indeed, the concept of commodity money appears to correspond with a simple commodity economy based upon the production of use-values (Messori, 1997, pp. 83–4). As soon as a monetary circuit is introduced, it becomes evident that workers will bargain for their *ex ante* wages on the expectation that their real *ex post* wages will be sufficient to maintain their purchasing power. According to Bellofiore and Realfonzo: 'The origin of surplus-value here is then only in the surplus labor extorted in production in excess of the "necessary labor" contained in the real wage, *as expected by workers and confirmed on the market*' (Bellofiore and Realfonzo, 1997, p. 102, emphasis in original).

The monetary circuit begins with the agreement to purchase labour power, which is logically prior to the actual payment of wages. The payment of wages then endows workers with purchasing power. But money wages might not necessarily correspond with real wages in terms of its purchasing power. Indeed, the initiating moment in the labour process implies that capitalists possess purchasing power rather than a quantity of commodity money. This purchasing power is based upon the

promise to pay at the end of the production process (Graziani, 1997, p. 34). Workers thus offer the use-value of their labour in advance. Labour power is exchanged for a money wage, which the worker receives after the stipulated contract has been agreed upon with the capitalist. In other words, the worker effectively advances credit in the form of potential value to the capitalist. The money wages received at the end of the production process also sets in motion its own monetary circuit as workers purchase consumption goods. The real purchasing power of money wages is thus only realized at the end of the monetary circuit (Bellofiore, 1989, p. 9).

Since the money wage is negotiated before the production process begins, workers have to wait until the final products are exchanged in the market in order to calculate their real wages. The magnitude of value is given by the socially necessary labour-time required to produce the commodity, which represents what Marx describes as 'necessary labour'. Labour-power can be reduced to a value magnitude and measured in terms of the purchasing power required to produce a basket of wage goods. The magnitude of 'surplus-labour' is therefore the difference between what the worker produces and the value of the wage goods required to reproduce labour-power. This surplus labour embodies potential surplus-value. But the realization of potential surplus-value into actual surplus-value can only be validated socially as abstract labour. The initial monetary circuit between capital and labour is quite unique because unlike all other commodities, labour-power has the potential to create surplus-value. Since the value created is only potential or latent, it is impossible to calculate the magnitude of surplus labour and the rate of surplus-value until the output is exchanged for money. The magnitude of labour-time embodied can only be measured in terms of its monetary equivalent. Consequently, Marx's theory of value, in contrast to the Ricardian labour theory of value, cannot be interpreted as a 'labour-embodied' theory. The concept of abstract labour provides a logical solution to this dilemma. Since money has to represent abstract labour, the magnitude of value cannot be determined by concrete labour expended in the process of production.

There are essentially two moments in the circuit of money capital: the initial opening moment and the final moment of closure. In the initial moment, the capitalist purchases labour-power. At this stage, it can be assumed that capitalists borrow the money capital from the banking system. In a pure credit economy, these lines of credit can be used to purchase labour-power. In the second phase, workers receive their

money wages, which then generate purchasing power and set in motion the circuit of money wages in the consumption goods sector. With the realization of profits, the payment of money wages to workers and interest to rentiers, the monetary circuit is closed and credit has been destroyed (Graziani, 1997, pp. 30–1). When viewed from the standpoint of the monetary circuit, it is evident that commodity money is incompatible with a monetary theory of value. Since the purchase of labour-power is logically prior to the production of commodities, commodity money is no longer necessary. The production of commodity money itself is also quite redundant and logically inconsistent with the existence of a monetary circuit (Bellofiore and Realfonzo, 1997, p. 100). Credit money can be created *ex nihilo* through the banking system. The circulation of private money or bank money continuously interacts with state money. In order to reconstruct Marx's original commodity theory of money, the starting point would be to assume the existence of chartalist forms of money and the critical role performed by credit money in modern monetary economies. Since money is not necessarily a commodity, its purchasing power is determined by its ultimate command over labour-power.

CONCLUSION

It can be surmised that abstract labour and money are inextricably connected and represent opposite sides of the same coin. This perspective implies that the concept of exploitation is compatible with a non-commodity theory of money. The critical link between abstract labour and money, inspired by the 'Rubin' approach, provides a coherent and rigorous analytical framework by which to interpret Marx's original theory of money. It should be stressed, however, that Marx's theory is not necessarily informed by the classical commodity theories of money, which were prevalent during his own era. For Marx, commodity money only represents one form of the abstract representations of value. The existence of a monetary circuit implies that commodity money is no longer essential in the reproduction of capitalist social relations. As soon as the classical 'labour-embodied' theory of value is rejected and a monetary theory of production based upon Marx's unique concept of abstract labour is introduced, the alleged problem of an internal logical inconsistency in Volumes 1 and 3 of *Capital* can be refuted on both theoretical and methodological grounds. A monetary theory of production

provides a very sound foundation upon which to construct a theory of modern capitalist money, which incorporates the critical concept of a monetary circuit.

NOTES

1. It is precisely on this basis that the 'monetary expression of labour-time' (MELT) theorists attempt to find a solution to the so-called transformation problem: 'Whatever the particular monetary system, Marx's theory implies the existence of a quantitative equivalence in any particular period between the monetary unit and social labour-time. I will call this the "monetary expression of the labour-time" (MELT), which has dimensions of $ (or other currency units) per hour (or other time unit) of labour' (Foley, 2000, p. 7).
2. Adam Smith's original conception of value can be best described as a 'command' type theory in which the value of a commodity was embodied in the labour it could command in the market. Smith assumed that wages were basically determined *ex post,* that is to say, after the sale of the commodity. Both the amount of labour required to produce a commodity and the socially determined level of wages would determine the value of a particular commodity. Indeed, given the analytical problems encountered by this approach, Smith was to eventually abandon the labour theory of value altogether. The 'surplus' approach developed by the classical economists was based upon a distributional or an 'adding-up' theory of value, which attempted to explain the prices of commodities as the sum of wages, profit and rent and the class relations that these sources of income represented. It would be reasonable to contend that wages in this surplus approach were exogenously given and determined by historical and social conditions (Foley, 2000, p. 4). According to Garegnani: 'In this way Smith came to argue that the profit rate is dependent upon something he described as the "competition between capitalists", while at the same time contending that real wages tend towards a socially-determined subsistence, and rents are determined by still other distinct circumstances. As Marx put it, Smith came to envisage the real wage, the rate of profits and rent of land as "determined independently and separately"' (Garegnani, 1991, pp. 101–2).
3. The limited scope of this study precludes a more detailed discussion of the ostensible 'transformation problem'. Since these controversies remain essentially unresolved, the analysis limits itself to an exegetical treatment of Marx's original texts.
4. Ricardo was unable to reconcile the labour theory of value as soon as it was assumed that profit was a deduction from the product of labour. The original Ricardian theory was limited to analysing the magnitude of value expressed in terms of proportionate quantities of labour embodied in their production. This problem became quite evident when the procedure was applied to capitals of differing capital/labour ratios and turnover times. The formation of prices in terms of exchange ratios no longer conformed to the Ricardian labour theory of value (Sweezy, 1975, p. xxvii). Ricardo attempted to reconcile this logical inconsistency inherited from the surplus approach insofar as long-run equilibrium prices (or natural prices) tended to diverge from the original proportionality of the labour embodied in them. In other words, competition would tend to equalize prices around a centre of gravity in the long run. However, the fluctuation of prices from the labour embodied in the production of commodities contradicted the logical foundations of Ricardo's labour theory of value. The share of rent and profit appeared to vary between sectors, which led to a breakdown of the labour theory of value based on embodied

labour values. In order to resolve this logical inconsistency, Ricardo embarked upon a life-long intellectual pursuit to develop a more general analytical framework by which he could deduce an 'invariable standard of value', either through a standard commodity or a weighted average for which the distributional implications of the labour theory of value could be calculated more precisely. Sraffa's 'standard commodity' represents the culmination of this intellectual project (Sraffa, 1960).

5. One of the seminal studies of the process of drafting *Capital* is provided by Rosdolsky (1977) in which the influence of Hegel's *Logic* comes to the forefront in Marx's dialectical method of analysis during the early drafts but is not reflected in the final draft of *Capital*. As Rosdolsky quite succinctly observes: 'Marx shows that the method of "ascending from the abstract to the concrete" is the only scientific way of "appropriating the concrete and reproducing it as the concrete in thought". "The concrete is the concrete" so runs the famous sentence of the Introduction, "because it is the synthesis of many determinations, hence the unity of the diverse". Therefore it can only be fully understood by means of thought as a "process of synthesis", that is, by means of progressive reconstruction of the concrete from the most simple, abstract definitions of the concrete itself' (Rosdolsky, 1977, p. 26; quoted from the *Grundrisse,* 1870, p. 60).
6. Marx's theory of the quantity of money reverses the causal relation implicit in the Monetarist theory of money. The prices of commodities are measured in monetary units of gold and denoted as *P*. The volume of commodities that circulate over a specific period (that is, a year) is measured as an index, *Q*. Total circulation over a specific period is expressed as *PQ,* while the velocity of circulation of money is denoted as *V.* The stock of gold (*G*) required to circulate commodities depends inversely on the velocity of circulation. Marx's equation is the very opposite of the Monetarist quantity equation:

$$G = PQ/V$$

According to Foley: 'In Marx's theory the equation of exchange determines the quantity of gold circulation in the economy on the basis of the gold prices of commodities, *P,* the quantity of commodities circulated, *Q*, and the velocity of money, *V*' (Foley, 2006, p. 241).

2. A Marxian theory of money, credit and crisis

> It is in the foundation of capitalist production that money confronts commodities as an autonomous form of value, or that exchange-value must obtain an autonomous form in money, and this is possible only if one particular commodity becomes the material in whose value all other commodities are measured, thereby becoming the universal commodity, the commodity *par excellence,* in contrast to all other commodities.
>
> Marx (1990, Vol. 3, p. 648)

INTRODUCTION

It is possible to contend that Marx's theory of money is imbued with a very modern vision and in many ways prefigures the theories of Keynes (Sardoni, 1987). This is most evident in his treatment of credit and financial crises. Marx's theory establishes a close connection between the forms and functions of money expressed as the universal equivalent of exchange-value. The derivation of money assumes an independent form of value and reflects the existing social relations of production. Money itself precedes capitalism and evolves historically to perform the various functions assigned to the sphere of exchange and general circulation. These various forms of money are inextricably bound up in the functions performed by the universal monetary equivalent. It will be argued that specific capitalist forms of money correspond with the evolution of modern banking and the complex instruments of credit-creation and that the theory of a monetary circuit provides a more coherent analytical framework, which augments Marx's original treatment of credit money. Marx's original theory was based upon commodity money. But this does not necessarily imply that only commodities act as a universal monetary equivalent. Commodity money only represents a particular form of the universal equivalent. It is therefore necessary to distinguish the various forms and functions of money and how these

have evolved historically. The more modern forms of inconvertible paper money, credit and bank money have evolved as specific capitalist money. It is proposed that the original Marxian theory of money provides a sound foundation by which to interpret the emergence of finance capital and monetary circuits of credit. By doing so, it is thus possible to examine the modern dynamics of recurrent financial crises from the standpoint of the general laws of capital accumulation.

A MARXIAN THEORY OF MONEY AND CREDIT

Unlike Ricardo, Marx argued that money cannot be confined solely as a means of exchange and circulation. Indeed, even before the Keynesian critique of Say's law of the market, Marx had rejected the classical doctrine of money as merely a 'veil' over barter. In a pure commodity economy, money performs a passive role to reflect the exchange ratios of commodities in the process of barter. In this barter economy, buying and selling are simultaneous in the sense that it is the use-value of commodities which predominates. It is precisely on this basis that Say's law – which states that general overproduction is not possible – can be validated. To be sure, even if one assumes that the exchange of commodities occurs through money as a means of circulation, Say's law holds as long as money does not become an idle hoard or used as a store of value (Sardoni, 1987, p. 27). In stark contrast to the classical system, which confused a pure commodity economy with a capitalist monetary economy, Marx's system introduces money from the very outset. Indeed, as Bell quite succinctly notes: 'Money purchases commodities, but commodities do not purchase money. While commodities are meant to be sold, money is not for sale; it is the means of purchase' (Bell, 2009, p. 32). A universal equivalent in its money-form determines the very logic of a market economy insofar as the primary object is to realize the monetary expression of exchange-value. What ultimately motivates the individual capitalist is the creation and realization of surplus-value as profit in its money-form. A system of barter based upon social use-values is the very antithesis of capitalism (Rotheim, 1991, p. 247). The contradiction between capital in its money-form and in its form as a commodity signifies the imminent possibility of a financial crisis.

> A devaluation of credit money (not to speak of loss of its monetary character, which is in any case imaginary) would destroy all the existing relation-

> ships. The value of commodities is thus sacrificed in order to ensure the fantastic and autonomous existence of this value in money. In any event, a money value is only guaranteed as long as money itself is guaranteed. This is why many millions' worth of commodities have to be sacrificed for a few millions in money. This is unavoidable in capitalist production, and forms one of its particular charms. In former modes of production, this does not happen, because given the narrow basis on which these move, neither credit nor credit money is able to develop. As long as the social character of labour appears as the *monetary existence* of the commodity and hence as a *thing* outside actual production, monetary crises, independent of real crises or as an intensification of them, are unavoidable. It is evident on the other hand that, as long as a bank's credit is not undermined, it can alleviate the panic in such cases by increasing its credit money, whereas it increases this panic by contracting credit. (Marx, 1990, Vol. 3, p. 649, emphasis in original)

Marx identifies three basic functions of money. First, money is conceived as a unit of account and functions as a measure of value by assigning prices. Marx's original commodity theory of money led him to assign gold as the measure of value. The value of gold itself is determined by the embodied socially necessary labour-time required to produce this unique commodity. Unlike all other commodities, gold possesses a universal exchange-value, which is validated socially and sanctioned by the state as the measure of value. Second, money performs the role as a means of circulation (that is, the modern banknote), which is issued by private banks and ultimately regulated by the central bank through its reserve ratio requirements. The third function can be described as the abstract representation of value or quite simply 'money as money'. In its capacity of 'money as money', Marx distinguishes between three types of functions: (1) as a store of value in the form of money hoards: 'A certain section of capital must always exist as a hoard, as potential money capital; a reserve of means of purchase and payment, of unoccupied capital in the money-form, waiting to be utilised; part of the capital constantly returns to this form' (Marx, 1990, Vol. 3, p. 432). Money appears as potential capital. As a store of value, money acquires intrinsic purchasing power and through the circuit M-M', as self-expanding value (Freeman, 2004, p. 6); (2) as a means of payment or deferred payment in the form of credit; and (3) as world money associated with the means of international payments and reserve assets. In Marx's own time, this function was performed by the international gold standard under the aegis of *Pax Britannica.* As soon as money is inscribed as a measure of value and the standard by which prices are assigned, money acquires the role of a medium of

circulation. As a medium of circulation, money is guaranteed and sanctioned by the state as legal tender and issued as fiat money. In other words, the state is bestowed with the privileges of seigniorage. Its function as a measure of value is thus socially validated. It is only in the process of circulation that money acts as a universal equivalent in the formation of prices. Marx's analytical framework establishes a causal chain in which the function of money as a measure of value and standard of price presupposes its existence as a medium of circulation (de Brunhoff, 1979, p. 31).

The various functions of money might also correspond to their particular historical forms. The emergence of banking and credit-creation appears to correspond to the more advanced stages of capitalist evolution. By contrast, fiat money and the spontaneous evolution of precious metals or metallic forms of money precede capitalism itself and have their origins as far back as antiquity. These diverse forms of money profoundly affect the determination of monetary mediation. Accordingly, the function of money as an abstract representation of value corresponds with the more developed and advanced forms of monetary mediation in capitalist exchange (Lapavitsas, 1991, p. 295). The evolution of modern banking witnesses the assimilation of the management of means of payments and the creation of credit. The modern instruments of credit-creation and financial intermediation, which augment endogenous money creation, can be designated as the most recent forms of the abstract representations of value. They constitute the site upon which the formation and regulation of credit emanates and are at the strategic epicentre of the monetary circuits between capitalists and workers and between capitalists themselves (Graziani, 2003). However, it should be stressed that regardless of the forms of money, the essential functions remain more or less the same. Commodity money is therefore only one historical form of the universal equivalent. As capitalism evolves, the other forms of specific capitalist money such as credit, non-convertible fiat money, bank deposits and so forth tend to assume more dominant forms. These tendencies were already evident during Marx's own era with the evolution of modern forms of credit-creation.

> In interest-bearing capital, the capital relationship reaches its most superficial and fetishised form. Here we have M-M', money that produces money, self-valorising value, without the process that mediates the two extremes ... . In M-M' we have the irrational form of capital, the misrepresentation and objectification of the relations of production, in its highest power: the interest-

> bearing form, the simple form of capital, in which it is taken as logically anterior to its own reproduction process; the ability of money or a commodity to valorise its own value independent of reproduction – the capital mystification of the most flagrant form. (Marx, 1990, Vol. 3, p. 516)

When one compares the potent economic force that the modern system of credit imposes itself upon the dynamics of capital accumulation with the very benign and limited role that it performed during Marx's own era, the contrast could not be more prescient. Marx's analysis of the inner laws of motion of capitalist expansion reveals that the potential of credit and the evolution of finance capital were already imminent as a result of these expansionary forces of reproduction. The evolution of credit signifies the highest and most abstract form of money under capitalism. The banking system acquires the unique ability to convert credit into means of exchange, payments and circulation. Indeed, the very instruments of credit themselves now function as money. The entire system of finance capital is based upon the capitalization of income streams in the form of bonds, shares and other types of fictitious capital (Freeman, 2004, p. 10). In this contradictory and dialectical process, the expansion of interest-bearing capital emerges as a powerful means by which capital overcomes the constraints imposed by the level of savings (hoarding). But this very same process is also the harbinger of potential crises of over-accumulation:

> In a system of production where the entire interconnection of the reproduction powers rests on credit, a crisis must inevitably break out if credit is suddenly withdrawn and only cash payment is accepted, in the form of a violent scramble for means of payments. At first glance, therefore, the entire crisis presents itself as simply a credit and monetary crisis. And in fact all it does involve is simply the convertibility of bills of exchange into money. The majority of these bills represent actual purchases and sales, the ultimate basis of the entire crisis being the expansion of these far beyond the social need. On top of this, however, a tremendous number of these bills represent purely fraudulent deals, which now come to light and explode; as well as unsuccessful speculations conducted with borrowed capital, and finally commodity capitals that are either devalued or unsaleable, or returns that are never going to come in. It is clear that this entire artificial system of forced expansion of the reproduction process cannot be cured by not allowing one bank, e.g. the Bank of England, to give all the swindlers the capital they lack in paper money and to buy all the depreciated commodities at their old nominal values. (Marx, 1990, Vol. 3, p. 621)

Marx's analyses of the credit system and the evolution of interest-bearing capital are informed by the process in which money 'hoarding'

permeates and governs the fluctuations of the investment cycle. These hoards take the form of banknotes and deposit money, which are accumulated by the banking system and transformed into interest-bearing capital. Although Marx distinguishes convertible banknotes from commodity money, these instruments of credit are themselves a medium of circulation governed by the general laws of circulation. Credit therefore acts as a powerful mechanism in the expansion of production as capitalists use these funds to establish new circuits of capital. As these funds are recycled, the process of capitalist reproduction increases both in magnitude and hastens a reduction in the turnover time of capital. This cumulative process augments the formation of monetary hoards and sets in motion the further expansion of monetary credit. The whole dynamic is endogenous to the extent that the expansion of credit exceeds the constraints imposed by the existing monetary base. Access to credit becomes a strategic imperative for capitalists to expand output, especially during economic upturns, which intensifies their competitive struggle over markets. The degree of competition redoubles this competitive struggle over the demand for credit and becomes an important mechanism which regulates the rate of interest (Fine, 1985–86, p. 399). Indeed, the role performed by interest-bearing capital in expanding capital accumulation accelerates the concentration and centralization of capital and prefigures the rise of joint stock companies. By the late nineteenth century, capitalism begins to be characterized by monopolistic forms of competition and the ascendancy of finance capital into the 'commanding heights' of the economy (Hilferding, 1981). This process witnesses the growing interconnection between finance capital and industrial capital and the progressive subordination of industrial accumulation to the imperatives of finance.

> The most characteristic features of modern capitalism are those processes of concentration which, on the one hand, eliminate free competition through the formation of cartels and trusts and on the other hand, bring bank and industrial capital into an ever more intimate relationship. Through this relationship ... capital assumes the form of finance capital, its supreme and most abstract expression. (Hilferding, 1981, p. 12)

Marx's earlier theory of finance capital, or interest-bearing capital, was informed by the role of money as capital in the circuit M-M'. These forms of finance capital are confined within the sphere of circulation and as such mediate the processes of borrowing and lending between finance and industrial capital. Capital in this highly liquid form becomes what

Marx describes as a commodity *sui generis.* Marx contends that interest-bearing capital is appropriated from the surplus-value produced in the sphere of production. The payment of interest therefore represents a deduction from the surplus-value produced.

> Capital itself appears here as a commodity in so far as it is offered on the market and the use-value of money as capital really is alienated. Its use-value however is to produce profit. The value of money or commodities as capital is not determined by their value as money or commodities but rather by the quantity of surplus-value that they produce for their possessor. The product of capital is profit ... . Money or a commodity is already potential capital in itself, just as labour-power is potential capital. (Marx, 1990, Vol. 3, p. 477)

The reason why the financier is able to appropriate a portion of surplus-value is that money itself assumes the form of a commodity, which is alienated by the money capitalist. As use-value, money represents potential capital. The industrial capitalist deducts these interest payments from his or her profits, which then embodies the exchange-value of the money commodity in the form of interest-bearing capital (Harris, 1976, p. 147). In order to show how interest-bearing capital forms part of the general circuit of capital, Marx uses the following schema:

$$M^* - M - C\ \{(MP,\ LP)\}....(P)....C' - M' - -M^{*\prime}$$

where M^* denotes the interest-bearing capital of the financier which is lent to the industrial capitalist and is eventually converted into $M^{*\prime}$ at the end of the circuit. M^* is the payment of interest to the financier out of the realized surplus-value of the productive circuit (M'). As Panico argues: 'The relation appears as *antagonistic,* because what the industrial capitalist, working on borrowed capital, earns is not the gross profit (surplus-value) but the gross profit *minus* the interest he has to pay the money-capitalist' (Panico, 1980, p. 366, emphasis in original). Unlike modern theories of endogenous money informed by the circuitist approach, Marx develops a monetary theory of credit, rather than a theory of credit money.

The creation of bank money does not necessarily depend upon the previous accumulation of savings deposits. Financiers are endowed with the unique ability to issue unlimited bank money as a debt against themselves. Since the issuing of private credit merely represents an expansion of money as a unit of account based on the promise to pay at a future date of settlement, the whole logic supersedes the limits imposed

by the monetary constraint. In the words of Aglietta: 'This creation is *ex nihilo* because it does not presuppose the existence of a disposable monetary base. As against paper money in circulation, it is not an immediate representation of the general equivalent, but a token of credit that has to give proof of its monetary character' (Aglietta, 2000, p. 335). The sudden devalorization of capital in the event of a monetary crisis tends to induce the temporary bifurcation of the financial system from its monetary base (Harvey, 1999, p. 293). Commercial credit thus intersects and interacts between the monetary and the financial system and inherits the contradictions that characterize the function of money as a means of payments, on the one hand, and the dematerialization of money conceived as a measure of value, on the other hand. As a measure of value, future private contracts imply the fixing of the prices of commodities to be sold, which represent the measure of the debtor's obligations.

To the extent that debts are ultimately validated privately, money is dematerialized; indeed, money need not even make an appearance as long as credits and debts equilibrate by cancelling each other out. What ultimately prevents the unfettered and unlimited expansion of private credit is the historical evolution of chartalist forms of money issued by the state. A national currency issued by the state and regulated by central bank reserves imposes a monetary constraint upon the theoretically unlimited expansion of private banknotes. In this sense, central bank money replaces the commodity-form of money as the universal equivalent. In short, the state becomes the bearer of the monetary constraint. As a lender of last resort and as the institution which issues official reserves, the central bank acts as the means by which the private circulation of credit is socially validated. A chartalist conception of money implies that the state ultimately provides the legal and social validation of a national fiat money.

The credit system originates from the reflux of idle money capital, which accumulates in the course of the normal business cycle and in the turnover of total social capital. This source of idle capital becomes a 'reserve fund' and generates the interest-bearing capital for investment (Itoh and Lapavitsas, 1999). Marx prefigured Keynes in his monetary theory of interest, which is independent of the rate of profit, even though in the Marxian system, the rate of interest only plays a peripheral role in the dynamics of capital accumulation. In this regard, Marx was closer to the Banking school in their polemics against the Currency and Quantity theorists during his own era.[1] There are striking parallels between Keynes and Marx in their respective theories of the interaction between

the supply and demand for credit and the fluctuations of the investment cycle. In stylized terms, the demand for credit tends to increase during a phase of upswing and induces a rise in the rate of interest. Conversely a downswing dampens the rate of interest as the demand for credit diminishes. Indeed, during a financial crisis, the real social character of production, previously concealed beneath the private acts of borrowing and lending, now comes to the forefront as money reveals its social function as a means of payment. Credit transactions reflect the role of money as an abstract unit of account. As the chains of credit transactions are disturbed and ruptured, however, settlement demands that money perform the role as means of payments (Aglietta, 2000, p. 333). The crisis also starkly reveals the function of money as a store of value. To quote Dillard: 'There is a nice congruence between Keynes's description of money as "a bottomless sink of purchasing power" and Marx's statement: "The desire after hoarding is in its very nature insatiable"' (Dillard, 1991, p. 216).

For Marx, the determination of the rate of interest is ultimately based upon social convention and institutional norms. However, the source of interest payments must necessarily arise in the circuits of capital and its expanded reproduction. It is quite possible that the determination of the long-term rate of interest might be the outcome of an entirely different set of factors to those which determine the short-term rates. While the short-term rate of interest is basically the function of the money market, mediated by the banks via the rediscount rate, the long-term interest rates reflect long-term bond yields and other securities. In Marx's own time, the central bank (Bank of England after 1844) would determine the short-term rediscount rate and perform the role of lender of last resort in the event of a severe contraction of credit by temporarily suspending convertibility into gold (de Brunhoff, 1976, p. 44). In contrast to neoclassical and quantity theories of money, the Marxian theory of the rate of interest does not distinguish between 'real' and 'monetary' factors. Furthermore, as we have already alluded, the rate of interest is independent of the rate of profit; indeed, it is qualitatively distinct from the rate of profit. Whereas the rate of profit represents realized surplus-value generated from the sphere of production, interest is purely a monetary phenomenon, which is determined by the laws of supply and demand for money capital as well as by institutional factors.

> The basis of Marx's theory of the rate of interest, therefore, is that there is an average rate that lies somewhere between zero and the average rate of profit,

> and a market rate that fluctuates around the average rate in a manner related to the business cycle, rising at first slowly, and later sharply during a business cycle expansion, and falling during a recession. (Evans, 2004, p. 63)

Marx distinguishes between the average and the market rate of interest. Over the duration of the business cycle, an average rate of interest can be derived, which constitutes a 'centre of gravity' around which the market rate of interest fluctuates. According to de Brunhoff: 'The sole preconditions of the division between interest and profit are then that the rate of interest cannot be zero, and that it cannot exceed the average rate of profit' (de Brunhoff, 1979, p. 89).

TOWARDS A MARXIAN THEORY OF FINANCIAL CRISES

Marx's theory of the credit cycle is quite seminal to the extent that periodical crises are subjected to the over-expansion of credit, which could act as a catalyst for the ensuing downturn in investment. The credit system is therefore capable of temporarily superseding the monetary constraint, insofar as capitalist expansion is no longer constrained by the circulation of state money. Credit money could stimulate an expansionary phase of accumulation beyond these limits imposed by the monetary constraint, but at the risk of inducing a speculative mania. At the same time, these periodical crises signify a return to the 'monetary system' after a severe devalorization of existing capital values. As the ensuing credit crunch hastens widespread bankruptcies, the role of money as a store of value is once again restored. In other words, the social role of money is validated in the realization of exchange-values. The sudden upsurge in interest rates might cause sharp falls in the rate of profit as interest payments reduce the proportional share of net profits. This chain of events is also accompanied by a sudden collapse in the rate of investment and might prefigure an avalanche of bankruptcies. An accumulation of financial claims appears as an endogenous expansion of money capital, which circulates purely on the basis of inflated asset values.

During the course of the slump, a depressive spiral characterized by the self-reinforcing process of debt-deflation, could be set in motion as individual capitals attempt to survive by 'cannibalising' each other (Lapavitsas, 2000, p. 652). This struggle is consummated through the concentration of capital in the form of mergers and acquisitions, as the

dominant fractions of capital attempt to anticipate and mitigate the effects of a falling rate of profit. As asset prices fall and capitalists confront problems in the realization of surplus-value, there is a desperate stampede to repay their accumulated debts. As Arrighi quite perceptively notes: 'Crisis is precisely the moment when the tendency for capital to concentrate becomes most insistent. This "enforced concentration" (the so-called centralisation of capital) makes it possible to overcome the crisis' (Arrighi, 1978b, pp. 5–6). But the historical emergence of more oligopolistic forms of competition only aggravates problems of chronic excess capacity and the latent tendency towards stagnation.

The whole process becomes cumulative and self-reinforcing to the extent that the more each individual capitalist scrambles to sell his or her assets in order to repay debt, the greater the fall in asset prices as a whole. But the contraction of credit money does not imply that these claims should be validated by converting assets into more liquid forms of means of payments. As long as the contraction of credit is determined endogenously via the banking system, the entire financial circuit is no longer anchored upon the monetary base. Marx's theory of commodity money led him to argue that the credit system could not extricate itself from the monetary base, which represents the exchange-value of commodity money (Bellofiore, 1998a). In this sense, the credit system tends to distort price signals and generates speculative manias. These speculative excesses spill over into the stockpiling of commodities during the last stages of the boom but as soon as market prices fall, there is a chain reaction as speculators confront enormous losses and bankruptcies in the event of a severe credit crunch as creditors clamour for repayments. Consequently, the imminent contradiction between the financial system and its monetary base ultimately reflects the dual functions of money as the abstract representation and measure of value, on the one hand, and as the medium of circulation and exchange, on the other hand. When money functions as a medium of exchange it no longer constitutes the abstract representation of value as market prices tend to deviate from values. Realization crises thus act as a mechanism by which market prices adjust to new values. Marx quite ironically describes the separation of the monetary base from the credit system as analogous to the Protestant reformation from Catholicism: 'But the credit system is no more emancipated from the monetary system as its basis than Protestantism is from the foundations of Catholicism' (Marx, 1990, Vol. 3, p. 727).

With the emergence of joint stock companies, the issuing of shares increases the tendency of financing investment through external sources and indirectly through the credit system. The stock market trades in ownership titles, which in their simplest forms represent claims to future streams of profit and income in the form of dividends and capital gains. Firms can therefore raise capital externally and provide the money capital required to finance investment. Marx describes the issuing of shares as 'fictitious' capital because the financing of shares cannot in itself increase the rate of surplus-value, which can only be increased in the sphere of production. The rate of return through the stock market will depend upon future rates of profit, the rate of interest and the fluctuating market value of shares themselves. During the expansionary phases of the business cycle, speculative manias emerge as expectations of future rates of return exceed the underlying value of assets. At the same time, demand for credit to finance speculative trading imparts upward pressure on interest rates, which could, depending on the level of debt/equity ratios, choke off investment and induce a stock market crash. Marx's scathing critique of these new forms of financial chicanery resonates with the rise of modern Ponzi schemes: 'It reproduces a new financial aristocracy, a new kind of parasite in the guise of company promoters and merely nominal directors; an entire system of swindling and cheating with respect to the promotion of companies, issue of shares and share dealings. It is private production unchecked by private ownership' (Marx, 1990, Vol. 3, p. 509).

Problems of excess capacity could also emerge since investment in fixed capital depends on long-term rates of return, which might not be validated in the short run as borrowing costs rise. Under these circumstances, it is very difficult to reactivate the process of capital accumulation, even at very low rates of interest since the accumulated investment or the 'sunk costs' in fixed capital tend to depreciate very slowly over a long period of time. Excess capacity and depressed profitability are therefore associated with phases of stagnation (Itoh and Lapavitsas, 1999, p. 137). In Chapter 15 of Volume 3 of *Capital,* Marx analyses the effects of a falling rate of profit as a result of the problem of the realization of surplus-value caused by the over-accumulation of capital. In Marx's own words: 'The periodical devaluation of the existing capital, which is a means immanent to the capitalist mode of production, for delaying the fall in the profit rate and accelerating the accumulation of capital value by the formation of new capital, disturbs the given conditions in which the circulation and reproduction process of capital takes

place, and is therefore accompanied by sudden stoppages and crises in the production process' (Marx, 1990, Vol. 3, p. 358). These crises also reflect the contradiction between the 'restricted consumption of the masses' in relation to the development of the productive forces in which the problem of effective demand acts as a brake on the accumulation of capital (Itoh, 1978, pp. 130–1). During the trough of the cycle, wages and profits fall as the forcible ejection of superfluous capital intensifies the competitive struggle between capitals to restore profitability through the reorganization and concentration of capital. The price mechanism encounters two barriers: first, the resistance of the working class as they defend themselves against an assault on the level of real wages; and second, the build-up of excess capacity and fixed capital, which cannot be easily destroyed (Albritton, 1984, p. 171).

A detailed Marxian theory of the rate of profit to fall in the long run is beyond the scope of this study, which is focused upon recurrent financial and monetary crises. However, a brief digression is necessary to discuss the role performed by effective demand in the accumulation of capital. The problem of relative under-consumption asserts itself in the context of a falling rate of profit. The Marxian theory resembles Keynes's elucidation of effective demand. Keynes's analysis posits the formation of long-run expectations and the problem of uncertainty in the determination of investment and therefore on the level of effective demand via the multiplier/accelerator effects. By contrast, Marx stresses changes in the distribution of income and in the wages/profit share of national income as the most important factors in the lack of effective demand (Sherman, 1967, p. 490). In Marx's own words: 'The ultimate reason for all real crises always remains the poverty and restricted consumption of the masses, in the face of the drive of capitalist production to develop the productive forces as if only the absolute consumption capacity of society set a limit to them' (Marx, 1990, Vol. 3, p. 615). The over-accumulation of capital therefore arises from the conflict between an increase in the social productivity of labour, on the one hand, and the limited and narrow basis of the consumption of the working class, on the other hand.

In classical Marxian terminology, the general formula for capital is $c + v + s$, in which c denotes constant capital (means of production), v denotes variable capital (labour-power) and s represents surplus-value (unrealized profit). In this simple formula, the rate of surplus-value can be calculated as a ratio to variable capital (s/v). The rate of profit, however, is expressed as the ratio of surplus-value to total capital

[$s/(c + v)$]. From this formula, Marx introduces the critical concept of the 'organic composition of capital'. In other words, an increase in the constant component of capital relative to the variable component (c/v) induces a rise in the organic composition of capital. Accordingly, Marx makes the crucial distinction between absolute and relative rates of surplus-value. The former can be defined as an increase in the intensity of exploitation in terms of increasing the working hours or an increase in the physical tempo of the labour process. The latter implies a rise in the technical composition of capital as machines and technology are introduced in order to improve labour productivity. An increase in the relative rate of surplus-value is thus achieved through an increase in the social productivity of labour (a reduction in the socially necessary labour-time) with the introduction of labour-saving technology and techniques. Driven by competition, capitalists are compelled to increase profitability by substituting capital for labour. Hence, technical progress in the Marxian schema is always labour-saving.

> *Technological change is a function of the profit rate (and, thus, of the labor cost), and the movements of wages are influenced by the value and variations of the profit rate ...* . The rise of the labor cost impacts on the profit rate, and thus, on technology, and biases technological change toward labor-saving techniques of production (a rise in the capital-labor ratio). This mechanism corrects in part for the effect of increasing wages on the profit rate ... . The feedback of the profit rate on wages is also dependent on the complex web of institutional relationships through which the determination of wages is mediated (the role of unions, the modalities of wage bargaining, the organisation of the labor market, etc.). (Dumenil and Levy, 1993, pp. 347–8, emphasis in original)

The recurrent devalorization of constant capital acts as one of the most powerful counteracting tendencies to a falling rate of profit insofar as a rising rate of surplus-value, spurred by increasing productivity growth, ultimately gives rise to the paradoxical tendency for the means of production to be progressively devalued. It is precisely at this moment that financial crises emerge as a result of the destruction of capital values advanced from the past; or what Schumpeter has described as the gales of 'creative destruction' set in motion with the introduction and diffusion of new techniques and technologies (Schumpeter, 1942). Moreover, this process of technological reconversion could also be characterized by a phase of debt-deflation as falling asset prices induce a cumulative stampede to validate past debts incurred by individual capitalists. Thus, according to Emmanuel: 'Since a univer-

sal, simultaneous depreciation of commodities is the same thing as an appreciation of the specific commodity which embodies social value, any devaluation of productive capital is tantamount to a revaluation of money-capital' (Emmanuel, 1974, pp. 68–9). This paradox manifests itself in capitalist crises, which act as the mechanism by which profitability is restored and the process of capital accumulation is reignited (Kliman, 2007, pp. 30–1). As Dobb states quite succinctly: 'A crisis appears as a catharsis as well as retribution: as a sole mechanism by which, in this economy, equilibrium can be restored, once it has been extensively broken' (Dobb, 1937, p. 103).

If we assume a constant rate of surplus-value, then a rise in the organic composition of capital induces a fall in the average rate of profit insofar as it is only the variable component of capital that yields surplus value, whereas profit is measured in terms of total capital. In the long run, a rise in the technical composition of capital inevitably reduces the value composition of capital. Expressed in its mathematical formula, the falling rate of profit, r, can be calculated as $r = e/(d+1)$, where e is the rate of exploitation and d is the social organic composition of capital. In the process of capital accumulation, d will inevitably rise as c expands in proportion to v. Although the organic composition of capital rises, the rate of profit falls as a result of a rise in the capital/output ratio. The latent tendency for the rate of profit to fall will only manifest itself if it is not counteracted by a corresponding expansion in the rate of surplus-value. These countervailing forces operate as the threshold historical conditions in the process of capital accumulation. As long as the rate of exploitation can be increased either absolutely or relatively, the process of capital accumulation will continue on an expanded scale. In the absence of powerful countervailing forces, a rise in the organic composition of capital will therefore induce a fall in the average rate of profit. It is precisely this tendency of a falling rate of profit which forms the theoretical basis of the Marxian theory of crisis and has fuelled controversy since the publication of *Capital.* The relative overproduction of capital arises from an insufficient mass of surplus-value in relation to total 'social' capital. In order to restore profitability, the rate of surplus-value should increase either relatively or absolutely, rather than through an increase in the level of effective demand in the Keynesian schema (Yaffe, 1973, pp. 214–15). As Marx emphasizes: 'The progressive tendency for the rate of profit to fall is thus simply *the expression, peculiar to the capitalist mode of production,* of the progressive development of the social productivity of labour' (Marx, 1990, Vol. 3, p. 319, emphasis in original).

The fallacy of composition doubtless suggests that as each capitalist introduces new techniques and technical innovations in order to reduce the costs of production, competition between capitalists pursuing a similar strategy inevitably induces a fall in the rate of profit as a whole. The temporary surplus profits accrued to the individual capitalist who has introduced new labour-saving techniques merely represents a redistribution of the total surplus-value produced. The overall effect is to either improve the living standards of the workers through an increase in real wages (or a fall in the value of the means of subsistence), or a diminution in the value of labour-power. In either case, a fall in the value composition of capital has the effect of inducing a falling rate of profit (Foley, 1986, pp. 56–7). As Uno has argued:

> The pursuit of greater value and higher profit rate by capital leads to improvements in the method of production accompanied by the production of relative surplus-value. The value of commodities consequently falls and with it the rate of profit. Thus the falling rate of profit must be viewed as a peculiarly capitalist-economic expression of the advancement of the productive powers of labour in general. (Uno, 1980, p. 87)

During the phase of expansion, real wages increase as unemployment falls and the social productivity of labour progressively improves. But there is a lag to the extent that the rate of increase of real wages is slower than the increase in the rate of profit (depending, of course, on the relative balance of political forces between labour and capital). The level of effective demand therefore tends to lag behind as well. As the demand for raw materials surges, their prices also increase, which exerts upward pressure on the costs of production. Speculative trading develops in strategic raw materials as stockpiling reaches fever pitch. These speculative propensities spill over into an incessant demand for credit (Itoh, 1988, p. 314). Early signs of stress begin to appear as the entire credit system is drawn into the maelstrom of this speculative frenzy. At the same time, workers demand higher wages in the context of a tight labour market, which also increases the costs of production (Laibman, 1997, p. 70). As the cycle peaks, interest rates rise, which only further aggravates the profit squeeze. New commercial credit is withdrawn and banks also restrict loans in order to restore their own cash reserves in the event of the build-up of non-performing loans. Hence, the confluence of these forces dampens expectations by capitalists of future profits and leads to a curtailment of investment.

Marx develops a theory of relative under-consumption but the logic remains ambiguous. On the one hand, there is an expansion of produc-

tive capacity, which increases the volume of consumption goods. Sooner or later, markets are saturated as relative overproduction emerges in the consumption goods sector. On the other hand, there might be idle capacity caused by a falling rate of profit and the devalorization of superfluous fixed capital, in which case, the problem of excess capacity manifests itself in economic stagnation and enforced under-consumption. Indeed, this state of semi-permanent excess productive capacity might also reflect the norm under oligopolistic conditions (Steindl, 1976). As Dobb argues: 'One would expect an epoch of monopoly capital to be characterised by an abnormal sagging of markets and a chronic deficiency of demand: a factor in the situation which would not only make for a deepening of slumps and a curtailment of periods of recovery, but would aggravate the long-term problem of chronic excess capacity and unemployment' (Dobb, 1946, p. 324). The lack of effective demand under these circumstances arises from the persistence of excessive idle capacity in which the depressive tendency towards stagnation reveals itself not in full-scale economic crises but in the problems associated with the 'absorption' of the economic surplus (Baran and Sweezy, 1966). According to Sweezy: 'Properly understood, therefore, "under-consumption" and "over-production" are opposite sides of the same coin. If this is kept in mind, it should not be a cause of surprise that an "under-consumption" crisis may first break out in the sphere of the production of consumption goods' (Sweezy, 1968, p. 163).

A crisis of relative disproportion between the capital goods and the consumption goods sectors provides a more coherent description of this apparent paradox of investment. Joan Robinson's interpretation in this regard is quite cogent:

> Marx intended to work out a theory on some such lines as this: consumption by the workers is limited by their poverty, while consumption by the capitalists is limited by their greed for capital which causes them to accumulate wealth rather than enjoy luxury. The demand for consumption goods (the product of group 2) is thus restricted. But if the output of the consumption-goods industries is limited by the market, the demand for capital goods (group 1) is in turn restricted, for the constant capital of the consumption-goods industries will not expand fast enough to absorb the potential output of the capital-goods industries. Thus the distribution of income, between wages and surplus, is such as to set up a chronic tendency for a lack of balance between the two groups of industries. (Robinson, 1949, p. 49)

The lack of effective demand is therefore a problem of rising labour productivity spurred by technical innovations (a rise in the technical

composition of capital), which set in motion the tendency towards a falling profitability. Yet, at the same time, the rate of capital accumulation exceeds the rate of increase in real wages, which signifies insufficient effective demand as the profit share of the economy increases relative to the wages share. The investment of oligopolistic capital will depend on the level of effective demand, which determines the degree of utilization of their productive capacity and on their level of profits. As soon as the rate of capacity utilization is expanded, the main problem that confronts the process of capital accumulation is the lack of effective demand (Lucarelli, 2004a, p. 29). The problems of excess capacity and under-consumption respectively might not be mutually exclusive. However, it is just as plausible to argue that these disproportionalities could be pervasive not only between the two major sectors but also within these sectors themselves. It is quite possible to confuse a crisis of disproportionality with problems of chronic under-consumption. Whereas the causation runs from disproportionality to under-consumption, general overproduction and excess capacity are always relative to the level of effective demand (Fine, 1989, p. 57). The supreme contradiction, however, lies precisely in the fact that the ultimate barrier to capital is 'capital itself'.

> The *true barrier* to capitalist production is *capital itself.* It is that capital and its self-valorisation appear as the starting and finishing point, as the motive and purpose of production; production is only production for *capital,* and not the reverse, i.e., the means of production are not simply means for a steadily expanding pattern of life for the *society* of producers ... . The means – the unconditional development of the forces of social production – comes into persistent conflict with the restricted end, the valorisation of the existing capital. (Marx, 1990, Vol. 3, p. 359, emphasis in original)

CONCLUSION

It can be surmised that Marx's original theory of money is quite seminal because it is based upon a monetary theory of production. This is in stark contrast to the classical treatment of money as a 'veil over barter' within a simple commodity economy. Furthermore, Marx's analysis rejects the dogma of Say's law and the quantity theories of money which had informed the Ricardian school. The existence of a monetary circuit in which credit money supersedes commodity money implies that commodity money is no longer essential. However, it has been argued

that commodity money only represents one form of the universal equivalent and that inconvertible paper money can also function as a measure of value. Marx's treatment of credit and the endogeneity of money constitute a sound basis upon which to construct a more sophisticated theory of financial and monetary crises. The more promising lines of inquiry would be to incorporate the more recent Circuitist theories of credit-creation and to develop a theory of financial instability and crisis based upon Marx's original insights into the dynamics of the credit cycle, which tends to amplify the effects of a crisis of over-accumulation. In this context, Marx's analysis of the contradictions that arise between the financial system and the monetary base reveals the essential function of money as a store of value in the event of a sudden devalorization of capital. There are striking similarities between these realization crises and the Keynesian theory of effective demand (Robinson, 1949). Furthermore, the assumptions of a competitive capitalism should be modified in order to analyse the implications of the centralization and concentration of capital and the concomitant problems associated with chronic excess capacity and economic stagnation.

NOTE

1. The Banking school argued that the expansion of the money supply via the issuing of private banknotes is a function of increased demand. Thus, the expansion of private banknotes is essential in order to facilitate an increase in output. As long as these banknotes were ultimately redeemable through the reflux function performed by reserves of the central bank, there was no real need to impose restrictions. The Currency theorists, on the other hand, had advocated that strict restrictions and regulations should be imposed on the quantity of notes issued. In other words, they demanded a 100 per cent reserve backing of the issuing of private banknotes (Wray, 1998a, p. 33).

PART II

Heterodox theories of endogenous money

3. Money and Keynesian uncertainty

> Unemployment develops ... because people want the moon – men cannot be employed when the object of desire (i.e. money) is something which cannot be readily produced and the demand for which cannot be readily choked off.
>
> Keynes (1936, p. 235)

INTRODUCTION

A modern capitalist monetary economy is inherently unstable. One of the most insightful contributions to our understanding of the essential non-ergodic characteristics of a monetary economy is the original Keynesian theory of money under the conditions of radical uncertainty. Keynes's theory of money reveals how the problem of involuntary unemployment is inextricably bound up in the liquidity preferences by wealth holders. Unfortunately, these original insights have been eclipsed by the neoclassical reinstatement of Say's law and its more recent incarnations in the guise of rational expectations and the efficient markets hypothesis. It will be argued that Keynes's critique of his 'classical' contemporaries over the problem of uncertainty acquires even greater resonance in relation to their modern progenies: 'I accuse the classical economic theory of being itself one of those pretty, polite techniques which tries to deal with the present by abstracting from the fact that we know very little about the future' (Keynes, 1937c [1973], p. 115). Keynes's theory of a monetary economy and his liquidity preference theory of investment will be examined in order to highlight the essential properties of money under the conditions of uncertainty, which inevitably prefigures the existence of involuntary unemployment and could – within a laissez-faire, deregulated financial system – induce phases of endemic financial instability and crises.

THE KEYNESIAN MONETARY THEORY OF PRODUCTION

In the *General Theory,* Keynes argued that there is a fundamental distinction between the system of barter and a modern monetary economy. Whereas barter can only take place in a bilateral set of social relations, a monetary economy is essentially governed by the use of an abstract money of account, which is characterized by a whole chain of debtors and creditors in a complex decentralized market (Ingham, 2001, p. 309). This view challenges the orthodox theory that money is a 'veil over barter' and that what distinguishes a pure barter economy from a monetary economy is the simple fact that money is used as a means of exchange between commodities to derive a price based on their respective exchange ratios. In this traditional perspective, money emerges historically and spontaneously to perform the role of medium of exchange in order to facilitate trade and as such, has neutral effects on the 'real' economy (Sardoni, 1987, p. 71). Doubtless, this pure commodity economy, or what Keynes describes as a 'real exchange economy', bears very little relation to a sophisticated monetary economy.

The conditions necessary for the 'neutrality' of money abstract entirely from the possibility of crises. The neutrality of money tends to correspond with a real exchange economy, or in Marxian terminology, to a pure commodity economy in which use-value determines the exchange of commodities, represented by the formula C-M-C (Rotheim, 1981, p. 576). Under these idealized conditions, Say's law of the market will be validated. In a monetary economy, however, the sole aim of production is to realize profits in its money-form, represented by the formula M-C-M´. It was from this seminal insight that Keynes developed his monetary theory of production (Keynes, 1933 [1973]). This insight was to transform the very logic of the classical postulates of the market and overthrow the dogma of Say's law.

> Now the conditions required for the 'neutrality' of money ... are, I suspect precisely the same as those which insure that *crises do not occur.* If this is true, the real exchange economies ... though a valuable abstraction in itself and perfectly valid as an intellectual conception, is a singularly blunt weapon for dealing with the problem of booms and depressions. For it has assumed away the very matter under investigation ... . This is not the same thing as to say that the problem of booms and depressions is a purely monetary problem ... . I am saying that booms and depressions are phenomena peculiar to an economy in which – in some significant sense which I am not attempting to define

> precisely in this place – money is not neutral. (Keynes, 1933 [1973], pp. 410–11, emphasis in original)

Keynes (1930) contends that the evolution of fiat money transformed the economic system from a real exchange economy into a monetary economy. In a monetary economy, the object is not the immediate satisfaction of social needs (or use-values) but the desire to accumulate wealth in the form of money. As Marx quite perceptively understood, capitalism is governed by the realization of exchange-values into their monetary equivalent (Dillard, 1984, p. 423). In other words, entrepreneurs will invest on the expectation of increasing their monetary wealth. The evolution of chartalist forms of money was a necessary development in the denomination of market prices in a specific fiat money, or the official state money of account (Wray, 2006, p. 215). Unlike the classical theory, which was informed by a real exchange economy in which commodity money predominates, fiat money is not a commodity and cannot be produced by labour. The imposition of fiat money transforms the very nature of exchange since purchasing power is not determined by simple commodity exchange but by the acquisition of money.[1] The banking institutions which issue money enjoy the privileges of intrinsic purchasing power as long as the unit of account is validated by the state. The state and the central bank are thus inscribed with a monopoly over the purchasing power of fiat money (Bertocco, 2005, p. 490).

In a real exchange economy, Say's law applies because money income is ultimately spent, either directly or indirectly, in order to realize use-values. But in a monetary economy, this simple postulate no longer applies. The essential properties of fiat money are characterized by: (1) zero elasticity and (2) zero elasticity of substitution between liquid assets and commodities. In the former, fiat money, unlike commodity money, cannot be produced on the basis of labour values. In the latter, Keynes (1936) argues that an increase in the demand for money does not lead to the substitution of fiat money for other forms of commodity money or other liquid assets. It follows that under a regime of fiat money, an increase in the demand for money might lead to a fall in effective demand. Since fiat money possesses no real intrinsic value, fluctuations in aggregate demand depend upon the willingness of economic agents to employ fiat money to generate spending. The presence of fiat money in a monetary economy means that the existence of involuntary unemployment is always possible (Bertocco, 2007, p. 104). The paradox of investment implies that an increase in the demand for

money causes a relative diminution in aggregate demand because of the presence of uncertainty. The decision to invest by entrepreneurs determines aggregate demand but if saving exceeds investment as a result of a shift in liquidity preferences, the level of aggregate demand might not be sufficient to absorb aggregate output. This represents the ostensible 'paradox of thrift'.

The evolution of credit implies that banks act as the receptacles by which credit money is created. In this critical sense, the unit of account functions of money tend to supersede its function as a means of circulation. With the existence of forward contracts, money acquires the characteristics of a debt issued to transfer purchasing power from the future to the present. Fiat money is assigned the highest liquidity premium of which high-powered central bank money constitutes the most liquid type. Endogenous theories of money merely state that an increase in the demand for money is automatically met by an expansion of credit through an increase in bank liabilities. Rising liquidity preferences, however, act in the opposite direction in which economic agents desire to shift their portfolio preferences from relatively illiquid assets into more liquid assets. Bank liabilities therefore act as a store of value. An increase in liquidity preferences thus corresponds to the destruction of credit money as economic agents curtail their expenditure and engage in the liquidation of assets (Wray, 1992, p. 303). Conversely, an increase in the demand for money implies a willingness by banks to expand the creation of credit.

The existence of contracts, which have to be converted into their money-form, is an essential characteristic of modern capitalist money conceived as an abstract unit of account. Since production occurs over a relatively long time horizon, transactions are premised on future expectations, which involve forward contracts (Davidson, 1978, pp. 57–8). The concept of a 'monetary constraint' compels economic agents to respect their contracts and to validate their debt obligations. In the absence of these contractual obligations, the market system would inevitably break down. Indeed, it is precisely during financial crises that this institutional web of contractual networks encounters severe stress as the chain of payments is interrupted through a series of cascading defaults and bankruptcies. These payment contracts are mediated by the banking system. Private banknotes are nothing more than a mechanism of 'clearing' private debts. To be sure, these new forms of money are not merely forms of deferred payment but constitute intricate types of 'credit money' issued by private banks, which circulate as means of

payments. As long as private banknotes are backed by a system of central bank reserves, which regulate their circulation as high-powered money, the whole system of credit money becomes a regime of negotiable debt issued as means of payments. These forms of 'depersonalized' debt constitute specifically capitalist money. As Davidson has quite cogently argued:

> Bank money is, of course, simply evidence of a private debt contract, but the discovery of the efficiency of 'clearing', that is the realisation that some forms of private debt can be used in settlement of the overlapping myriad of private contracts immensely increased the efficiency of the monetary system. Three conditions are necessary in order for such a private debt to operate as a medium of exchange: (1) the private debt must be denominated in terms of the monetary unit; (2) a clearing institution for these private debts must be developed; and (3) assurances that uncleared debts are convertible at a known parity into the legally enforceable medium of exchange. (Davidson, 1972, pp. 151–2)

In the *Treatise on Money* (1930), Keynes's theory of money assimilates some of the chartalist conceptions developed by Knapp (1924). Quite contrary to the prevailing Monetarist and exogenous theories of money, modern economies are characterized by the pre-eminence of chartalist forms of money. The government ultimately defines the nature of money by choosing the monetary unit that it will accept in the payment of taxes. Consequently, the issuing of fiat money implies that in order to pay taxes, economic agents need to acquire money. A monetary circuit is set in motion in which the money issued by the government presupposes that it is bestowed with the privileges of seigniorage. As the monopoly supplier of the currency, the state can set the price of those things it is willing to buy since this is the only means by which civil society is compelled to pay taxes (Wray, 1998a, p. 7). But taxes can only be levied in the future insofar as the initial expenditures of firms and the state constitute the monetary circuit by which the final payment of taxes is realized. The central bank therefore creates credit by issuing debts onto itself in order to activate the spending of the government. The causation runs from the issuing of sovereign debt which then allows governments to specify the amount of debts that the state needs to collect through taxation. This, in turn, will liquidate the debt obligations incurred by the state (or the Treasury) to the central bank (Parguez and Seccarella, 2000, p. 111). Tax revenue simultaneously cancels the central bank debt which has been issued in the original monetary circuit. In the chartalist conception, money is the ultimate creature of the state.

According to Smithin: 'From this perspective, money is predominantly state money and the liabilities of the state central banks, for example, acquire the status of *valuata* or base money because of the coercive power of the state and, in particular, because of its ability to levy taxes on its citizens payable in its own currency' (Smithin, 2003, p. 26).

Government spending is therefore financed through the creation of fiat money, rather than through tax revenues or the issuing of bonds. In this context, bond sales are simply a means by which excess reserves are sterilized in order to ensure a positive rate of interest in the central bank overnight or prime rate. Bond sales are rarely used to finance government deficits, except in very exceptional cases of war and other crises. It follows that a balanced budget over the economic cycle represents the theoretical minimum that governments should aim to aspire. Indeed, there is a very sound argument, based upon the tenets of functional finance, that moderate budget deficits are required to maintain the issuing of government bonds and by so doing, provide the very rationale for the existence of a bond market. As Wray contends: 'Budget deficits do not require "borrowing" by the government (bond sales); rather, the government provides bonds to allow the public to hold interest-bearing alternatives to non-interest-bearing government money' (Wray, 1998a, p. 19). At the same time, since commercial bank debts are convertible into fiat money, commercial banks are able to acquire central bank liabilities. Thus, a considerable proportion of state money circulates as commercial banknotes, which will appear as either assets or reserves on commercial bank balance sheets. Conversely, there is a certain amount of commercial bank money that circulates and is converted into fiat money as private economic agents, depending upon their liquidity preferences, choose to hold a proportion of these banknotes as cash. The extent to which commercial debts are regulated is determined by the central bank, which regulates the creation of liquidity. In the final analysis, credit money cannot exist without the state and all credit money is necessarily state money regardless of its form of circulation as either commercial credit or as central bank liabilities.

THE THEORY OF LIQUIDITY PREFERENCES

Central to the Keynesian vision is the role performed by uncertainty. The concept of 'liquidity preference' means that, unlike simple barter, sales and purchases need no longer coincide. As soon as the critical element

of time is introduced, the possibility arises that economic agents have a propensity to hoard; the seller is not obliged to buy as soon as selling. Money therefore not only acts as a means of circulation but also as a store of value. The essential and ineluctable problem of uncertainty implies that there is a profound nexus between time and money. In Keynes's own words: 'For the importance of money essentially flows from its being a link between the present and the future' (Keynes, 1936, pp. 293–4). As soon as money is construed as a store of value, the whole logic of Say's law breaks down. Davidson reinforces this fundamental Keynesian theorem: 'To assert that money matters in a world of complete predictability is to be logically inconsistent, for money's special properties as a store of wealth, is due to its ability to postpone the undertaking of rigid and far-reaching resource commitments. *Money only matters in a world of uncertainty*' (Davidson, 1972, p. 16). The nexus between money and uncertainty is therefore quite seminal in the Keynesian view of a modern economy in the sense that investment is dependent upon future expectations on the expected rate of return. The fact that private investment decisions are based upon uncertainty suggests that investment itself is volatile and explains, to a certain extent, the reason why capitalist economies are inherently unstable. Uncertainty in the original Keynesian conception is radically different from the neoclassical notions of calculable and probabilistic risk:

> By uncertain knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty; nor is the prospect of a Victory bond being drawn. Or, again, the expectation of life is only slightly uncertain. Even the weather is only moderately uncertain. The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence, or the obsolescence of a new invention, or the position of private wealth owners in the social system in 1970. About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know. (Keynes, 1937c [1973], p. 114)

In the *General Theory,* liquidity preferences tend to inform real expenditure choices over time. Money plays a unique role in relation to the existence of future contracts, which are normally denominated in nominal terms. These forward contracts are subject to uncertainty. It follows that the ability to meet these contractual obligations, the possession of money or other highly liquid assets are essential in the face of future uncertainty. These liquid assets also perform the function of a

store of wealth or as a safe haven during periods of heightened uncertainty (Davidson, 1996, p. 63). Money becomes a crucial link between the irreversible past and the unknown future; it acts as a 'time machine'. To quote Keynes: 'The possession of actual money lulls our disquietude; and the premium which we require to make us part with money is the measure of the degree of our disquietude' (Keynes, 1937c [1973], p. 116).

In this perspective, money as a store of value depresses effective demand and delays the activation of idle resources. This only creates further uncertainty and postpones potential demand for goods and services. Entrepreneurs encounter problems in relation to their respective formation of future expectations and the timing of their investment expenditure (Fontana, 2000, p. 32). Keynes argues that the existence of uncertainty is an essential condition for the function of money to act as a store of wealth: 'The interest rate is the premium which has to be offered to induce people to hold wealth in some form other than hoarded money' (Keynes, 1937c [1973], p. 116). Under the conditions of unutilized excess capacity and rising unemployment, the state of uncertainty merely postpones planned investment and influences the expectations of wealth holders to hold their assets in a more liquid form (Dillard, 1962, p. 22). The excessive demand for liquidity will tend to divert real resources from being employed in the sphere of productive investment and leads inevitably to the existence of involuntary unemployment.

> Of the maxims of orthodox finance none, surely, is more anti-social than the fetish of liquidity, the doctrine that it is a positive virtue on the part of investment institutions to concentrate their resources upon the holding of 'liquid' securities. It forgets that there is no such thing as liquidity of investment for the community as a whole. The social object of skilled investment should be to defeat the dark forces of time and ignorance, which envelop our future. The actual, private object of most skilled investment today is 'to beat the gun', as the Americans so well express it, to outwit the crowd, and to pass the bad, or depreciating, half-crown to the other fellow. (Keynes, 1936, p. 155)

Whereas the transactions and precautionary motives relate to money as a means of payments, the speculative motive embodies the role of money as a store of wealth. The critical significance of Keynes's theory of liquidity preferences was that it had rejected the neoclassical view of the *ex ante* identity between saving and investment, which had reinstated Say's law. Quite simply, the role of money as a store of value could not possibly exist in the absence of uncertainty. In an ergodic

world of calculable risk and certainty (or rational expectations), the motive for holding money as a store of wealth would cease to exist: 'But in the world of the classical economy, what an insane use to which to put it! For it is a recognised characteristic of money as a store of wealth that it is barren; whereas practically every other form of storing wealth yields some interest or profit. Why should anyone outside a lunatic asylum wish to use money as a store of wealth?' (Keynes, 1937c [1973], p. 116). Yet the role performed by uncertainty in the radical Keynesian conception has been ruled out by neoclassical assumptions.

Keynes developed a theory of liquidity preferences based upon the types of money required to satisfy subjective motives in a world governed by future uncertainty. The transactions and precautionary motives would necessarily correspond with the preference for cash deposits or highly liquid assets. The speculative motive, on the other hand, would govern the short-term money markets and the bond markets. While the precautionary and transactions motives are closely linked to the level of income and expenditure, the speculative motive, on the other hand, is associated with the level of wealth and the relative returns on investment and the rate of interest respectively (Sawyer, 2003, p. 8). In the absence of uncertainty, these motives would be meaningless and money itself would cease to provide a means by which to form expectations about the future. The formation of liquidity preferences are thus inextricably connected to the notion of uncertainty. Money provides liquidity and acts as a store of value or a perceived safe haven during periods of radical uncertainty. This conception stands in stark contrast to the notion of probabilistic and calculable risk.

> Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than on a mathematical expectation, whether moral or hedonistic or economic. Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many years to come, can only be taken as a result of animal spirits – of a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities. (Keynes, 1936, p. 161)

In the original Keynesian schema of the *General Theory,* liquidity preferences reflect portfolio choices, which are influenced by an exogenously determined stock of money supplied by the central bank. The rate of interest is therefore a function of monetary policy, even though the

demand for money is also an endogenous process of private credit-creation. Money as a store of wealth implies a stock demand for money based upon liquidity preferences by wealth holders. The money supply can be influenced by either the exogenous instruments of central banks (open market operations) or through the endogenous expansion and contraction of private bank money. Keynes argues that the peculiar nature of a monetary economy is that liquidity preferences tend to fluctuate on the basis of subjective valuations of future rates of return on investment. Thus, an increased demand for money for either precautionary or speculative motives might be at the expense of planned investment, which will ultimately have a detrimental effect on the level of employment. The paradox of thrift suggests that the economy could be operating at an equilibrium level of output which does not necessarily correspond with full employment.

> This is the idea of the paradox of thrift: investment determines saving so that given low investment by firms when households are excessively thrifty, income falls until the aggregate of saving decisions (as determined by the marginal propensity to save) is consistent with the aggregate of investment decisions. Alternatively, aggregate saving cannot be increased by trying to have more, but only by investing more – which raises income and thus saving. (Wray, 1998a, p. 82)

Under these circumstances, an increased preference to hold money might induce a failure to meet future financial commitments. As defaults escalate, there emerges a chain reaction because the banks and other financial institutions will be unable to meet their commitments. Indeed, since deposits represent liabilities from the standpoint of the banks, the opposite applies to depositors who consider these deposits as assets. Hence, an increase in liquidity preferences implies an automatic curtailment of the ability of both lenders and borrowers to fulfil their future contractual obligations. These cascading defaults and bankruptcies could lead inexorably to a severe phase of debt-deflation (Kregel, 2008b, p. 134).

In a monetary economy of production, money (or credit money) must always be endogenous; its quantity is determined by debt contracts denominated in a unit of account. Keynes's transactions motive is further divided into an 'income' motive and an 'investment' motive. In the *General Theory,* Keynes had ignored the endogeneity of credit money to concentrate on the liquidity preference theory of the rate of interest. However, in the post-*General Theory* articles in a debate with

Ohlin, Hawtrey and Robertson in the *Economic Journal* in 1937–38, Keynes introduces what became known as the 'finance motive'. The finance motive related to the demand by firms for external finance by the commercial banks (Hein, 2008, p. 35). As the rate of investment increases, there is a corresponding increase in the demand for external finance (Keynes, 1938). As long as banks continue to be profitable by increasing their assets and liabilities and as long as only a small proportion of defaults are incurred, the banking system itself will experience a shift in its initial liquidity position (Asimakopulos, 1986, pp. 86–7).

> Planned investment – i.e. investment *ex-ante* – may have to secure its 'financial provision' *before* the investment takes place; that is to say, before the corresponding saving has taken place ... . This service may be provided either by the new issue market or by the banks; – which it is, makes no difference. (Keynes, 1937a, p. 246, emphasis in original)

Ohlin, Robertson and Hawtrey's (1937) critiques focused upon Keynes's argument that the transactions demand for money depends on current output per se. The issue of financing *ex ante* investment remains unresolved in the *General Theory.* This critique and the subsequent debates over the liquidity preference theory, persuaded Keynes to modify and clarify his original position by introducing the 'finance' motive (Bibow, 1995, p. 650). In order to provide the extra finance, Keynes develops a 'revolving fund' theory of investment finance:

> If investment is proceeding at a steady state, the finance (or the commitments to finance) required can be supplied from a revolving fund of a more or less constant amount, one entrepreneur having his finance replenished for the purpose of a projected investment as another exhausts his on paying for his completed investment. But if decisions to invest are (e.g.) increasing, the extra finance involved will constitute an additional demand for money ... . But 'finance' and 'commitments to finance' are mere credit and debit book entries, which allow entrepreneurs to go ahead with assurance ... . Credit, in the sense of 'finance' looks after a flow of investment. It is a revolving fund which can be used over and over again. It does not absorb or exhaust any resources. (Keynes, 1937a, p. 247)

A sequential process is thus set in train as the initial expansion of credit is compensated by the destruction of credit money via the revolving fund of finance. According to Asimakopulos (1986), the initial investment finance can only be available after the full multiplier effect is realized. Hence, there is a time lag involved: the increase in desired saving does not necessarily arise simultaneously with the new investment

expenditure, even though *ex post* investment and *ex post* saving is, by definition, always equal.

Keynes's theory of the rate of interest in the *General Theory* was formulated as a liquidity preference theory. This view contrasted with Keynes's earlier, more orthodox treatment in the *Treatise* in which the rate of interest is determined by saving and investment. The neoclassical chain of causation is reversed in the *General Theory* in which expenditure decisions govern aggregate demand and thus provide the primary determinant in the level of output. Investment decisions represent a prior claim on output since business expenditure determines the share of profits. It follows that business profits should always be sufficient to provide the residual amount of saving required to finance investment. As Kaldor states: 'To state the matter in a different way: profits *ex post* will always be sufficient to generate residual savings which means that *ex post* saving will equal *ex post* investment' (Kaldor, 1985, p. 34). In the *General Theory,* Keynes's argument was that the rate of interest was not a reward for saving or abstinence from consumption because the propensity to save was determined by the level of income and thus by investment expenditure. Indeed, under circumstances in which effective demand is depressed and with the onset of a deflationary spiral, the paradox of thrift is characterized by a liquidity trap. An expansionary monetary policy under these extreme conditions is doubtless quite ineffectual.[2]

Consequently, the demand for money influences the rate of interest on bonds and sets the upper limit to the bond yield. Liquidity preference permits the rate of interest to be determined by the supply and demand for a given quantity of money. The market rate of interest, however, does not necessarily correspond with the equality between saving and investment at full employment equilibrium (Sawyer, 2005, p. 101). Planned investment (that is, investment *ex ante*) might not be sufficient to ensure full employment. It can be surmised that in the *General Theory,* Keynes argued that interest rates are a monetary phenomena determined by the theory of liquidity preference. The direction of causation runs from investment to saving. However, the analysis in the *General Theory* continues to assume a fixed quantity of money and the tentative treatment of endogenous money from a chartalist standpoint, which was suggestive in the *Treatise,* seems to have disappeared (Smithin, 2003).

CONCLUSION

In a world governed by radical uncertainty, a monetary economy is doubtless characterized by destabilizing waves of optimism and pessimism as investors and speculators are driven by fluctuating liquidity preferences in a self-reinforcing herd-like behaviour. Financial markets are by their very nature volatile and unpredictable if left to their own devices. Keynes's original critique of the 'classical' economists during his own era has been entirely ignored and superseded by the recent ascendancy of rational expectations and efficient markets hypotheses. It appears that economic theory has gone full circle: the classical postulates, which had informed Say's law and which the Keynesian revolution sought to overthrow, have simply been reincarnated, albeit in the guise of more sophisticated mathematical models. Ultimately, the problem of uncertainty, which was central to the Keynesian vision of a modern, monetary economy, has been subsumed and relegated to the status of calculable, probabilistic notions of risk in the prevailing economic discourse. Keynes's own words perhaps best capture this neoclassical fallacy: 'The calculus of probability, though mention of it was kept in the background, was supposed to be capable of reducing uncertainty to the same calculable status as that of certainty itself; just as in the Benthamite calculus of pains and pleasures or of advantage and disadvantage, by which the Benthamite philosophy assumed men to be influenced in their general ethical behaviour' (Keynes, 1937c [1973], p. 113).

NOTES

1. The Cambridge equation of the value of money was formulated to provide an alternative theory to the quantity theories of money and to reflect changes in the purchasing power of money as a result of changes in supply and demand. To quote from Joan Robinson: 'The apparatus used to analyse the determination of the price level were tautological statements known as Quantity Equations. The "Cambridge" equation was consciously designed to deal with the value of money in terms of supply and demand. In its simplest form the "Cambridge" equation was as follows:

$$\Pi = kR/M$$

Where Π is the purchasing power of money, R the real national income, k the proportion of real income held in the form of money (cash, bank balances), and M the quantity of money. kR then represents the demand for money in terms of real wealth, and M the supply of money. The equation leads naturally to the simple argument that the

greater the supply of money (M) the smaller its value (Π), and the greater the demand for money (kR) the greater is its value' (Robinson, 1933, p. 23).

2. The Japanese experience of chronic stagnation in the 1990s provides the most recent exemplar of this cumulative process characterized by a deflationary trap.

4. Endogenous money: heterodox controversies

> If you owe the bank $100, that's your problem. If you owe the bank $100 million, that's the bank's problem.
>
> John Paul Getty

INTRODUCTION

Keynes's finance motive provides an important starting point in subsequent heterodox theories of endogenous money. This chapter will examine some of these controversies between the three major contending analytical approaches, usually designated as the Horizontalist, Structuralist and Circuitist schools of thought. These ongoing debates revolve around the concepts of uncertainty, liquidity preferences and the critical notion of a monetary circuit. Indeed, these controversies traverse the profound questions of the very meaning and definition of modern money and reflect divergent methodological approaches. Should the supply of money be treated as a stock or a flow concept? Are the static assumptions of Keynes's (1936) original theory of the supply of a given quantity of money compatible with the dynamic nature of credit money? There are also considerable divergences between the post-Keynesian and Circuitist theories over the dynamics of endogenous money and the role performed by the central bank. Given the limited scope of this study, the focus will be on how these various approaches to endogenous money shed light on the inner logic of financial and monetary crises.

POST-KEYNESIAN THEORIES OF ENDOGENOUS MONEY

Many post-Keynesians (Bibow, 1995; Arestis, 1996; Bertocco, 2005)

argue that the finance motive is a crucial component of the demand for money. Keynes's seminal monetary theory of production suggests that the circuit of credit is necessary to finance investment and production. The demand for money becomes synonymous with the demand for investment. The problem with Keynes's original theory was that the quantity of money was conceived as a stock rather than a flow variable. From this perspective, the concept of a given stock of money becomes incompatible with the supply function because this would also imply a scarcity of the supply of money and the necessity to ration credit. As Rochon claims: 'If money is truly endogenous, then there cannot be a function relating quantity to price. If the supply is demand-constrained, then it cannot be an increasing function of the rate of interest' (Rochon, 2003, p. 122). Keynes's original treatment of endogenous money was informed by static assumptions, which are incompatible with a dynamic sequence governed by flows of credit money. Indeed, Keynes's analysis in the *General Theory* reinstates exogenous money through the central bank regulation of the rate of interest. Keynes's 'revolving fund' concept, which appeared in his post-*General Theory* articles (1937a, 1937b), fails to fully capture these dynamic processes. In short, Keynes's theory implies a scarcity of money, which was easily incorporated into the more orthodox neoclassical theories of exogenous money. As Wells notes:

> Keynes's concepts are real, but they are necessarily so vague and imprecise that model builders could not well incorporate these phenomena into their analytics. Instead of dealing directly with this problem, conventional researchers tended to freeze the state of liquidity preference and then postulate stable interest-elastic demand functions for money. This substitution of stable functions for inherently unstable real world phenomena gave researchers the solid foundation they needed upon which to develop their models ... and so 'the soul of Keynes's theory' became little more than a well-behaved demand-for-money equation. (Wells, 1983, p. 525)

For most post-Keynesians, money is conceived first and foremost as an asset which can be substituted for real or financial assets. But money also has the superior attribute of a higher degree of liquidity. Keynes's theory of liquidity preferences suggests that money represents a safe haven or a store of wealth in the face of radical uncertainty. Money is quite a unique asset in the sense that its yield is set by the liquidity preferences of wealth holders and responds inelastically to changes in its supply. An increase in the supply of money therefore imparts a response

in terms of its yield and short-term interest rate, which lags behind the yield of other financial assets. As soon as the short-term rate of interest increases as a result of increased demand for liquidity, economic agents are enticed to hold this liquid asset as a future store of purchasing power. The liquidity premium suggests that the demand for investment tends to be curtailed because of the shift to hoarding money as a store of wealth. Money thus becomes a bottomless sink of purchasing power as long as its yield is high enough to induce the propensity to save at the expense of productive investment (Fontana, 2009, p. 63). This inevitably leads to a general curtailment of investment spending (Dow, 1996, p. 500). The sharp fall in investment sets in train a depressive spiral of bankruptcies and defaults. The banks themselves will now increase their liquidity preferences and attempt to restore their balance sheets in the face of an avalanche of non-performing loans.

Credit rationing by the banks could also occur independently of the prevailing profitability of existing investment and output and could prefigure and act as a trigger for the ensuing slump in output and employment. The endogeneity of money is not only dependent upon the demand to finance investment but might also arise as a result of changes in the portfolio preferences of the banks themselves. Changes in banks' liquidity preferences will influence the availability of credit. Excessive demand for bank liquidity implies that credit rationing induces a rise in interest rates in order to restore their balance sheets. Inter-bank lending will be adversely affected as each bank is now reluctant to lend in order to avoid the possibility of exposure to the contagion effect of a mass stampede from bad and depreciating assets. Economic agents also scramble to exchange assets for money, which increases the liquidity preferences of banks and ultimately imparts a depressive effect on investment. The problem of excessive private debt incurred during the previous euphoric boom plays a central role in the onset of a pervasive credit crunch. In the words of Aglietta:

> Overindebtedness is a form of systemic risk because a large amount of debt is vulnerable to any macroeconomic shock which abruptly increases the heuristic sensitivity threshold of lenders. The probability of default being discretely increased, lenders see they are rivals in calling in the debts of insolvent borrowers before they are declared bankrupt ... . This competitive behaviour triggers a *credit crunch.* If not checked by the lender-of-last-resort, a credit crunch does not only frustrate new credit demand, it also jeopardises the rolling-over of existing debt. It is a powerful link between financial fragility and the sharp cut in real expenditures, leading to depressed levels of

> economic activity ... . The financial intermediation process is gradually paralysed because banks are unable to discriminate between borrowers. All remaining banks attempt a flight to quality, preferring to buy riskless assets like Treasury bills and keeping excess reserves. (Aglietta, 1996, p. 561, emphasis in original)

Given the inherent instability of endogenous money and the historical recurrence of these financial crises, central banks evolved to act as lenders of last resort. Indeed, central banks were originally created to provide purchasing power to the state. As the sole monopoly supplier of legal tender, the state would issue debt to the central bank and the central bank was bestowed with the privileges of issuing the official reserves. This allowed the central bank to preside over the regulation of private banknotes and was given the power to impose restrictions in the issuing of these banknotes by private banks. Private notes were soon replaced by central bank reserves as a means of payments in the settlement of inter-bank liabilities. In other words, central banknotes replaced commodity money as the numeraire into which private notes would be convertible (Wray, 1996, p. 456). Central bank reserves now acted as the universal equivalent and have been empowered with the ability to regulate the creation of private banknotes through the interest rate discount mechanism. According to Wray:

> Thus, a pyramidal structure has gradually evolved in which non-bank money is guaranteed by banks, is made convertible into bank money, and is retired issuing bank money; while bank money is guaranteed by the central bank, is made convertible into central bank money, and is retired issuing central bank money. (Wray, 1998a, p. 256)

In order to avoid and mitigate the effects of a liquidation crisis, credit money is convertible into fiat money, which in theory can be issued without limit. As lender of last resort, the central bank is able to inject liquidity into the system in the short run to avert a credit crunch. These operations, however, have their limits and if sustained beyond a certain threshold, could lead to the debasement or devaluation of the official fiat money.

The cornerstone to post-Keynesian theories of money is the proposition that the supply of money cannot be set arbitrarily by the central bank. In the post-Keynesian literature, money is construed as a unit of account – as a standard of value for creditor-debtor contracts but it also assumes the role as means of payments to validate these contracts. Money is essentially and ineluctably credit-driven. In other words, the

dictum that 'loans make deposits and deposits generate reserves' always applies (Lavoie, 2006, p. 57). The supply and the demand for credit money are interdependent, while the central bank sets the price of money via the short-term rate of interest rather than by the supply of money (Hein, 2008, p. 44). The supply of money and credit is ultimately determined by the demand for bank credit and the general liquidity preferences of wealth holders. For post-Keynesians, therefore, the supply of money is not necessarily determined independently by the central bank but by the demand for credit in the economy as a whole. The creation of loans occurs *ex nihilo* and does not depend upon central bank reserves. The causation is reversed – high-powered money in the form of banknotes issued by the central bank will always be made available on demand to the commercial banking system. For some post-Keynesians – described as 'Horizontalists' – high-powered money is perfectly elastic (Kaldor, 1982; Moore, 1988). The Horizontalist thesis, however, also incorporates the rationing of credit through the rate of interest set by the central bank, which prevents the unfettered and limitless expansion of credit. The other caveat in the Horizontalist argument is that the demand for credit is also governed by an appropriate risk premium set by the banks themselves.

Horizontalists argue that central banks cannot, in principle, determine the quantity of total reserves. However, the central bank has the power to determine the quantity of non-borrowed reserves. If individual banks find themselves with insufficient deposits with the central bank in order to meet their reserve requirements, this deficit is usually covered by inter-bank borrowing through the selling of assets or directly borrowing from the central bank itself through the discount window. This implies that the quantity of total reserves will tend to fluctuate on the basis of the demand for reserve assets by private banks (Moore, 1988, p. 374). From this perspective, the central bank cannot directly determine the supply of money. Instead, the primary mechanism, which influences the supply of money, is the setting of the short-term discount rate at which banks borrow funds below prevailing market rates. Although central banks regard these operations as a last resort to prevent banks from having access to unlimited subsidized funds, there is considerable ambiguity over the limits that central banks can impose to avoid excessive borrowings. Horizontalists claim that the central bank merely accommodates the demand for credit money and cannot determine the supply of money. Indeed, the refusal of the central bank to accommodate the demand for credit money by commercial banks could provoke a loss of confidence

in the entire credit system and hasten a breakdown of the intricate network of credit/debt contracts which mediate the flow of these lines of credit.

For Horizontalists, money is neither a commodity, nor is it the creature of the state as fiat money. In a pure credit economy, the banking system mediates all transactions between workers and capitalists and between capitalists themselves. Currency money under these circumstances is rendered superfluous. For the sake of simplicity, Horizontalists assume that there is one banking system represented by a single bank. Credit money is created *ex nihilo* by the banking system and the rate of interest is set endogenously. The demand for loans is accommodated by the banking system on the basis of the creditworthiness of borrowers. Credit is therefore demand-driven and independent of the official rate of interest. The only limit to the creation of credit is the propensity of economic agents to borrow and their creditworthiness from the standpoint of the banking system. In this overall scheme, the central bank merely accommodates the demand for credit money and acts as the supplier of legal tender. The demand for legal tender implies that the bank is compelled to borrow from the central bank. Horizontalists contend that the central bank merely supplies the residual legal tender demanded by the public and regulates liquidity. Commercial banks require monetary reserves from the central bank in order to ensure that a desired level of cash or liquid assets is available in the event of unanticipated surges of demand for liquidity. The crucial point stressed by Horizontalists is that these monetary reserves are simply the residual after the demand for credit money has been automatically met. In other words, there is a type of reverse Say's law of money at work; the demand for money creates its own supply (Moore, 1988, p. 381).

To be sure, in a pure credit economy, the existence of an excess of money is logically impossible. Horizontalists claim that credit money is infinitely elastic at a given rate of interest, which excludes the possibility of an excess supply of money. The causal relation between money and incomes or between money and prices is the very opposite of that postulated by Monetarists (Kaldor, 1982, p. 70). Moore (1988), for instance, claims that the supply of money is always and necessarily equal to the demand for money. Indeed, the supply of money has no real existence, which is independent of demand. Under these circumstances, Keynes's original liquidity-preference theory of the rate of interest is no longer relevant. As soon as the category of a stock demand for money is rejected and a flow concept of endogenous money is introduced, the

supply of money will always adjust to meet the demand regardless of the prevailing rate of interest. The theory of liquidity preference is reduced to the determination of a residual stock of money, which has no real causal significance (Cottrell, 1994, p. 598). There are three major reasons, according to Horizontalists, why the supply of credit will always accommodate the demand. First, if the demand for credit outstrips the existing supply via the banking system, banks will engage in financial innovation in order to circumvent the existing regulatory regime, even if this involves the generation of credit outside the balance sheets of the banks. Second, as has already been alluded, banks are able to borrow from the discount window of the central bank and thus able to augment their reserves to back new loans. Third, the banks themselves create additional credit through the overdraft facilities and extending existing credit lines (Dow, 1996, p. 498).

In a very critical sense, modern banking has evolved to create credit and to accommodate the demand for credit. It follows that in a world governed by endogenous money, Keynes's liquidity preference theory becomes irrelevant from the standpoint of the Horizontalist thesis. The demand for a stock of wealth relates almost exclusively to portfolio allocations exogenously supplied by the central bank. These asset allocation operations are essentially static and are based upon previously existing assets. A more dynamic treatment of monetary circuits represents a radical theoretical departure by Horizontalist theorists. Credit money ultimately reflects the nature of endogenous money as a circular flow concept, which is necessarily demand-driven (Piegay, 2003, p. 247). As Moore quite succinctly states: 'The central argument for the endogeneity of credit money may be simply put: Banks are *price setters and quantity takers* in both their retail loan and deposit markets. As a result both loans and deposits are demand determined' (Moore, 1988, p. 381, emphasis in original).

Structuralists (Chick, 1986; Rochon, 1999; Hein, 2008; Fontana, 2009) generally support the Horizontalist assumptions which inform the endogeneity of money but disagree over the question of uncertainty and reinstate Keynes's liquidity preference theory. Indeed, the centrality of liquidity preferences informs most of their analyses. Keynes's original theory was gradually modified to incorporate the complex credit/debt networks between households, firms, banks and the central bank. The rate of interest is an endogenous variable, determined by liquidity preferences and the differential between the private rate in money markets and the official rate set by the central bank. It is argued that the short-term

rate of interest needs to be higher than the official rate in order to attract lending and encourage banks to reduce their holdings of central bank money. In a world of uncertainty, these liquidity preferences shed invaluable insights into the dynamics of the circular flows of endogenous money. In many ways, these theories evolved from earlier Horizontalist vintages and assimilated the basic tenets of endogenous money that loans create deposits and deposits generate reserves (Fontana, 2009, p. 100). In contrast to the Horizontalist exposition, however, these monetary flows are now treated from the perspective of the liquidity preferences of each of the economic agents involved in the supply of credit money (that is, households, firms, banks and the central bank).

From the standpoint of households, the propensity to save or to consume will ultimately affect the portfolios of households and have a direct impact on the profitability of firms. For instance, if the liquidity preferences of households are low, there is an increase in the supply of money to firms insofar as households are more willing to convert cash and other liquid assets into medium- and long-term financial assets, which are issued by firms. The circular flow of credit money suggests that firms are now willing to withdraw their existing liquidity from the market in order to curtail their debt obligations to banks and other financial institutions. A fall in the liquidity preferences of firms involves an increase in the supply of long-term financial assets as firms exchange cash and other highly liquid assets for these long-term financial assets, issued by firms producing capital goods. In other words, there is a redistribution of liquidity or the creation of new credit money in the economy as a whole. This redistribution of liquidity between firms is governed by their different propensities to invest. Given the long time horizons involved in long-term capital investment, characterized by high fixed costs of production, the issuing of long-term financial assets can be validated by those firms engaged in the production of capital goods. In this process the relationship between the short- and long-term yield on corporate bonds and securities plays a central role in the allocation of long-term investment. The yield curve reflects the willingness of firms to finance long-term investment. Conversely, an inverted yield curve might signify the emergence of a possible credit crunch as firms scramble to increase their liquidity and validate their short-term debt obligations (Arestis and Karakitsos, 2004).

The role of commercial banks in this process is critical. Since commercial banks are able to create liquidity *ex nihilo,* the demand for

new loans can be accommodated. The role of financial intermediation allows banks to automatically redistribute liquidity in the economy and allow households and firms to convert their deposits into long-term financial assets. The constant flow of production requires firms to obtain credit from banks, which creates deposits in the process. At the same time, the decision by households to demand money as an asset will be met by the banks. Deposits therefore perform a dual function. On the one hand, there are loans made to banks by firms as savers, which, in turn, create further loans by the banks. On the other hand, these transactions represent mere book entries and are cleared by the commercial banks themselves. As long as a 'run' by depositors is avoided, the reciprocal claims by creditors and debtors tend to be settled (Bellofiore and Realfonzo, 2003, p. 212). From the banks' point of view, credit appears on the asset side of the balance sheet, while money appears on the liability side. Credit therefore drives the system, while money or the demand for liquidity are determined by the liquidity preferences of economic agents.

Finally, from the standpoint of the central bank, Structuralists argue – in stark contrast to Horizonalists – that the central bank does not necessarily accommodate the creation of credit through the demand for reserves from banks. The central bank plays an active and pivotal role over its decisions to lend in order to prevent and mitigate the effects of excessive credit-creation. From this perspective, central banks themselves form liquidity preferences. As the residual supplier of liquidity to the economy as a whole, the central bank is able to set the short-term base rate of interest, which then acts as the official anchor or benchmark in the regulation of liquidity within the banking system. There is therefore considerable disagreement between the Horizontalists and the Structuralists over the role performed by the central bank. This controversy revolves around the degree of accommodation by the central bank in the demand for reserves by the banking system. The Stucturalists assign a more active and autonomous role for the central bank. The other major point of contention is whether endogenous money is consistent with the concept of liquidity preferences. An excellent summary of these controversies is provided by Fontana:

> The Structuralist analysis has retained the main contributions of the Horizontalist analysis, including the 'loans create deposits' and 'deposits generate reserves' tenets, but it has interpreted them in the light of a more explicit consideration of the liquidity preference of the agents involved in the money supply process, namely households, firms, commercial banks and the central bank (Fontana, 2009, p. 104)

THE CIRCUITIST APPROACH

The Circuitist approach (Guttmann, 1994; Parguez, 1996; Graziani, 2003) has its origins in Marx's original treatment of banking in Volume 3 of *Capital.* As the system of banking evolves, it is no longer necessary to have a metallic base for the monetary system, which acts as a universal equivalent. Banks have the unique ability to create money *ex nihilo.* Deposits perform the dual roles of unit of account and means of payments. Banks have the power to intermediate between creditors and debtors through a complex system of clearing (Bellofiore and Realfonzo, 2003, p. 212). However, as deposits are created, banks demand reserves from the central bank in order to cover the possibility of a drain on their reserves. The system of high-powered money supplied by the central bank therefore acts as the critical mechanism in the regulation of liquidity. Since the short-term rate of interest is determined exogenously by the central bank, the price of credit can be influenced by the monetary authorities. But the supply of credit is essentially demand-driven within the existing 'margins of safety' imposed by the evaluation of risk by private banks (Rochon, 2003, p. 128).

Money is also assigned the function as a means of circulation. This function inscribes money with general purchasing power in the formation of prices. In stark contrast with Keynes's treatment of money as a 'time machine', which links the present and the future under the conditions of uncertainty, the Cirtuitists conceive money only in the present – there is not even a separation of purchase from sale (Deleplace and Nell, 1996b, p. 24). The analysis is confined solely in terms of logical time, that is to say, the current period of circulation is logically separated from the next period. As Deleplace and Nell contend: 'The methodology is *sequential analysis*, which is neither *statics* nor *equilibrium dynamics* but *path-dependent* dynamics' (Deleplace and Nell, 1996b, p. 26, emphasis in original). Second, Circuitists share the Horizontalist view that money is demand-determined and the supply curve does not exist in its own right. In other words, Circuitists claim that there is no meaningful distinction between the supply and demand for credit money. But the short-term rate of interest is determined by the central bank independently of supply and demand.

The Circuitist approach also shares an intellectual legacy with Keynes's monetary theory of production and extends Keynes's analysis of the finance motive. A distinction is made between the 'initial'

finance issued as credit by private banks to firms, which then circulates as liquidity as firms realize their sales in the circuit, M-C-M´, or are able to issue securities in financial markets in order to finance investment. In the relation between banks and private firms, the short-term rate of interest tends to act as the primary mechanism, while the long-term rate of interest determines the relation between firms and households as firms issue securities via the financial markets, which are held by households. Household saving therefore acts as a type of 'leakage' in the circular flow of credit money. Circuitists focus upon the dynamic processes by which credit money is 'created' and ultimately 'destroyed' as loans are validated. This is in stark contrast to the post-Keynesian approaches which view money based on money balances (or liquidity preferences). The creation of money, from the Circuitist approach is simply determined by the ability of firms to enter into debt in order to initiate the process of production. The generation of profits enables firms to pay back these debts, which signifies the 'destruction' of credit money (Rochon, 1999, p. 15). Indeed, as Keynes argued in the *Treatise* (1930), the demand for finance by firms can also be satisfied by an increase in the velocity of circulation as firms issue new securities through the financial markets (Graziani, 1996, p. 147).

The Circuitist approach focuses upon the chain of payments emanating from the initial creation of credit money in order to set in motion the process of production and terminating in the final destruction of money. In the tradition of Schumpeter (1936), Circuitist theorists reverse the traditional, neoclassical view that deposits create loans. Since bank loans provide liquidity *ex nihilo,* these forms of payments can be issued in the general sphere of circulation at any given moment. Similarly, the banking system can issue new loans and therefore generate liquidity from its own accumulated deposits. The causation thus runs from loans to deposits. Indeed, the only means by which an increase in the total amount of bank deposits occurs is with the creation of a new loan. Conversely, a fall in total deposits only takes place when a deposit reduces the individual debt of the economic agent (Graziani, 2003, p. 86). Consequently, an increase in the level of deposits tends to expand the amount of reserves of a particular bank. While this general rule applies to individual banks, it does not necessarily apply to the banking system as a whole. The reserves of the whole banking system can only expand as a result of an increase in the loans granted by the central bank either to individual banks or to the government.

> Bank finance is not related to savings because bank loans are made possible by liquidity advanced by the banks themselves, who don't draw on any previous income. Nor are bank loans related to investment because initial finance required by producers has to cover the whole cost of producing both consumer goods and investment goods. Therefore, the possibility that firms can carry out their production plans is not in the hands of savers, but rather in the hands of the banks and their willingness to supply the required liquidity. (Graziani, 2003, p. 157)

The dynamic circuit begins with firms setting their output targets for the current period. In order to spend money in the current period, firms negotiate the level of wages. But the initial expenditure exceeds income, which compels them to borrow from banks. The firm is therefore engaged in two sets of negotiations: (1) in the money market, the negotiation revolves around the conditions of the loan and the interest rate; and (2) in the labour market over the level of money wages. As long as the propensity to consume by workers creates demand for consumption goods, firms receive their original wage payments via the circular flow of the supply of goods and services. At the same time, the propensity to save out of wages translates into the supply of corporate bonds and securities through the financial system. The circle is effectively squared when these repayments destroy the original injection of loans by the banking system. But if the propensity to save out of wages increases, firms will receive a smaller proportion of credit money than they have spent. This leakage might prevent firms from validating their debts. If the circuit is not closed, banks are able to channel these excess deposits into loans for the next period of production, which will increase the supply of endogenous money over time. The Circuitist approach distinguishes between bank loans and corporate securities to argue that interest rates have only a marginal influence on the decision to invest by firms. The circular flow of credit money implies that the initial interest payments made by firms ultimately flow back to them in the form of the supply of securities. But the interest paid to service these loans constitutes a transfer of income from firms to banks over the period of production.

> What emerges clearly from the 'dynamic circuit' approach is the endogeneity and non-neutrality of money in our economy. Money is endogenous, because its supply arises in the wake of credit extension and therefore as a direct result of spending decisions by firms and other agents. Money is non-neutral, because firms need finance in order to carry out their production plans. The extent to which new money is issued determines how much indus-

> try can spend on wages and the means of production. The decisions by banks, its issuers, as to the amount lent and interest rates charged thus affect the real economy profoundly in both the short-run and the long-run. (Guttmann, 1994, p. 35)

From the standpoint of money as a means of payments, Circuitists argue that the flow of bank deposits demanded by firms to finance production – which generates purchasing power over the necessary inputs (labour, raw materials, capital assets and so on) – might not necessarily generate a rate of profit to cover the initial debt. In this case, the classical Marxian problem of a 'realization' crisis might intervene to disrupt the chain of payments and hasten a financial crisis. Indeed, the flow of purchasing power could also be transformed into a stock of money balances. In this case, wage earners might be reluctant to purchase long-term securities and will increase their liquidity preferences. This would correspond to a contraction of liquidity as a whole and translate into an equivalent increase in bank debts incurred by firms (Fontana, 2000, p. 43). Given these contingencies, the issue of uncertainty cannot be ignored, even though most Circuitists are reluctant to acknowledge its significance. To be sure, the problem of money as a store of wealth under the conditions of uncertainty has a profound effect on the behaviour of economic agents. This is starkly evident during the onset of a prolonged liquidity trap. As Fontana quite legitimately argues:

> The focus of the Circuitist analysis is on money as a means of payments, but the possibility that money holding may have deleterious effects on the balance sheet of firms and banks is a reminder of the fact that money as a store of wealth is nevertheless at the core of the analysis. Thus, what post-Keynesians record on the real side of the economy, Circuitists assess on the monetary side of the production process. (Fontana, 2000, p. 43)

Circuitists derive credit money as the outcome of a complex web of credit/debt relationships. Within a period of production, there are parallel circuits of debt which have to be validated. The creation and destruction of debt regulates the circulation of money through the reflux and efflux of monetary circulation. The whole process is endogenous to the extent that the money supply is a function of the demand for money by the economic system. Four distinct circuits can be identified: (1) the debt of private firms to banks; (2) the debt of commercial banks to themselves; (3) the state debt to the central bank; and (4) the issuing of debt by the central bank to itself. In this hierarchy of money, the very apex is occupied by the central bank in the issuing of high-powered money. As

Rochon quite eloquently states: 'In other words, money exists because of debt, circulates because of debt, and is extinguished in the reimbursement of debt' (Rochon, 2003, p. 125). Money is created in order to activate production and accumulation. In its bare essentials, capitalism rests on the existence of money to realize exchange-values. In short, money exists because of credit contracts between firms and banks and between the state and the central bank. These circuits ultimately embody income flows in the form of wages, profits, rents and taxation. Private enterprises place bets in the future realization of the monetary value of profits and nominal output, which are necessary to validate their short-term debts. The derivation of money is based on its role as a unit of account and means of circulation to express values in the sphere of production and to assign purchasing power to the major sources of income (that is, wages, profits, rent and so on). The entire circuit of capital must therefore express values in terms of a monetary unit.

Circuitists differ quite radically from Structuralists over the issue of uncertainty. Structuralists focus upon the *ex ante* decision to invest, which elevates the issue of uncertainty and liquidity preferences in their treatment of money. In stark contrast, Circuitists focus almost exclusively on *ex post* aggregate identities in which uncertainty only arises at the end of the circuit. As has already been mentioned, Circuitists analyse circular monetary flows as a logical sequence. The closure of these circuits occurs at the end of each production period in which the aggregate identities such as expenditure/income or saving/investment will necessarily equate. In other words, Say's law is reinstated at the end of the circuit. Although these aggregate equalities might hold from an *ex post* perspective, most post-Keynesians argue that the problem of uncertainty implies that these identities fail to equalize from an *ex ante* perspective. Liquidity preferences will cause divergences between saving and investment. Whereas Circuitists focus upon the circular flows of credit money, post-Keynesians view money as both a stock and flow concept. As a given stock, the holding of money gives rise to liquidity preferences (Wray, 1996, p. 457). In both cases, however, the principle of money endogeneity still applies. Both at the beginning and at the end of each circuit, the demand for money – as credit or as liquid assets – creates the necessary supply. Liquidity preferences and uncertainty cannot be ignored in the demand for money either as a stock or as a flow concept from a Structuralist standpoint.

For Circuitists, money is endogenous in the very process of debt formation. Production is rarely, if ever, financed by changes in the port-

folio decisions of households. Instead, credit money is created as soon as banks extend loans to firms; the process does not depend upon future uncertainty because money can be created *ex nihilo* by the banks themselves. Circuitist theories of investment contend that financial markets play only a passive role in the decision to invest. Investment decisions are formed independently of the prevailing rate of interest and the expectations of stock markets. This view contrasts with post-Keynesian theories in which there is a dynamic interdependence between the rate of interest and the decision to invest (Arena, 1996, p. 431). From this perspective, the monetary flows are characterized by a hierarchical sequence: bank credit logically precedes and activates the production process and firms cannot repay their debts to the banks until their output is sold to households and other firms. As soon as households receive their incomes, their propensity to save implies that the stock of residual saving is allocated between various assets. Circuitists therefore argue that money becomes a stock and an asset when it temporarily ceases to enter into the circular flow. The demand for money, however, is independent of the level of saving, while the propensity to save is treated as a residual rather than generating investment *ex ante.*

If households purchase bonds, the money is channelled to the state. Similarly, if households purchase long-term private bonds and securities, the money ultimately flows back to firms. Consequently, these two sources of reflux provide the necessary means by which the initial debts incurred by firms to banks and by the state to the central bank are ultimately destroyed and the circuit is closed. Circuitists argue that from a logical-sequential standpoint, the financial markets are a critical transmission mechanism of the reflux phase of the monetary circuit. It can be surmised that the problem of uncertainty can only arise at the moment of closure in the monetary circuit. According to Rochon: 'The relationship between money and uncertainty, as opposed to the relationship between credit and uncertainty, arises at the end of the monetary circuit. Furthermore, uncertainty does not explain *why* money exists, but rather *why money remains in the system.* Money is therefore both a flow/liability and a stock/asset' (Rochon, 2003, p. 129, emphasis in original).

The problem of linking the existence of money to uncertainty presupposes the treatment of money as a stock concept. The creation of credit through the banking system, however, constitutes a dynamic flow concept. As soon as production is financed through the creation of credit, the analysis shifts to a circular monetary circuit. Money therefore exists in the absence of uncertainty. While uncertainty does influence the

demand for credit and the portfolio decisions of households, Circuitists argue that uncertainty cannot influence the demand for money. Uncertainty fails to explain why credit is endogenous; nor is it a useful concept to explain the reverse causality between the liability and asset sides of the balance sheet of the banking system. In other words, the problem of uncertainty does not incorporate the causation between loans, deposits and reserves. The circular flow of money suggests that the greater the uncertainty, the greater the demand for money and paradoxically, the greater the stability of the system, which ultimately leads to the diminution of uncertainty (Rochon, 1999, p. 219). From a Circuitist perspective, the post-Keynesian argument over the problem of uncertainty and money tends to be circular and tautological.

Circuitists contend that the post-Keynesian theory of endogenous money assumes that money is a consequence of credit. By contrast, Circuitists argue the opposite case that credit is a function of the demand for money. From the standpoint of the individual bank, credit appears on the asset side of the balance sheet and money appears as a liability. From this perspective, it is not the demand for money but rather the demand for credit which activates investment. Indeed, if the demand for money determines the supply of loans, the principle of reversed causality which governs the endogeneity of money would be violated. In short, the principle that banks' liabilities (deposits) determine their assets (loans) would be reinstated and thus the very concept of endogenous money would cease to be relevant. It is therefore the demand for credit rather than the demand for money which drives investment and economic activity. Circuitists argue that the demand for money only plays a subsidiary or secondary role in terms of liquidity preferences, which arise at the end of the monetary circuit. But what essentially provides the impetus for economic activity – most notably under the conditions of finance-monopoly capitalism – is the demand for credit rather than the demand for money. The breakdown of the monetary-credit circuit signifies a financial crisis, which normally assumes the form of a contraction of credit and if sufficiently severe, could metamorphose into a fully fledged capitalist slump.

CONCLUSION

In the pursuit of an alternative analytical framework to the prevailing neoclassical and Monetarist theories of exogenous money, these

contending heterodox theories of endogenous money provide an innovative critique. Despite the divergent and conflicting approaches within the heterodox literature, there is a general consensus that capitalist money is essentially endogenous. The Monetarist causation is reversed: it is the demand for money and credit which determines its supply both in the long run and in the short run. By implication, the doctrine of monetary neutrality in the long run also breaks down. Yet this tentative and uneasy consensus has been ruptured by clashes between the contending schools of thought over the issues of uncertainty and liquidity preferences, the role of central bank interest rate policy and the very nature of credit money itself. These disputes also reflect differing methodological approaches, which involve quite complex theoretical questions over statics/dynamics, stock/flows, path-dependence/equilibrium and the various disputes over historical versus logical time, which are familiar to historians of economic thought. Unfortunately, from this perspective, these divergent heterodox currents have failed to provide a coherent and unified theoretical framework in their critique of the dominant neoclassical paradigm. But this apparent weakness could also be symptomatic of the early stages or the infancy in the emergence of a new paradigm.

5. Towards a theory of endogenous financial instability and debt-deflation

> Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes a bubble on a whirlwind of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done.
>
> Keynes (1936, p. 159)

> Those involved with the speculation are experiencing an increase in wealth – getting richer or being further enriched. No one wishes to believe that this is fortuitous or undeserved; all wish to think that it is the result of their own superior insight or intuition. The very increase in values thus captures the thoughts and minds of those being rewarded. Speculation buys up, in a very practical way, the intelligence of those involved.
>
> Galbraith (1990, p. 5)

INTRODUCTION

Post-Keynesian and heterodox critiques have challenged the Monetarist assumptions of an exogenous money supply and the doctrine of monetary neutrality in the long run. Within these heterodox currents, there has emerged a widespread consensus that the money supply is endogenous – governed by the demand for credit and by the Keynesian notion of liquidity preferences. These heterodox theories also reinstate the original insights by Keynes over the critical issue of uncertainty in the behaviour of investors, which contradicts the assumptions of rational expectations. Indeed, Minsky once remarked that Keynes without the notion of uncertainty was akin to performing the personae of Hamlet without the Prince. The original Keynesian prescription of financial 'repression' and Keynes's own declaration of the 'euthanasia' of the rentier are doubtless reaffirmed by these theories. This chapter will

examine some of these intellectual currents in order to develop a more rigorous interpretation of the root causes of financial turbulence. It will be argued that there is a coherent theoretical lineage between Kalecki and Minsky in their treatment of endogenous money. The original debt-deflation theory of economic depressions, first formulated by Veblen and later refined by Irving Fisher, appears to augment these post-Keynesian theories of endogenous money. It is thus possible to construct a basic theoretical synthesis and to argue that these episodes of financial instability are not merely random, exogenous shocks, but constitute endogenous pathologies in the normal dynamics of capital accumulation. The boom itself therefore generates endogenously destabilizing forces, which induce a speculative boom and its inevitable demise.

KALECKI'S FINANCE-INVESTMENT NEXUS

The original Keynesian theory of investment can be described as a psychological or a 'subjectivist' conception in which the notion of uncertainty assumes centre stage. In contrast to this Keynesian view of the *General Theory,* the Kaleckian theory of investment provides a more coherent approach by linking investment decisions to the accumulation of past profits and expected future profits. Kalecki's profit-investment relation can be simply denoted as:

$$P = (I - swY) / (sp - sw) \tag{5.1}$$

where P is aggregate profits, I denotes investment, Y is the level of income, and sw, sp are the marginal propensities to save out of wages and profits respectively (Arestis and Karakitsos, 2004, p. 74). Investment would therefore need to be greater than swY if profits are to be realized. Kalecki assumes that the chain of causation runs from investment to profits; thus investment tends to 'finance itself' in the short run. In other words, the propensity to invest is determined by the realization of past profits. The decision to invest is positively related to profits and negatively to the capital stock. Consequently, a larger volume of investment leads to a higher level of profits. During an expansionary phase, profits will tend to rise disproportionately and stimulate the rate of investment, which outstrips the level of effective demand and ultimately leads to problems of chronic excess productive capacity.

Investment is curtailed as prices fall and a period of cumulative decline ensues (Eichner, 1991, p. 435).

At the same time, however, since realized profits are only one source of finance, firms can also resort to external finance in order to activate future investment. Expected profits are assumed to be positively related to the current rate of profit, which allows firms to validate existing debt and attract new loans. Consequently, Kalecki argues that the formation of expectations over future profits determines current investment expenditure. Profits generate the crucial engines for real growth because their determination and distribution are critical in the inducement of future investment and in validating debt (Bellofiore and Ferri, Vol. 1, 2001b, pp. 11–12). As a rising proportion of the firm's investment is financed externally during the upswing phase of the investment cycle, there is a tendency towards increasing risk. In the event of a credit crunch or a phase of rising interest rates, firms are forced to curtail both their internal and external sources of investment expenditure, which has a cascading effect in the economy as a whole. The curtailment of investment by capitalists as a whole imparts a depressive impulse on the rate of profits and increases their exposure to external indebtedness as debt/equity ratios increase. The rise in the proportionate share of investment financed externally rather than internally implies that investment decisions become an increasing function of the ability of capitalists to attract external borrowing.

The paradox of investment suggests that during the phase of upswing in the business cycle, rising stock market prices merely amplify the boom as increased aggregate profits and excess liquidity have the effect of inflating asset values and accelerating the rate of corporate mergers and acquisitions. These perverse 'wealth effects' further induce a rise in profitability and excess investment. The whole process takes on a life of its own and becomes cumulative and self-reinforcing. As the boom gains momentum and the economy reaches full employment, it encounters quite severe capacity constraints. A rapid upsurge in nominal wages and prices increases the demand for credit and puts upward pressure on short-term interest rates. The previous expansion of investment causes a rise in aggregate demand and income, which now translates into a boost in aggregate gross profits.[1] It is precisely during the euphoric phases of the boom that lead to an upward revision of expected profits, which also dampens expectations of financial risk. The downgrading of risk in financial markets induces a phase of debt-financed investment.

Kalecki argues that 'credit-inflation' or excess liquidity generated by

bank finance is a necessary means by which the boom is sustained. Since the current level of investment 'finances itself' through realized past profits, the source of new external finance for investment also implies an increasing exposure to risk. In an imperfect capital market, entrepreneurs encounter an increasing risk as they seek to expand investment (Kalecki, 1937). The principle of increasing risk emanates from an imperfect knowledge of the future outcomes of investment and expected future profits. Uncertainty, in this perspective, is institutionalized and acts as a destabilizing factor in the decision to invest, which is reflected in credit rationing as the short-term rate of interest regulates liquidity. These information asymmetries are expressed in terms of rising transaction costs (Courvisanos, 1996, p. 70).

Kalecki contends that there are two reasons for the principle of increasing marginal risk. First, the higher level of investment by the individual capitalist implies a higher exposure to the probability of failure or bankruptcy. Second, the problem of illiquidity could arise as the scale of output expands, which gives rise to high 'sunk' costs. The onset of excess productive capacity in the event of a sudden fall in demand leaves firms vulnerable since a high proportion of investment has been devoted to fixed capital.[2] The determination of investment is therefore not only a function of past realized profits (internal saving) but also of the change in the factors which influence the rate of profit. Consequently, during a business cycle upswing, profits will be increasing which, in turn, conditions the state of future expectations and the extent to which the entrepreneur is willing to resort to external finance. The principle of increasing risk suggests that as the boom gains momentum, the propensity towards external financing also increases.[3]

> Thus the principle of increasing risk implies two elements of financial disturbance in an economy, namely rising financial liabilities and hence falling profits ... . The balance between this *external indebtedness* of business and gross profits which finance the servicing of that indebtedness has to be made up of additions to, or deductions from, the internal liquidity of companies. Companies, in turn, regulate their internal liquidity by postponing investment projects. A reduction of investment, in accordance with Kalecki's reflux theory of profits, reduces profits ... this causes a continuous increase in entrepreneurs' indebtedness towards rentiers, which depresses investment activity. (Toporowsky, 2005, p. 128, emphasis in original)

The Marxian problem of the realization of surplus-value plays a central role in Kalecki's principle of increasing risk. As capital accumulation proceeds, the volume of profits encounter barriers in terms of the

increased demand for money required to finance investment in order to realize future profits. A falling rate of profit implies that the increase in the mass of surplus-value confronts problems of realization. In other words, an over-accumulation crisis emerges as markets are saturated. Kalecki's reflux theory of profits thus rejects the conventional neoclassical view that saving limits investment. Instead, capital accumulation is limited by internal financing, which reflects the level of the firm's reserves; and by the state of liquidity in the economy as a whole which, in turn, affects the rate of interest (Toporowski, 1994, p. 23). In stark contrast to Hick's IS/LM analysis, Kalecki argues that investment is governed by the long-term rate of interest, which tends to be cyclical, rather than by the short-term rate. Given the time lags and the planned investment decisions undertaken by oligopolistic firms, this assumption is quite realistic. From a Kaleckian perspective, the rate of interest is relevant only if it influences liquidity and therefore prefigures future investment expectations.

In the tradition of Marx and Keynes, Kalecki regarded interest rates as essentially monetary phenomena. The direction of causation runs from investment to saving in which the equilibrium between the demand and supply for capital is independent of the rate of interest inasmuch as investment 'finances itself' through the forced saving generated by previous investment. To paraphrase Kalecki: 'capitalists earn what they spend but workers spend what they earn'. The equality between saving and investment is therefore an *ex post* rather than an *ex ante* identity. The circulation of capital can be denoted as an increasing function of the short-term rate of interest in which the supply of money is determined by the interaction between central bank monetary policy and private bank lending. Thus, if the velocity of circulation is high, the demand for money increases and induces a rise in the short-term rate of interest (Sawyer, 1985, p. 99).[4] Kalecki, echoing the Marxian theory of interest, distinguishes between short-term interest rates, which are essentially determined by liquidity preferences in short-term money markets, and the long-term rate of interest, which reflects the demand for long-term bonds and securities. According to Sawyer: 'This led Kalecki to stress that the long-term rate of interest changed relatively little during the course of the business cycle whereas the short-term rate varied considerably. Since investment is seen as a long-term decision, Kalecki saw the long-term interest rate as the rate which would influence investment decisions if any rate of interest did' (Sawyer, 1985, p. 101).

Financial fragility arises from the fact that the circuit of credit from

oligopolistic firms tends to diminish as investment is curtailed in the aftermath of the preceding boom. The contraction of liquidity makes it more difficult to validate past debts and hastens an avalanche of bankruptcies and the stress selling of assets (Kindleberger, 1978). Even though the investment boom is financed either through internal sources or through external borrowings, it is the distribution and allocation of credit, which determines the degree of financial fragility. Kalecki argues that the respective 'degree of monopoly' between firms implies that profits and hence internal investment tends to be concentrated in the more monopolistic firms and sectors (Lucarelli, 2004a, pp. 56–7). The smaller firms are thus more vulnerable to sudden changes in liquidity conditions. It is therefore the net indebtedness of individual firms that gives rise to the law of increasing risk. There is a fallacy of composition in the sense that as individual firms incur a higher debt/equity ratio, this does not necessarily imply an increase in total indebtedness.

Investment expenditure tends to augment the net cash flow in the corporate sector. Regardless of whether investment is financed externally, the monetary circuit suggests that the capital goods sector receives this income and the circuit is closed when the debt is repaid. It follows that rising investment, financed by increased indebtedness, also corresponds with rising liquidity and bank deposits held by firms. In other words, the corporate sector balance sheet increases both in terms of assets and liabilities and one would expect an increase rather than a fall in liquidity on the asset side of the equation (Toporowsky, 2008a, p. 734). Kalecki develops a dualistic economy framework in which oligopolistic sectors have a dominant share of aggregate profits and thus internal financing as opposed to the smaller firms, which are characterized by a higher exposure to external finance and indebtedness. Hence, Kalecki's monetary analysis is informed by monopolistic profits in which liquidity, whether internal or external, is distributed between firms. The 'degree of monopoly' provides the key determinant in the distribution of liquidity. Since profits tend to be concentrated in the more monopolistic sectors, the share of internal investment is higher in these sectors. In the more competitive sectors, on the other hand, external finance tends to be more pervasive and higher debt/equity ratios make these firms more vulnerable to the accumulation of excessive debt and, ultimately, more exposed to financial fragility.

According to the Kaleckian formula, oligopolistic firms adopt a policy of a profit 'mark-up' in which price p is determined by the firm in relation to prime costs u (wages, raw materials and so on). In order to

counter price competition, each firm will exploit their degree of monopoly by adjusting the ratio of p to the weighted average of all firms, p^*, so that the price does not become too high. If u rises, the firm can adjust their price by increasing p proportionately but only if the weighted average p^* also increases. On the other hand, if p^* increases less than u the firm's price p will also rise less than u. In the simple Kaleckian schema these conditions are represented by the formula:

$$p = mu + np^* \tag{5.2}$$

in which m and n are positive coefficients. It logically follows that the coefficients m and n characterize the price-fixing strategy of oligopolistic firms and reflect the firm's 'degree of monopoly'. The higher the degree of monopoly, the higher is $m/(1 - n)$. If the degree of monopoly increases, p^* also increases in relation to u^*.

> Such a firm (oligopolist) knows that its price p influences appreciably the average price p^* and that, moreover, the other firms will be pushed in the same direction because their price formation depends on the average price, p^*. Thus, the firm can fix its price level higher than would otherwise be the case. The same game is played by other big firms and thus the degree of monopoly increases substantially. This state of affairs can be reinforced by tacit agreement (such an agreement may take inter alia the form of price fixing by one large firm, the 'leader', while other firms follow suit). Tacit agreement, in turn, may develop into a more or less formal cartel agreement which is equivalent to full scale monopoly restrained merely by fear of new entrants. (Kalecki, 1971, p. 17)

The 'mark-up' will tend to vary between different industries and is, in the final analysis, dependent on the degree of competition. The degree of monopoly therefore depends upon the relation of the individual firm's price p to the weighted average price p^* for the industry as a whole:

$$(p - u)/u = f(p^*/p) \tag{5.3}$$

where f is an increasing function: the lower p is in relation to p^*, the higher the mark-up will be fixed. From formula (5.3) we derive:

$$p = u[1 + f(p^*/p)] \tag{5.4}$$

Consequently, the function f will be different for individual firms in an industry and will reflect the degree of monopoly.

It can be surmised that the phase of monopoly capital is dominated by 'price regulated' industries characterized by tacit cartels and price leadership. Indeed, the existence of oligopolistic competition tends to impart a higher degree of price rigidity. Inelastic prices tend to dampen the amplitude of the trade cycle in these industries. Oligopolistic firms will be reluctant to reduce prices during the phase of slump in the trade cycle. As a result, prices and profits will be set high enough to keep potential new entrants at bay but low enough to counter existing competitors. To be sure, the degree of monopoly will tend to increase during the slump as the price leaders attempt to squeeze out existing competitors. These tendencies have quite profound implications in the duration and magnitude of the slump, generating a powerful undercurrent towards chronic stagnation.

> Investment spending as a source of effective demand brings prosperity, but is double-edged because investment is at the same time an addition to capital equipment and right from the beginning of its placement it competes with the older generation of equipment, leading to excess capacity. (Kalecki in Osiantinsky, 1990, Vol. 1, pp. 342–3)

From the standpoint of effective demand, an increase in the degree of monopoly might be accompanied by a fall in nominal wages. This is most evident during the course of a slump. The fact that aggregate profits are inelastic in a downward direction as a result of relative price rigidity under the conditions of oligopolistic competition, implies that pressure will intensify to reduce the level of wages in order to reduce prime costs. Class struggles are thus waged between capitalists and workers over the distribution of national income. A fall in nominal wages, however, does not lead to a rise in the level of employment as the conventional wisdom so often proclaims. The slump in employment will have an adverse effect on the wage goods sector as the real purchasing power of workers declines. A fall in wages will therefore curtail the level of effective demand.

> There are two countervailing influences on profits resulting from increases in the degree of monopoly. The first influence is ... an increase in the degree of monopoly (on aggregate) leads to an increase in the share accruing to non-wage incomes. However ... this, in turn, squeezes wages. The subsequent reduction in real wages reduces effective demand (assuming workers' savings to be negligible) hence reducing output and capacity utilization. This will reduce the initial increase in the non-wage share, due to the rise in average total costs. Overall profits, which are determined by the investment and consumption decisions of capitalists, will not be affected. (Kriesler, 1987, p. 45)

At the same time, a reduction in real wages could also lead to an increase in the real value of financial assets. It is argued by neoclassical theorists that falling prices will restore the purchasing power of real wages. The 'real balance effect' suggests that an increase in consumption will tend to restore full employment. However, Kalecki argued that these wealth effects are quite illusory to the extent that a fall in prices would merely redistribute income from borrowers to lenders and increase the share of rentier profits at the expense of both workers and industrialists. Quite simply, the supply and demand for labour cannot be modelled in terms of the real wage. As Keynes (1936) insisted, there is a close relationship between money wages and nominal wage increases. As a general rule, therefore, workers are unable to negotiate for their real wages. Aggregate demand for output rather than the supply and demand for labour will ultimately determine the level of employment. A nominal wage cut will not restore full employment but will affect the level of effective demand. Indeed, a period of deflation is normally associated with a dampening of the level of effective demand and the possible onset of a 'liquidity trap'. As Kriesler and McFarlane argue:

> It is only on that part of the money stock for which the offsetting liability is held outside the private sector, i.e., backed by gold or government securities, that the real balance effect can operate. However, this will be offset by the potential for insolvency arising from the increased real burden of private debt, as well as the resultant impact on expectations which is likely to swamp the effect on consumption. (Kriesler and McFarlane, 1993, p. 217)

The Kaleckian principle in which an increase in profits is equal to a corresponding rise in planned investment rests upon the assumption that the full multiplier effect has been absorbed within a specific period of production. But the increase in net profits leads to the expansion of savings deposits via the banking system if investment is financed externally. In order to restore the initial liquidity position of the bank, the debt incurred needs to be repaid or validated within the period of production. Consequently, as soon as investment is financed externally through the banking system, the full effects of the multiplier and the repayment of debt have to be realized in order to restore the initial equilibrium. In other words, the circuit of credit money needs to be destroyed (Asimakopulos, 1983, p. 225). As Asimakopulos argues: 'Both Kalecki and Keynes emphasised the importance of an increase in bank loans in permitting firms to increase the rate of investment ... . They both underestimated the time required before the initial liquidity position of the

banking system could be restored after banks increased their loans to finance an increase in investment' (Asimakopulos, 1983, p. 232).

Kalecki's theory of investment diverges from the classical Marxian theory to the extent that the crisis is caused by problems in the realization of surplus-value into profit. The immediate causes of the crisis arise from problems of excess capacity in which – given the time lags involved in the installation of the new capital equipment – the elimination of excess capacity is associated with periods of negative net investment. The growth of the capital stock can be expressed as a linear proportional function of the profit rate (Laibman, 1997, p. 64). Hence, the recessionary phase is characterized by a period of financial retrenchment and economic restructuring. By contrast, the Marxian view claims that these recurrent crises are governed by a falling rate of profit and the vicissitudes of the reserve army of labour.

> Marx argues that over the long run the dynamics of wages and employment must be 'confined within the limits that not only leave intact the foundations of the capitalist system, but also secure its reproduction on an increasing scale', whence he concludes that 'the rate of accumulation is the independent, not the dependent, variable'. Reasoning in this way, Marx seems to upset the relation between wages and accumulation ... . Indeed, the status of independent or dependent variable depends on the time horizon considered. Every time the rise in wages appears to threaten the accumulation process, these are violently pulled down by the restoration of the unemployed army; in the long run, therefore, it is the rate of profits which capitalists regard as 'normal' (the ensuing rate of accumulation) that determines wages and not vice versa. (Sebastiani, 1991, p. 274)

MINSKY'S FINANCIAL INSTABILITY HYPOTHESIS

Kalecki's reflux theory of profits constitutes a critical theoretical foundation for Minsky's financial instability hypothesis because it provides the basis by which income flows are determined in the short run, which then facilitates the validation of past debts. The propensity to hoard internal savings in order to reduce the firm's exposure to excessive risk leads inevitably to a curtailment of investment. The fallacy of composition would suggest that if all firms were to behave in a similar manner, the aggregate rate of profits would tend to fall and if sufficiently severe, could be serious enough to induce a recession. Minsky's analysis is informed by the view that a capitalist economy is characterized by two sets of relative prices: (1) current output and (2) capital assets. On the

one hand, prices of capital assets depend upon expectations of future rates of return to capital and the Keynesian notion of liquidity preferences. On the other hand, the prices of current output will be determined by existing perceptions of short-term demand conditions: 'Capital assets and current output prices are based upon expectations over quite different time horizons: capital asset prices reflect long-run expectations and current output prices reflect short-run expectations' (Minsky, 1982, p. 95).

The implication of Minsky's argument is that the simple relationship between profits and investment in the Kaleckian schema should be modified in the light of the 'financial instability' hypothesis. To restate Kalecki's profit-investment relationship, we get:

$$\pi = I \text{ (profits equal investment)} \tag{5.5}$$

However, I is a function of (Pk, $P_I(I)$, $E\pi$, *Ext. Finance*) where Pk = price of capital assets, $P_I(I)$ = supply price of investment goods as functions of investment price, $E\pi$ = expected profits and *Ext. Finance* = external financing conditions. Hence,

$$I \qquad \pi \tag{5.5a}$$

in which the causation runs from investment to profits. From this simple theorem, Minsky develops the financial instability hypothesis:

> Keynes insisted that the main propositions of the *General Theory* centre around the disequilibrating forces that operate in financial markets. These disequilibrating forces directly affect the valuation of capital assets relative to the price of current output, and this price ratio, along with financial market conditions, determines investment activity (p. 60) ... . Once financial considerations are integrated into the investment decision, it is evident that capitalism as we know it is endogenously unstable ... . Contradictions and tensions associated with the accumulation of wealth come to the forefront of the analysis. Instability becomes normal rather than abnormal. (Minsky, 1982, p. 81)

Kalecki's reflux theory of profits implies that past investment must be justified by the stream of income received by entrepreneurs which, in turn, must also be sufficient to cover payments commitments, including debts incurred over time. Prices in excess of costs must generate cash flows (profits, quasi-rents), which allow the enterprise to reinvest and validate past debts. To quote Minsky: 'For a capitalist system to function

well, *prices must carry profits*' (Minsky, 1986, p. 142, emphasis in original). Current output prices are determined by the level of effective demand and the 'mark-up' of profits over costs. The prices of existing capital assets depend upon supply and demand. But the existence of high 'sunk' costs, which characterize long-term investment in plant and equipment, means that the supply of existing assets is fixed in the short run. The proximate determinants of demand for capital assets, however, depend upon the expected profits and quasi-rents generated by existing assets and the expected degree of liquidity. Minsky's analysis augments Keynes's notion of uncertainty in the sense that future profit flows and the ability to increase liquidity by selling assets in the event of a fall in demand cannot be readily planned in advance (Pollin, 1997, p. 78). In Minsky's own words: 'Investment, its financing, and its validation are the keys to the performance of our economy. Investment affects the financial structure of the economy in two ways: projects need to be financed and investment activity generates corporate profits – the quasi-rents upon which the viability of private financial commitments depends' (Minsky, 1986, pp. 217–18).

During the phase of upswing in the economic cycle, financial institutions, driven by the profit motive, increasingly engage in the process of financial innovation. Either to overcome existing barriers to the expansion of credit in the form of prevailing regulatory regimes, or to substitute money for other highly liquid assets, private financial institutions seek to expand lending to meet the rising demand for investment. Endogenous credit expansion tends to induce a rise in asset values, which then increases the price for current investment. The causation is cumulative: a positive feedback loop soon emerges in which the demand for external finance stimulates further rounds of investment until the economy exceeds full capacity utilization. 'Financial innovation therefore tends to induce capital gains, increase investment, and increase profits: the economy will try to expand beyond any tranquil full-employment "state"' (Minsky, 1986, p. 78). The economy therefore tends towards disequilibrium as these destabilizing financial forces assume more speculative forms. Asset price inflation during the peak of the boom will generate an increase in investment and consumption through the various channels of income and cash flows. When the price of capital assets exceeds the price of current output, excess investment is channelled into rising equity markets, which also encourages investors to increase their leverage. An implicit capital gain is realized, which merely serves to attract more investment. In other words, the rise in the

price of capital assets relative to the price of current output could set in train quite perverse wealth effects, which amplify increases in consumption and investment.

The margin between the price of capital assets and the supply price of investment (inclusive of financing costs) tends to vary inversely with interest rates. In the Minskyian schema, low short- and long-term interest rates will stimulate an increase in external finance relative to internal finance. During a boom, the increasing propensity to borrow from capital markets has the overall effect of stimulating investment and profits and the willingness to be exposed to higher risk by engaging in the debt-financing of asset positions. In the course of the speculative boom, these financial units will become more vulnerable to a sudden upsurge in the rate of interest. This causes a diminution in the margin between the current value of assets and the price of investment output. If the price of capital assets falls below the supply price of investment as a result of rising interest rates, the previous margins of safety will be eliminated and the financing of investment will be curtailed. The effect is self-reinforcing: a fall in investment now has a reverse effect on the value of assets as investors attempt to sell out their positions in the equity markets. If the level of debt/equity ratio is historically high, the whole process leads to a credit crunch, which triggers further falls in asset prices. According to Minsky: 'Such a sharp decline in asset prices is what occurs in stock market crashes. Downside instability of asset prices can lead to a spiral of declining investment, declining profits and declining asset prices' (Minsky, 1986, p. 45).

The boom itself therefore generates endogenously destabilizing forces, which spill over beyond full-employment equilibrium and induce a speculative boom. During the course of the boom, the in-built 'margins of safety' to which both borrowers and lenders had agreed upon to ensure against possible default are gradually and progressively relaxed. These margins of safety also affect the degree to which investors are willing to resort to external finance in order to activate future investment. The rise in the relative external/internal financing ratio reflects the prevailing perceptions that the margins of safety required to finance investment are no longer necessary to protect against the possibility of default. As the risk for borrowers is eased, the demand price for capital assets increases. Conversely, the easing of perceived risk for lenders corresponds to a fall in the price of investment output (Minsky, 1986, p. 188).

> A fundamental property of all capitalist economies is the existence of a system of borrowing and lending based upon various margins of safety. The excess of anticipated cash flows from asset ownership or participation in income production over the cash flows committed by the liability structure is one class of margins of safety. The excess of the market or the pledge value of assets over the value of liabilities which can require the payment of some principle amount is another class of margins of safety. (Minsky, 1991, p. 12)

The boom has the effect of downgrading credit risk and increases the ratio of external to internal finance. The formation of future expectations is governed by recent experience which, if outstanding debts are easily validated, only encourages an increase in external borrowing. The boom therefore amplifies these euphoric expectations and generates greater financial fragility of the existing structure of debt. As Nesvetailova notes: 'Financial fragility is an indispensible attribute of the financial system; systemic financial fragility means that the development of a fragile financial structure results from the normal functioning of the economy' (Nesvetailova, 2007, p. 59).

There are three distinct sources of financial fragility in the Minskyian schema. First, a financial instrument might be characterized by hedging operations or simple spatial or temporal arbitrage in order to minimize exposure to risk. These forms of financial arbitrage are very defensive and have very little effect on the balance sheet over the period of production and circulation regardless of the prevailing rate of interest. 'Hedge financing units are those which can fulfil all of their contractual payment obligations by their cash flows: the greater the weight of equity financing in the liability structure, the greater the likelihood that the unit is a hedge financing unit' (Minsky, 1992, p. 7). Second, Minsky identifies what he describes as a speculative financial unit, which is characterized by the ability to take advantage of changes in the short-term cash payment commitments, which exceed the expected cash flows. In this case, the capitalized value might be negative in the event of an increase in the rate of interest (Vercelli, 2001, p. 43). '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 income cash flows' (Minsky, 1992, p. 7). Finally, 'Ponzi' units are based upon the expected cash flows required to meet current financing commitments. The current cash flows are not sufficient to cover interest payments on outstanding debt, which essentially presupposes that a rise in future asset prices will cover their liabilities. Needless to say, these financing units are highly exposed to even small increases in the rate of

interest, or a fall in asset prices. 'Such units can sell assets or borrow. Borrowing to pay interest or selling assets to pay interest (and even dividends) on common stock lowers the equity of a unit, even as it increases liabilities and the prior commitment of future incomes. A unit that Ponzi finances lowers the margin of safety that it offers the holders of its debts' (Minsky, 1992, p. 7).

An investment boom has the effect of inducing a disproportionate increase in external borrowing, which leads to a deterioration of the firm's balance sheet. As asset prices continue to rise, hedge financing structures become more speculative and as the asset price euphoria peaks, the pyramid of debt leads to widespread and pervasive financial instability. The accumulation of debt therefore creates the paradoxical situation in which the validation of past debts can be financed by the issuing of new liabilities. In other words, the conditions for lending deteriorate as the financial euphoria gives rise to the easy availability of credit (Toporowski, 2005, p 144). Minsky's hypothesis rests on the evolution of liability structures, which in the aftermath of an asset price boom can no longer be validated by current cash flows as asset market values fall quite precipitously. Minsky distinguishes between three types of cash flows: (1) current cash flows emanating from internal profits and the payment of wages; (2) the payment of interest owed to lenders based upon various types of maturities; and (3) the generation of portfolio cash flows which originate from either real or financial assets. As a general rule, a stable, robust financial system is characterized by the predominance of cash flows from type (1). An unstable financial structure is normally associated with the relative growth of cash flows from type (3). After a sustained boom, the financial structure of an economy might become vulnerable to only small increases in the rate of interest because of the shift from the expected hedge position to a speculative position, which increases the degree of fragility of the entire financial structure (Minsky, 1977). Indeed, if Ponzi units also increase their share of overall financial positions, the shock could have quite devastating effects on investment and income to the extent that the boom itself is now imperilled (Isenberg, 1994, p. 203). The financial system is therefore subject to endogenous instability and vulnerable to small shocks, which could develop into a depressive spiral of debt-deflation (Variato, 2001, p. 86).

The Keynesian concept of uncertainty plays a central role in this drama. Minsky's theory incorporates Keynes's vision of a non-ergodic world in which investors are groping in the dark, while investor sentiment is governed by a self-reinforcing herd mentality as each investor

attempts to outwit the crowd. Indeed, as Kindleberger (1978) argues, the speculative frenzy is driven by two groups of speculators; the 'insiders' and the 'outsiders'. Whereas the insiders drive stock market prices upward and accentuate the bubble by selling at the peak of the boom to the outsiders, the opposite applies to the outsiders, who sell at the trough and buy at the peak. Booms and busts therefore tend to 'over-shoot' in both directions. Minsky develops a theory in which the centrality of financial circuits of capital means that these destabilizing forces are transmitted throughout the economy. In a monetary economy, the effects of fundamental uncertainty will ultimately be expressed in terms liquidity preferences. As the cushions of safety between lender and borrower are ruptured, there is a violent scramble for liquidity. Money now reverts to its role as a store of value. The end result is a financial crisis. As Minsky quite succinctly argues: 'A history of success will tend to diminish the margin of safety that businesses and bankers require and will thus tend to be associated with increased investment; a history of failure will do the opposite' (Minsky, 1986, p. 187).

A DEBT-DEFLATION THEORY OF DEPRESSIONS

> Deflation also occurs in a depression which is already in being or is expected by the banking world, because the banks endeavour in their own initiative to restrict their credits. This factor is practically very important and starts a real crisis ... . But the deflationary tendency is operative, for all that, and liquidation of debts by successful enterprises takes place – so that deflation, even though in ever so mild a form, must always appear automatically out of the logic of the objective situation, when the boom has gone on far enough. (Schumpeter, 1936, pp. 234–5)

The original debt-deflation theory of depressions was first formulated by Veblen (1904). Veblen's theory of chronic depression was informed by the dynamics of technological innovations, which tend to lower the costs of production over time and therefore induce a fall in the general level of prices. In Veblen's original theory, the ability to acquire access to loan credit is the central mechanism by which these processes of 'asset inflation', followed by technological 'price deflation' are activated. Veblen's analysis was focused upon the relationship between credit/debt, equity markets and capital values during the course of the business cycle (Raines and Leathers, 2008, p. 63). In this sense, the theory is quite seminal and prescient, prefiguring later post-Keynesian treatments of

endogenous money and financial instability. In Veblen's own words, asset price inflation is driven by the expansion of credit:

> The extension of loans on collateral, such as stock and similar values involved in industrial business, has therefore in the nature of things a cumulative character. This cumulative extension of credit through the enhancement of prices goes on, if otherwise undisturbed, so long as no adverse price phenomenon obtrudes itself with sufficient force to convict this cumulative enhancement of capitalised values of imbecility. (Veblen, 1904 [1975], p. 106)

There are echoes of Marx in Veblen's analysis of the role performed by credit in the competitive struggle between individual enterprises to expand their respective market share. This competitive struggle soon culminates in a herd-like stampede as every other enterprise now seeks to gain an advantage by resorting to external finance. But the distinction between capital and debt becomes blurred, especially in the event of a speculative boom.

Rising collateral values merely encourage further borrowing and capital becomes further enhanced in a self-reinforcing logic. As Veblen argues: 'A manifest discrepancy presently arises in this way between the aggregate nominal capital, on the one hand, and the actual rate of earning-capacity of this business capital, on the other hand; and when this discrepancy has become patent a period of liquidation begins' (Veblen, 1904 [1975], p. 107). In other words, the accumulation of debt is both the cause and effect of the expansion of business output. The stock market, in turn, capitalizes these higher profits and sets in train rising equity prices. Veblen's quite original treatment of this speculative boom is the contention that the whole process is endogenous. Credit-creation increases liquidity and the supply of money, which has the effect of increasing aggregate purchasing power and eventually leads to a phase of 'speculative inflation' or 'credit inflation' as asset prices continue to rise. Indeed, the whole logic resembles Minsky's financial instability hypothesis in the sense that rising asset prices only further induce the expectation of higher profits and thus higher collateral values, which feed into the demand for new loans. The inevitable financial crisis triggers a credit crunch and sets in train a period of debt-deflation. In contrast to more recent post-Keynesian theories of debt-deflation, Veblen identifies the primary cause of this process in the introduction and diffusion of new technological innovations. The introduction of new, more efficient capital goods depresses production prices as the cost of industrial equipment progressively falls. Debt-deflation in this

perspective is essentially related to the industrial cycle and is the natural consequence of the dynamics of technological change under the conditions of highly competitive markets.

In order to avoid the destructive consequences of falling prices and falling profitability, Veblen argues that the system will eliminate 'cut-throat competition' through the formation of monopolies and cartels:

> Cut-throat competition, that is to say, free competitive selling, can be done away by 'pooling the interests' of the competitors, so soon as all or an effective majority of the business concerns which are rivals in the market combine and place their business management under one directive head. When this is done, by whatever method, selling of goods and services at competitively varying prices is replaced by collective selling ('collective bargaining') at prices fixed on the basis of what the traffic will bear. (Veblen, 1904 [1975], p. 258)

The other countervailing tendency or 'remedy' to cut-throat competition that Veblen identifies is the existence of 'wasteful' public spending on 'armaments, public edifices, courtly and diplomatic establishments and the like', which will tend to augment private investment and support profitability: 'They have the additional advantage that the public securities for private savings, at the same time that, taken in the aggregate, the savings so invested are purely fictitious savings and therefore do not act to lower profits or prices' (Veblen, 1904 [1975], p. 256).

Although presumably unaware of Veblen's earlier thesis, Irving Fisher formulated a more coherent debt-deflation theory of great depressions in 1933. Fisher argues that there are two central factors in the cumulative causation of economic depressions: (1) the accumulation of debt and (2) the diminishing purchasing power of the monetary unit. The onset of deflation sets off a chain of events, which leads to the cessation of debt validation and the emergence of a severe economic slump. Consequently, the liquidation of debts acts as both a cause and a catalyst for the onset of deflation. The more that debtors attempt to validate their obligations, the more difficult it becomes to liquidate their assets because of falling prices. The whole process becomes self-defeating. To quote Fisher: 'The very effort of individuals to lessen their burden of debt increases it, because of the mass effect of the stampede to liquidate in swelling each dollar owed. Then we have the great paradox which, I submit, is the chief secret of most, if not all, great depressions: the more that debtors pay, the more they owe' (Fisher, 1933, p. 344).

The 'debt disease' leads inexorably to a 'dollar disease' as the real value (or purchasing power) of the monetary unit tends to rise in the

event of falling prices. The real value of debts will therefore also rise as the purchasing power of the monetary unit increases in relation to falling prices. The accumulation of debt acts as a powerful trigger in the inversion of the business cycle and could hasten a phase of severe liquidation of assets and financial retrenchment. The stress selling of assets also culminates in a contraction of deposits and a fall in the velocity of circulation of money. As asset prices fall, the process becomes cumulative and self-reinforcing. In the absence of central bank intervention to inject liquidity into the system, the rate of bankruptcies increases, which is then amplified by a profitability crisis and the subsequent curtailment of investment. Rising unemployment and a fall in aggregate demand are transmitted through the multiplier effects of a decline in aggregate income. As Minsky notes: 'Significant incoherence occurs because market processes do not assure that effective demand always will be sufficient to yield profit flows large enough to enable bankers and businessmen to fulfil their commitments on debt, and the market reaction to such short-falls of cash flows tends to markedly depress asset values' (Minsky, 1980, p. 26). Indeed, equity bubbles tend to reinforce and support private sector deficit spending, which, in turn, fuels speculative propensities. But as profits fall, financial stress becomes widespread as asset prices tumble. Investment spending is drastically curtailed as individual firms attempt to limit their exposure to external finance and rebuild their internal savings. There is, accordingly, an inverse relationship between income growth and the accumulation of internal savings by the private sector (Parenteau, 2001).

What ultimately prevents the descent into a depressive spiral is the operation of automatic stabilizers made possible by the existence of a substantial state sector. At the same time, central banks are capable of injecting liquidity and temporarily acting as a lender of last resort to mitigate the effects of a financial meltdown. Minsky incorporates the Kaleckian model in which government deficits and surpluses act as anti-cyclical mechanisms and prevent the economy from experiencing the extreme fluctuations of boom and bust. The model uses a simplified two-sector economy based on the capital goods sector, on the one hand, and the wage goods sector, on the other. In other words, the model is divided into wage earners and capitalists (the former spending all their income and the latter responsible for investment). In a closed system, aggregate profits determine the rate of investment. Since workers spend all their wages on consumption, capitalists and rentiers account for aggregate saving. National income is therefore defined as wages plus profits or equal to the value of consumption and investment output in a

closed economy. The model makes certain assumptions for the sake of simplicity or in economic jargon, uses the *ceteris paribus* condition. Unlike standard neoclassical models, however, these assumptions are quite realistic. First, the analysis does not assume full employment equilibrium but might assume excess capacity. Second, the analysis is based on the short term, that is to say, investment is assumed as given and is determined by past investment decisions by firms or rentiers.

Kalecki begins with a closed model in the absence of a government sector with wages (W) spent currently on the consumption of wage goods (Cw). The national income gross of depreciation Y can be defined as aggregate value-added or the value of final goods:

$$Y = P + W \tag{5.6}$$

$$Y = Cw + Cc + I \tag{5.7}$$

where P, Cc and I denote profits gross of depreciation, capitalist consumption and investment gross of depreciation respectively. Since workers are assumed not to save, aggregate profits (P) are equal to capitalist consumption (Cc) plus investment (I), or:

$$P = Cc + I \tag{5.8}$$

It is assumed that both kinds of decisions are made in real terms and consequently all aggregates are measured in constant prices. From (5.8) by subtracting Cc from both sides, we get:

$$S = I \tag{5.9}$$

or the equality between saving and investment. Investment is the independent variable while saving is the dependent variable. Thus investment tends to 'finance itself'. Kalecki emphasized that (5.9) is independent of the short-term rate of interest.

If spending by businesses increases or decreases, a shift in the marginal revenue curve will occur; employment or prices change as a result of this change in demand until P is once again equal to the level of business spending. $P = Cc + I$ is therefore the fundamental equation of the analysis; the causation runs from spending to profits. In other words, business expenditure determines profits in the short run because they can influence their spending decisions but not their incomes.

> The conclusion that the increase in capitalists' consumption increases in turn their profits, contradicts the common conviction, that the more is consumed the less is saved. This approach which is correct with regard to a single capitalist, does not apply to the capitalist class as a whole. If some capitalists spend money, either on investment or consumer goods, their money passes to other capitalists in the form of profits. Investment or consumption of some capitalists creates profits for others. Capitalists as a class gain exactly as much as they invest or consume, and if – in a closed system – they ceased to construct and consume they could not make any money at all. Thus capitalists as a whole determine their own profits by the extent of their investment and personal consumption. In a way they are 'masters of their own fate'; but how they 'master' is determined by objective factors, so that fluctuations of profit appear after all to be unavoidable. (Kalecki, 1966, p. 14)

The increase in consumption caused by an increase in investment is possible if there is idle capacity which can be resolved by an increase in effective demand. The assumption is quite Keynesian in that excess capacity rather than full employment equilibrium is assumed to be the norm and that investment is the main factor driving effective demand. As Kalecki has eloquently stated: 'The tragedy of investment is that it causes crises because it is useful. Doubtless many people will consider this theory paradoxical. But it is not the theory that is paradoxical, but its subject – the capitalist economy' (Kalecki, 1966, p. 94). Accordingly, it can be argued that a rise in aggregate profits implies the problem of the realization of profits into investment which is determined by the level of effective demand. It can be surmised that a rise in wages will induce an increase in the level of effective demand.

If one assumes an open system with a government sector, aggregate profits would be:

$$P = I + Cc + G + NX \tag{5.10}$$

where G equals government spending and NX denotes net exports. Aggregate profits are therefore equal to investment, plus an export surplus plus budget deficits. An increase in the export surplus will induce a rise in aggregate profits, all things being equal. A budget deficit has a similar effect to that of an export surplus. By incurring successive budget deficits, governments can increase the level of aggregate profits. Spending on armaments and wars is the classical means by which budget deficits tend to increase aggregate profits. As a general rule, profits will be depressed by a budget surplus but are boosted by budget deficits (Wray and Tymoigne, 2009, p. 12). Similarly, monetary policy

acts in a similar counter-cyclical manner, though its efficacy is quite limited during a general period of debt-deflation or the emergence of a liquidity trap.

The 'Minskyian paradox' suggests that interventionist policies merely serve to validate and accentuate the existing state of financial fragility. Indeed, by underwriting the existing structure of debt with the injection of liquidity or mitigating a credit crunch through the easing of monetary policy, central banks themselves create moral hazard problems, which only prolong the phase of financial retrenchment. Minsky argues that attempts to solve the problem of debt-deflation might actually accentuate the underlying structure of debt and 'socialize' the costs of financial defaults and insolvent banks (Pollin, 1997, pp. 84–5). At the same time, the ability of governments to dampen the fluctuations of the business cycle via Keynesian anti-cyclical policies will tend to deteriorate over time. In order to avoid recurrent and more severe recessions and avoid the onset of economic depression, governments increasingly resort to more frequent interventions. But these very same antidotes become less effective over time. To be sure, greater and more frequent interventions fail to restore financial stability and to avert the secular tendencies towards debt-deflation. In other words, the panacea of Keynesian fiscal and monetary stimulus tends to diminish in the long run, while the costs progressively rise. As Pollin and Dymsky quite succinctly argue: 'Thus, and here Minsky's position is perfectly consistent with that of Schumpeter and Marx, depressions are functional: they are the destructive but necessary mechanism – "the slaughtering of capital values", as Marx puts it – that returns capitalist financial structures to balance' (Pollin and Dymsky, 1994, p. 372).

CONCLUSION

The divergent analytical currents, which inform the theories of endogenous money, suggest that in a capitalist monetary economy, financial instability and crisis are endogenous features in the dynamics of capital accumulation. These theories reaffirm the Marxian view that crises are a necessary, though irrational means by which the market economy adjusts to a new equilibrium. But as Keynes understood quite perceptively, this new equilibrium might not necessarily correspond with full employment. The possible onset of a debilitating phase of debt-deflation suggests that these crises might assume a more chronic and virulent

form in which government intervention through expansionary fiscal and monetary policies might not be sufficient to mitigate the severity of the crisis. Indeed, the very logic of financialization carries with it the vast accumulation of private debt, which cannot be easily validated under the conditions of a deflationary trap. The very nature of investment implies that these recurrent crises will continue to signify what Schumpeter described as the 'gales of creative destruction'. Contrary to the prevailing neoclassical and Monetarist theories, money is not neutral, either in the short run or in the long run. In a world governed by uncertainty, money does indeed matter.

NOTES

1. This upward revision of future profits resembles Keynes's famous 'widow's curse of profits'. To quote Joan Robinson: 'Mr Keynes's analysis may be summarised thus: When prices are in excess of costs windfall profits are earned by entrepreneurs, and however much of these profits the entrepreneurs spend the total profits remain unchanged, since spending by one entrepreneur only serves to increase the windfall profits of others' (Robinson, 1933, p. 24).
2. According to Kalecki: 'We shall call the rate e at which the series of returns must be discounted in order to obtain the amount invested k – the efficiency of investment, whilst by prospective profit p we denote the product $k.e.$ Now we assume that with the given amount invested k the entrepreneur chooses such a method of production as would maximise the efficiency of investment or what amounts to the same (k being given) the prospective profit pm:

$$Pm = f(k)'$$

(Kalecki, 1937, p. 440)]

3. A more coherent treatment of Kalecki's principle of increasing risk was formulated by Steindl (1945). According to Steindl: 'Let us call the entrepreneur's capital C and the amount of capital invested I; the rate of profit earned in the latter e, and the rate of profit earned in the entrepreneur's capital (after deduction of interest paid) P; and the rate of interest, r. Then we can say that:

$$P = I/C(e - r) + r$$

i.e, the rate of profit on the entrepreneur's capital increases if he borrows more. To induce the entrepreneur to invest, the rate of profit must cover not only interest but also a certain risk premium. We can define this risk premium as the excess of the rate of profit over the rate of interest which induces the entrepreneur to invest, at a given cost of the equipment' (Steindl, 1945, pp. 21–2).
4. To quote from Sawyer (1985, p. 99): 'Kalecki expressed his approach in terms of

circulation V being an increasing function of the short rate of interest r_s so that $T/M = V(r_s)$, where T is the nominal value of transactions and M is the supply of money which is determined by banking policy, i.e. the interaction between the Central Bank's monetary policy and decisions taken by banks. He further argued that when the velocity of circulation is high (and so money holding small relative to turnover), it requires relatively large increases in the short-term rate of interest to reduce money holding further. Thus the first and second derivation of $V(r_s)$ are positive. The equation $T/M = V(r_s)$ was interpreted by Kalecki as indicating the determination of the short-term rate of interest by the value of transactions and the supply of money'.

PART III

The roots of the current crisis

6. Financialization: prelude to crisis

INTRODUCTION

The concept of 'financialization' has informed recent analyses of the contemporary dynamics of monopoly capitalism. In the wake of the global financial crisis in 2007–08, the strategic role of finance and its capacity to destabilize the real economy and push it to the brink of economic depression has rekindled debates over the historical causes and institutional forms, which have characterized this phase of capitalist evolution. In other words, to what extent have the neoliberal policies pursued by most OECD countries over the past 30 years contributed to the emergence of this finance-led regime of accumulation? More specifically, what are the implications of the extraordinary build-up of private debt, which has financed private consumption and fuelled successive asset price and stock market euphoric bubbles over this period? At the same time, the problem of growing global imbalances between the surplus countries/regions and the deficit countries/regions has emerged as a major source of financial instability. In this context, what is the fate of the US dollar as the pre-eminent international means of payments, unit of account and store of value? The aim of this chapter is to provide some tentative answers to these questions. The basic thesis is that all of these seemingly disparate elements are inextricably connected. It will be argued that the breakdown of the mechanisms, which had supported the dynamics of financialization, have set the stage for the current global capitalist crisis.

FINANCIALIZATION

The global economy has experienced a protracted phase of over-accumulation over the past three decades. This pervasive crisis has been characterized by chronic excess productive capacity in the manufacturing sector relative to the level of global effective demand and has coincided

with the rise of the East Asian countries as major manufacturing exporters (Lucarelli, 2004a; Brenner, 2006). The lack of effective demand has led to the growth of excess liquidity, which has been increasingly channelled into the financial markets and financed burgeoning levels of debt, which in turn, have supported hyper-excessive private consumption and generated recurrent asset price booms and busts. Similarly, the perverse 'wealth effects' induced by this type of financial leverage have set in motion a negative feedback loop, which further reinforces the vicious circle of debt-financed consumption and asset price inflation. Indeed, the normal business cycle itself has become immersed by this finance-led regime of accumulation in which asset price booms and busts tend to amplify the fluctuations of the investment cycle.

Since the emergence of deregulated financial markets over the past three decades, most OECD countries have experienced the ascendancy of shareholder value over the previous 'Fordist' model in which the managers – or the 'technostructure' to paraphrase Galbraith (1976) – played a strategic role in investment decisions. Shareholder value reinforces the tendencies towards deregulation, privatization, restructuring and the internationalization of dollar finance. This process appears to be more advanced in the English-speaking countries than in East Asia and Europe.

> The imposition of financial norms, such as shareholder value, requires a new and coherent architecture for the mode of governance of firms, the form of competition, the wage/labour nexus and the objectives of monetary policy, public budget and tax system ... . The stability of an equity-based regime depends on monetary policy which controls financial bubbles and thus the diffusion of finance may push the economy into a zone of structural instability. The next major financial crisis may originate in the USA whose economy approximates most closely to the model. (Boyer, 2000, p. 111)

Shareholder value presupposes a more rigorous form of market discipline imposed on private corporations in which the overriding imperative is to maximize short-term financial returns on investment. Financial returns therefore increasingly assume potent hegemonic forces in the dynamics of capital accumulation. In this sense, Pigou's 'wealth effect', which transforms millions of ordinary workers into investors, acts as a powerful transmission mechanism in the maintenance of the purchasing power of consumers (Pollin, 2003, p. 65).

The stagnation of real wages during the neoliberal era led to an increase in private indebtedness as workers resorted more than ever to

the lure of credit in order to maintain their purchasing power (Dumenil and Levy, 2004, p. 84). Wage repression was accompanied by growing income inequalities and greater job insecurities with the growth of casualized and more precarious forms of low wage employment. For instance, in 1979 the income of the top 5 per cent of households in the USA was 11.4 times the income of the bottom 20 per cent of households. By 2004, this ratio had increased to 20.7 times (Palley, 2007, p. 11).[1] These negative trends had the overall effect of dampening the level of effective demand, which put more pressure on government spending as the automatic stabilizers were considerably weakened by the neoliberal ideological obsession for small government and middle-class tax cuts. With the decline of public investment in physical and social infrastructure, the neoliberal state relentlessly pursued policies of privatization as integral elements of a much broader strategy of market liberalization. As noted by Mason: 'From near zero in 1981, the privatisation market topped $US160 billion a year in the late 1990s. Globally, by the end of the decade 675 privatisations had generated $US700 billion; the 18 biggest initial public offerings in history had all been state-owned companies privatised through flotation' (Mason, 2009, p. 64). The financial sector doubtless benefited enormously from these policies.

Financialization is governed by the transformation of future streams of income (profit, dividends and interest) into marketable and traded assets in the form of equities or bonds (Vasudevan, 2009, p. 30). In other words, financialization represents a profound shift away from direct investment in productive capacity, towards the open financial markets in which profitability can be temporarily boosted through speculative operations in the stock markets. Shareholder value can be temporarily bolstered in the short term by corporate mergers and acquisitions or through equity buy-backs. These predatory forms of fictitious capital also bred a new managerial class motivated almost entirely by the lure of stock options and bonuses. The whole logic of subjecting corporate profitability to the short-term valuation of the stock market in order to maximize shareholder returns was a response to the profitability crisis in the 1970s. Confronted by a profit squeeze and rising capital/output ratios as a result of persistent and chronic problems of excess capacity, non-financial firms were compelled to restore profitability not only through wage repression but also by diverting investment into the financial and equity markets (Krippner, 2005, p. 182). To be sure, under the conditions of depressed profitability, non-financial firms were reluctant to increase productive capacity in the face of an intensification of price

competition and saturated markets (Bramble, 2009, p. 51). Instead, the recycling of distributed profits into capital markets generated a powerful unintended consequence. As the demand for tradeable financial assets exploded, a long-term inflationary tendency was experienced in asset prices. In this Minskyian dynamic, higher asset prices relative to the prices of current output only served to lower the margins of safety built into bank lending. Greater financial leverage in turn spurred higher asset prices. This whole process of debt-financed speculation has merely increased the degree of financial instability. At the same time, the pervasive wealth effects of rising asset values, most notably in real estate and equities, augmented private consumption and compensated for a loss of purchasing power caused by stagnating real wages.

The 1990s stock market boom was sustained by this massive wealth effect, which reached its zenith just before the 'tech wreck' in early 2001. Although the rate of aggregate profits began to decline in 1995–2000, the increased rate of investment was driven by the consummate ease with which rising equity prices had over-valued market capitalization and had induced an unprecedented borrowing binge. Spurred by the easing of monetary policy, or what Wall Street celebrated as the 'Greenspan put option' after the East Asian financial meltdown, corporations resorted more than ever to external borrowing to finance investment. During the post-war boom era of 1950–75, non-financial corporations had relied upon internal funds to finance investment with retained earnings accounting for 90 per cent of their capital spending. In stark contrast, in the years 1995–2000, external borrowing to finance capital accumulation or to engage in mergers and acquisitions had reached its highest level in history. By 2000, gross equity issues by non-financial institutions had increased four-fold from the previous peak in the late 1980s (Brenner, 2006, p. 295). Assets invested in hedge funds had more than tripled between 2000 and 2007, estimated at $US1.5 trillion (Wade, 2007, p. 113).

> When a large pool of assets become near-money, it can have a direct impact on liquidity levels, which can cause increases in asset prices as real interest rates decline. Since the euphoria entices new investors into the boom and so increases asset turn-over (which causes liquidity in these assets to increase), it can have a self-reinforcing effect by making a larger amount of assets more money-like. The addition of very large, highly traded securities can cause a market's liquidity to increase just as if there had been an increase in the money supply. (Nesvetailova, 2005, p. 401)

Indeed, the US Federal Reserve itself had created a longstanding moral hazard risk by easing monetary policy or injecting liquidity into the financial system whenever signs of instability threatened Wall Street. This was especially so after the collapse of the so-called 'new economy' boom after 2001 in which the NASDAQ index fell by 40 per cent between September 2000 and January 2001. The US Federal Reserve reduced the short-term interest rate from 6.5 per cent to 1 per cent between 2000 and 2003 (Li and Zhu, 2005, p. 6). At the same time, the US government enacted expansionary fiscal policies and incurred growing fiscal deficits, partly as a result of the war in Iraq, which stimulated the recovery from the mild recession of 2001–02. The US budget surplus of 2.4 per cent of GDP in 2000 was reversed to a deficit of 4.6 per cent of GDP in 2003. In retrospect, this phase of excess liquidity only served to fuel asset price inflation, most notably in the housing market. But the rapid expansion of liquidity has not been accompanied by a concomitant increase in the level of effective demand or an improvement in real wages. This accommodating monetary policy created an enormous wealth effect at the very moment when real net private saving in the USA was negative. As Lipietz warned: 'But precisely there lies the danger: in a capitalist world without re-distribution of a Fordist type but with a "flexible" labour market, the excess of money creates no inflation in the price of labour or of commodities, but does create it in the price of financial assets. Hence, a crash can occur at any moment in the United States' (Lipietz, 2001, p. 35). Since consumption depends more upon credit-creation than income growth, the emergence of a debt-trap could lead to a corresponding collapse in asset prices and set in train the dynamics of debt-deflation as credit is rationed in the event of a severe credit crunch. A Fisherian-type depressive phase of financial retrenchment could emerge under these extreme circumstances (Parenteau, 2004, p. 57).

The policies of financial deregulation, privatization and greater labour market flexibility enacted by the neoliberal state have created the objective conditions by which the logic of financialization has gained the ascendancy over the previous Keynesian policies of 'financial repression'. Unleashed from the constraints imposed by state regulation, the neoliberal state provided the framework for the emergence of financialization. In this sense, the new Monetarist orthodoxy signified the 'revenge of the rentier' as the imposition of anti-inflationary policies sought to restore the value of financial assets from the depredations of inflation and inflationary expectations caused by the series of oil price

shocks during the 1970s and 1980s. The policies of 'sound finance', which implied a curtailment of public spending and a return to the pre-Keynesian doctrine of balanced government budgets was instrumental in reversing the post-war political consensus over the maintenance of full employment. Indeed, it was precisely the objective of restoring profitability by reducing the wages share of national income through the classical mechanism of the reserve army of unemployed labour which informed the neoliberal strategy of economic restructuring in favour of capital. With the labour movement on the defensive, the hegemony of capital was restored.

The ascendancy of a finance-led regime of accumulation therefore involved a shift away from the normal strategy of ploughing back profits into long-term investment, towards the short-term strategy of purchasing financial assets and bolstering shareholder value. In other words, as Lazonick and O'Sullivan argue, there has been a shift from the previous 'Fordist' model of 'retain and invest' to a finance-led strategy of 'downsize and distribute' (Lazonick and O'Sullivan, 2000). Corporate profits recovered throughout the 1990s stock market boom to reach their highest level in 40 years (Arestis and Singh, 2010, p. 228). The overwhelming preference for financial markets rather than indirect finance supplied by the commercial banks was evident with the astounding growth of pension funds, mutual funds and more recently by the astronomical rise of hedge funds and equity funds (Guttmann, 2009, p. 47). The other major bearer of the logic of financialization took the form of the exponential growth of the derivatives markets. Originally conceived as a means by which to reduce risk through financial arbitrage, derivatives have since increasingly been deployed as instruments of speculation.

Deprived of their traditional markets, the commercial banks themselves were drawn into the speculative maelstrom (Stockhammer, 2004, p. 726). Commercial banks responded in two major ways to the effects of diminishing profitability. First, in the aftermath of financial deregulation, they began to engage in financial market mediation and expanded their operations into the functions that were previously the exclusive domain of investment banks. Since the early 1980s, commercial banks have increasingly mediated waves of mergers and acquisitions. To finance their own lending by attracting an inflow of liquid liabilities, commercial banks acted as financial intermediaries by borrowing in the short-term money markets in order to lend in the long run. These highly leveraged operations required the accumulation of relatively liquid reserves in order to avoid potential defaults. Consequently, the commer-

cial banks, by engaging in the functions normally associated with investment banks, were compelled to balance the imperatives of liquidity with those of solvency. By stark contrast, investment banks borrow in the open markets and require a smaller capital adequacy ratio because they specialize in the investment of short-term securities. By assuming the functions performed by investment banks, the commercial banks were more vulnerable to the threat of a run on deposits in the event of insolvency. Indeed, it was precisely this separation between the commercial and investment banks, which had informed the Glass-Steagall Act enacted during the 1930s depression in the USA. The repeal of this Act in 1999 recreated the disastrous conditions which had prevailed in the 1930s and which many economists argue was one of the major causes in the outbreak and prolongation of the Great Depression (Lapavitsas, 2009a, p. 135).

The emergence of the 'shadow banking system' was the result of a deregulated financial system, especially after the repeal of the Glass-Steagall Act in 1999. The complex web of financial obligations was built upon a pyramid of financial leverage in which commercial banks established 'special investment vehicles' (SIVs), which effectively existed outside the purview of the regulatory regime of the US Federal Reserve (Panitch and Konings, 2009, p. 75). This type of financial innovation had the effect of expanding the balance sheets of the banks and increased quite substantially their scope for greater leverage. In Minskyian terms, the rise of speculative and Ponzi financial units shifted the whole banking system into a zone of heightened fragility. In this sense, the spectacular growth of the shadow banking system was simply an outgrowth of the 'official' regulated system. The regulated banking sector acted as intermediaries and prime brokers for the shadow banking sector, amassing exorbitant fees and commissions (Gowan, 2009, p. 13). These transactions were predominantly conducted in the 'over-the-counter' credit derivatives markets in the form of collateralized debt obligations (CDOs). As Kregel notes: 'Thus, the banking system that emerged from the 1980s real estate crisis no longer primarily served business lending, nor was it primarily dependent on net interest margins for its income. Rather, the system was based on the ability of the banks' propriety trading desks to generate profits and to produce fee and commission income' (Kregel, 2008a, p. 10).

The other major trend, which accelerated the process of financialization, was the subsumption of wage labour to the imperatives of finance. As social provision of housing, pensions, education and social welfare were drastically curtailed during the neoliberal era, ordinary workers

were subjected to privatized services. At the same time, the savings of workers were channelled into financial markets as a result of these neoliberal policies, which encouraged the creation of private pension and mutual funds. These new forms of financial transfers became an integral element of the financialization of workers' incomes. The subsumption of wages under the purview of private finance has doubtless been characterized by new forms of class subordination, which have augmented exploitation in the sphere of production.

Financialization witnessed an increase in financial profits as a share of total profits. In the years 1970–78, this share was estimated at about 47 per cent on average but rose to 68 per cent for the period 1979–2003 (Beitel, 2009, p. 84). Indeed, the centralization of capital accelerated in the aftermath of the global financial crisis of 2007–08. According to Foster: 'In 1990 the 10 largest financial institutions in the US accounted for 10 per cent of total US financial industry assets. In 2008 this rose to over 60 per cent. The same phenomenon is true globally with the largest banks in 2009 accounting for 70 per cent of global banking assets, compared to 59 per cent in 2006' (Foster, 2010, p. 7). The complex instruments of financial intermediation and speculation form an intricate, interdependent web of globalized finance. This dense network of financial claims and obligations (that is, CDOs, credit default swaps and so on) creates the conditions for global contagion. As the 2007–08 global financial meltdown revealed, the channels through which these speculative flights of capital are transmitted globally emanate from the credit recycling mechanisms generated by the accumulation of US dollar reserves by the surplus countries, most notably in East Asia.

GLOBAL IMBALANCES

The emergence of quite severe global balances of payments disequilibria over the past two decades threatens the very foundations of the international monetary and financial system. The epicentre of this widening chasm can be readily identified in the burgeoning US current account deficits and net foreign debt, on the one hand, and the vast accumulation of current account surpluses and foreign exchange reserves by East Asia, on the other hand. Indeed, the greatest asymmetry in the global economy lies precisely in these growing imbalances across the Pacific. What are the implications of the decline of the US dollar as the pre-eminent reserve currency and means of international payments and to what

extent will the foreign holders of US dollar-denominated assets be willing to bestow the exorbitant privileges of seigniorage enjoyed by the US monetary authorities?

Since the demise of the post-war, fixed exchange rate system of Bretton Woods in 1971–73 there has been an explosive growth of international central bank reserves, most of which are denominated in US dollars. The expansion of these reserves has mirrored the widening trade imbalances between the USA and the rest of the world (Duncan, 2003, p. 13). The USA had incurred a cumulative current account deficit exceeding $US5 trillion by 2006 (Iley and Lewis, 2007, p. 159). According to Duncan (2003), between 1969 and 2003, international reserve assets expanded almost exponentially at around 20-fold. Conversely, the East Asian economies, most notably China, have been accumulating quite large balance of payments surpluses and the build-up of substantial foreign exchange reserves. At the same time, the level of reserves held by all central banks has almost doubled between 2003 and 2007, increasing to about $US4 trillion. A high proportion of this increase has come from the less developed countries as their reserves climbed from $US1.3 trillion to $US3.1 trillion over the same period (Turner, 2008, pp. 115–16). But the build-up of foreign exchange reserves could also induce the expansion of domestic credit and create the conditions for a series of speculative asset price booms. This scenario can be described as an exemplar of a Minskyian phase of a speculative financial mania leading to its eventual crash (Minsky, 1982). These global imbalances are highlighted in Table 6.1.

Table 6.1 Global imbalances: reserve accumulation, selected developing countries and areas ($US billions)

Year	2000	2001	2002	2003	2004	2005	2006	2007
Total, of which	800.9	895.8	1072.6	1395.3	1848.3	2339.3	3095.5	4283.4
China	168.9	216.3	292.0	409.0	615.5	822.5	1069.5	1531.4
Russia	24.8	33.1	44.6	73.8	121.5	156.5	296.2	445.3
India	38.4	46.4	68.2	99.5	127.2	132.5	171.3	256.8
Middle East	146.1	157.9	163.9	198.3	246.7	351.6	477.2	638.1
Sub-Saharan Africa	35.0	35.5	36.0	39.9	62.3	83.0	115.9	144.9

Source: IMF (2008).

One of the central tenets of the Washington consensus – pursued remorselessly by the IMF – has been the neoliberal view of the ostensible benefits that financial deregulation would bring about. These policies inevitably led to the rise of highly liquid, speculative short-term flows of capital, mostly emanating from offshore financial centres, which began to have a destabilizing impact on international financial markets and hastened a whole series of financial-economic crises in Latin America, East Asia and Russia (O'Hara, 2003, p. 35). The transmission of international liquidity and financial contagion arises from the policies of capital account liberalization pursued by the IMF and enacted by national governments. In the context of flexible exchange rates, these speculative flows of capital have become extremely destabilizing over the past several decades. Successive waves of speculative attacks have become widespread and endemic. The most serious episodes occurred during the implosion of the European Monetary System in 1992, the East Asian financial meltdown in 1997–98 and the Tequila crisis in Mexico in 1995 (Lucarelli, 2002, 2004a, 2004b). These episodes reinforce the view that financialization and the floating dollar standard amplify the transmission of financial instability on a global scale. The whole series of financial crises that have engulfed the emerging economies throughout the 1990s appear to have reinforced dollar hegemony and acted as a 'safety valve' against the onset of a dollar crisis. Indeed, it can be argued that the capital flights provoked by these crises have served to preserve the international role of the dollar as a store of value.

In response to these destabilizing capital flights, emerging economies, most notably in East Asia, have amassed vast foreign exchange reserves, which have been recycled to finance burgeoning US current account deficits. This phenomenon has been coined by some economists as 'Bretton Woods Mark II' (Dooley et al., 2003). Close analogies between the accumulation of dollar reserves by Germany and Japan during the 1950s and 1960s have been drawn with the recent East Asian experience. Germany and Japan launched export-led strategies of growth in the manufacturing sector, while supporting the US dollar under the Bretton Woods system of fixed exchange rates and dollar/gold convertibility. A relatively over-valued US exchange rate therefore bolstered the export competitiveness of Germany and Japan (de Cecco, 2009, p. 121). A similar strategy has been pursued by the East Asian countries and the emerging economies of India, Brazil and Russia, according to the proponents of the 'Bretton Woods II' thesis. Quite apart

from the existence of flexible exchange rates, this analogy fails to be convincing in the context of the post-Cold War international order. The willingness of Japan and Germany to accumulate dollar reserves was dependent upon the trade-off for geo-political and military security against the perceived threat of the Soviet Union. Needless to say, these historical conditions no longer apply, which makes the present imbalances more vulnerable to geo-political realignments. In this sense, the magnitude of the build-up of US securities by foreign central banks is almost unprecedented. As de Cecco notes: 'Foreign holders of US securities have no less than $US9.4 trillion worth of them in their hands, as much as the whole public debt of the US, and almost 37% of the 2007 US GNP. Major central banks have been mounting massive defence operations to keep the dollar afloat throughout 2007 and 2008' (de Cecco, 2009, p. 140). Table 6.2 summarizes global current account balances in the years 1997–2006.

Indeed, in the aftermath of the East Asian financial crisis in 1997–98, the East Asian economies restored their reserve positions and have amassed vast war chests of foreign exchange reserves in order to defend themselves against the possibility of another speculative attack on their

Table 6.2 Global current account balances, selected years, 1997–2006 ($US billions)

	1997	2000	2006	2000–2006	% of US change, 2000–06
USA	–141	–416	–811	–395	–
Japan	97	120	170	50	12.7
Germany, Netherlands, Switzerland	41	5	263	258	65.3
Other developed countries	68	23	–139	–162	–41.0
China	34	21	239	218	55.2
Other developing Asia	–27	26	–12	–38	–9.6
Central and Eastern Europe	–21	–32	–89	–57	–14.4
CIS	–9	48	99	51	12.9
Middle East	11	70	212	142	35.9
Latin America	–67	–48	49	97	24.6
Africa	–6	7	20	13	3.3
Discrepancy	14	176	–1	–177	–44.8
Memo: fuel exporters	16	149	396	247	62.5

Source: Iley and Lewis (2007, p. 185).

respective currencies and avoid the destructive consequences of IMF stabilization programmes in the event of a capital flight (Stiglitz, 2003). The imposition of fixed and managed exchange rates has also offset the pressure for currency revaluations against the US dollar, which would inevitably undermine their export-led strategies of growth. Between 1999 and 2005, East Asian central banks (excluding Japan) accumulated $US1.25 trillion in reserves. A large share of these reserves have simply been recycled through the purchase of US bonds and securities or reinvested in US dollar-denominated assets. As Arrighi notes: 'Since Bush took office, East Asian central banks have added to their Treasury holdings at a rate of nearly half a billion dollars a day, that is, about a third of the average US current account deficit. The funding of the deficit was thus left increasingly to the mercy of these banks' (Arrighi, 2005, p. 67).

Since 2002, China's current account surpluses have increased quite sharply and now constitute the largest single nation component of the US current account deficit, surpassing even those of Japan. These current account surpluses surged from only $US68.7 billion in 2004 to $US158 billion or 7.1 per cent of GDP in 2005. By 2006, China's bilateral trade surplus with the USA was $US235 billion, which represented over a third of the total US trade deficit, making China by far the largest country component of the US trade deficit. China's current account surpluses translate into an enormous accumulation of dollar reserves. Between December 2000 and December 2003, foreign exchange holdings of China's central bank more than doubled from $US166 billion to $US403 billion. In 2006, this figure had exceeded $US1.2 trillion of which $US600 billion was denominated in the US currency and had reached $US1.7 trillion in 2008. In the absence of central bank sterilization policies, the vast build-up of excess liquidity threatens to induce a phase of financial speculation in the real estate and equity markets reminiscent of the speculative boom which had preceded the East Asian financial crisis in 1997–98.

In order to maintain its competitive advantage, China is systematically intervening in the foreign exchange markets to maintain an undervalued exchange rate. China pegs its currency to the dollar and the yuan has traded, with small fluctuations, at about 8.28 per dollar since 1998.[2] This situation has considerably improved China's competitive advantage, making the yuan under-valued by between 25 and 40 per cent, according to most estimates. At the same time, the temptation of the Chinese central bank to diversify out of US dollar-denominated bonds and securities threatens to trigger a crash in the US bond market, which

would ultimately imperil China's major export market in the USA in the event of a US recession (Taggart-Murphy, 2006, p. 61). US trade officials have argued that the under-valuation of the Chinese yuan has contributed to the trade deficit with China and has been a major factor in the hollowing out of the US manufacturing sector. Needless to say, these trade imbalances and currency disputes have the potential to trigger a phase of destabilizing trade wars between China and the USA.

The other major source of global surpluses has recently emanated from the non-OECD oil producers. Whereas East Asian surpluses exceeded $US700 billion in 2006–07, the surpluses of the non-OECD oil producers were estimated to be about $US550 billion in 2007 (Burrell, 2006). The cumulative surpluses of the oil exporters were estimated to be about $US1.7 trillion between 2002 and 2007. This enormous expansion of petro-dollars has contributed to excess liquidity which has fuelled the equity boom over this period. However, these OPEC surpluses can be designated as cyclical in the sense that commodity prices tend to be highly dependent upon the vagaries of international trade cycles. By contrast, the East Asian surpluses are essentially structural and signify a profound shift in the international competitiveness of manufacturing in East Asia's favour. Deindustrialization in the USA thus constitutes the rationalizing dynamic of this shift in the productive centre of gravity to East Asia (Glyn, 2006).

Consequently, this virtuous circle implies an increase in the net US external debt but, at the same time, makes East Asian holders of US dollar-denominated assets quite vulnerable to a sudden depreciation of the US dollar (Schnabl, 2005, p. 161).[3] US deficits have been estimated to have absorbed about two thirds of the combined global current account surpluses (Roubini and Setser, 2004, p. 26). The US current account deficit improved from $US811 billion (6.29 per cent of GDP) in 2006 to $US692 billion (4.9 per cent of GDP) in 2007 (BIS, 2008, p. 13). This compares to $US200 billion or 2.5 per cent of GDP in 1998, and $US416 billion (4 per cent of GDP) in 2000. Summers (2004) has described the current configuration as a 'balance of financial terror': 'The term "balance of financial terror" refers to a situation where we rely on the costs of others of not financing our current account deficit as assurance that financing will continue' (Summers, 2004, p. 8). In the event of a series of sudden dollar devaluations, the fallacy of composition would suggest that the incentive for individual central banks to diversify out of an over-reliance of US dollar-denominated assets will intensify as the USA continues to experience an ever-growing and

cumulative stock of foreign debt, which in turn puts pressure on a substantial dollar devaluation. This could quite easily become self-fulfilling to the extent that, if a growing number of central banks feel obliged to protect themselves against a falling US dollar by diversifying their reserve holdings, the whole system of dollar recycling could collapse with quite devastating consequences. There is a classical dilemma akin to the prisoner's dilemma in game theory: all central banks would be assured stability if no single central bank decided to diversify out of US dollar reserve assets but, as the risk of a dollar crisis increases, each central bank is impelled to insulate itself from incurring huge losses.

The USA has been reluctant to preside over a sharp exchange rate adjustment because of the consequent short-term pain that this would inflict in terms of rising unemployment and a fall in output. Indeed, the USA continues to live beyond its means by exploiting its privileges of dollar seigniorage (Eichengreen, 2004, p. 28). In the event of a prolonged US recession, however, the export-led strategies pursued by East Asian countries will encounter their limits. Sooner or later, these surplus countries will be forced to curtail their massive central bank interventions to mitigate the effects of exchange rate appreciation and their support for the US dollar will begin to wane. An effective exchange rate depreciation in the USA appears to be consistent with the view that growing and cumulative US current account deficits will become more difficult to finance as investors diversify their holdings of US dollar assets into other key currencies in order to hedge their exposure to exchange rate risk. In other words, if yields and spreads are no longer attractive relative to other key currencies, US dollar-denominated assets will be liquidated (Dooley et al., 2003, p. 5). In this context, the USA continues to act as the issuer of the most important international reserve asset, while its financial markets intermediate the allocation of global savings from the surplus countries/regions to the deficit countries/regions.

The problems that manifest themselves as a result of these growing global payments imbalances assume a logic in which the surplus countries experience incessant pressure towards exchange rate appreciation, which tends to induce recurrent asset booms in the non-tradeable sector, notably in real estate and thus heightening financial fragility. On the other hand, the deficit countries experience a concomitant easing of financial conditions as the influx of these excess savings from the surplus countries tends to stimulate investment spending and the accu-

mulation of private debt, which finances hyper-excessive consumer spending. It has been estimated that ten Asian countries held more than $US3.4 trillion, or 59 per cent, of foreign exchange reserves in 2007 (Lim, 2008, p. 9). The excess saving of the surplus countries therefore acts as a channel through which monetary stimulus and credit growth becomes increasingly global (BIS, 2008, p. 8). Minsky's financial instability hypothesis can be modified – in light of international financial deregulation – to apply to the global transmission of financial instability through the greater ease by which highly liquid, short-term funds are able to cross national borders and engage in speculative trading. These destabilizing flows of capital are also amplified by increased exchange rate exposure and international interest rate arbitrage and speculation, which are capable of setting in train self-fulfilling speculative manias and cross-border contagion (Wolfson, 2002, p. 397). As Wade explains quite cogently in relation to the 2007–08 global financial crisis:

> The resulting fragility manifested itself in two kinds of problems. The first was the external problem of *currency recycling* from the surplus countries (especially from China, with its giant dollar surplus, to the United States, with its giant deficit). The second was the corresponding *credit recycling* in the United States and the UK, as households and firms took on the debt corresponding to the external deficit, raising debt-to-income ratios to historically high levels. (Wade, 2009a, p. 11, emphasis in original)

These global imbalances have generated a destabilizing transmission mechanism through US dollar recycling, which sets in motion excess liquidity and credit-creation in the deficit countries and dampens the level of interest rates. The excessive creation of cheap credit finances consumption in the deficit countries beyond existing income levels and augments effective demand, thereby maintaining the purchasing power of consumers. The circle is squared when this credit-fuelled consumption generates further demand for East Asian exports. The breakdown of this credit recycling mechanism leads inevitably to higher public debt as the state in the deficit countries compensates for the fall in private effective demand. Conversely, if the fiscal deficit falls, there must be an offsetting increase in private indebtedness. This rather perverse dynamic fuelled the real estate boom in the USA in 2001–05 as inflows of capital and the purchase of US dollar-denominated securities by foreigners was channelled into the speculative real estate market. Central banks in East Asia, most notably in China, increasingly absorbed mortgage-backed securities issued in the USA (Wade, 2009b, p. 543). At the same

time, the stream of recycled dollar earnings caused sharp falls in US interest rates. Yields on long-term bonds crashed from about 8 per cent in 2001 to as low as 3 per cent in mid-2003 (Ferguson and Johnson, 2009, p. 14). As Ferguson and Johnson note: 'The result was a fierce search for higher yields. Wall Street responded by pressing deregulation to new extremes, which put the nascent shadow banking system on steroids' (Ferguson and Johnson, 2009a, p. 14). The ultimate irony was that the consequent flight from these toxic assets generated by the credit recycling mechanism during the 2007–08 financial meltdown led to a flight into the US dollar, which then acted as a safe haven or an international store of value. Yet to restore these global imbalances, a downward adjustment of the US exchange rate was required.

THE UNITED STATES EMPIRE OF DEBT

The broadest measure of a nation's financial balance sheet – or the amount a nation's residents owe to the rest of the world – is the net international investment position (NIIP). Since most US debt is denominated in US dollars and most US foreign assets are denominated in foreign currencies, the US NIIP tends to increase in the event of an effective exchange rate depreciation. At the same time, the USA acts as an international financial intermediary and enjoys relatively higher returns on its foreign investment than foreigners earn on their respective US investments (Papadimitriou et al., 2006a, p. 4). Over the past three decades, however, the US NIIP has deteriorated, which is reflected in the increase in net foreign debt. In the 1970s, the net foreign debt was about one and a half times GDP. By 1985, it had doubled. By 2005, the total net foreign debt was estimated at three and a half times GDP, or around $US44 trillion (Magdoff, 2006, p. 7). However, the US NIIP peaked in 1982 at over $US329 billion, or about 12 per cent of GDP. Since then, the NIIP has experienced a dramatic deterioration, estimated at minus 24 per cent of GDP, or equivalent to minus $US2.65 trillion in 2003 (Gray, 2004, p. 13). The value of foreign-owned US assets was estimated at $US3.3 trillion, or about 30 per cent of its GDP, in 2005 and this share had doubled in the years 2001–05 (Erturk, 2005, p. 1).

In 2005, liabilities of the USA exceeded its claims on the rest of the world by about $US4 trillion (McKinnon, 2005b, p. 4). Foreign central banks have accumulated quite substantial stocks of US Treasury bonds, almost half of which are held in official foreign exchange reserves.

Since US assets and liabilities continue to be denominated in US dollars, US financial institutions have so far (until mid-2008) withstood the fluctuations of the US dollar and have averted a major threat to their creditworthiness. As Krugman has argued:

> The United States has very little external debt denominated in foreign currency; its liabilities, consisting overwhelmingly of dollar bonds, foreign-owned stocks, and direct foreign investment, can to a first approximation be considered a claim denominated in terms of US goods and services. On the other hand, the bulk of US external assets consist of foreign stocks and direct investment, both of which can to a first approximation be considered claims denominated in terms of foreign goods and services. So a real depreciation of the dollar raises the value, in terms of US GDP, of US external assets without increasing the value of US external liabilities. As a result, dollar depreciation reduces net external debt. (Krugman, 2007, p. 442)

Paradoxically, the US net external indebtedness has not increased as dramatically as one would suppose because of this valuation effect. In the absence of this perverse valuation effect, the net liability of the USA would have risen from about $US2340 billion in 2001 (or 23 per cent of US GDP) to $US4795 billion (37.5 per cent of US GDP) at the end of 2005 (Izukietta and Irvin, 2007, pp. 112–13).

Despite the alarming deterioration in the US NIIP, the net inflow of investment income has remained positive until 2005. This apparent anomaly reflects the role of the USA as the foremost international financial intermediary as well as the exorbitant privileges bestowed by the pre-eminent role of the dollar as the major reserve asset and international means of payments. The USA therefore continues to derive a profitable stream of income from its foreign assets which, to a large degree, compensates for its net liabilities abroad (Bibow, 2006, p. 19).[4] There has also been a substantial increase in US assets held by foreigners, which has grown from only 2 per cent of the total value of the US credit market in the early 1970s to about 14 per cent in 2006. Similarly, the share of foreign ownership in US equities increased from 7 per cent in the early 1990s to about 12 per cent in 2006 (Papadimitriou et al., 2006a, p. 4).

A very high proportion of US assets abroad are held in equities. By the end of 2005, more than 55 per cent of the US stock of $US10 trillion in overseas assets was held in corporate equities. In stark contrast, foreign claims on the USA are concentrated in the US debt market. These financial claims were estimated at $US12.7 trillion in 2006 (Iley and Lewis, 2007, pp. 147–8). Even though the USA is a net creditor in

relation to foreign direct investment and the ownership of equities abroad, this is more than offset by its net liability position in the more interest-sensitive debt markets. This apparent dichotomy resembles the financial structure of a venture capitalist in the sense that the US 'portfolio' is highly leveraged, with foreign liabilities over four times the size of net foreign debt and assets held abroad worth over three times net foreign debt (Iley and Lewis, 2007, p. 150). The bias towards the holding of debt and interest-bearing assets by foreigners reinforces the seigniorage privileges enjoyed by US financial markets and the preeminent role performed by the US dollar as both a store of international value and means of payments. As Gray (2004) has quite succinctly observed: 'An international financial system in which the hegemon finances decreases in its international net worth (INW) by increasing its rate of dissaving (as non-residents acquire more and more dollar assets) is a case study in Ponzi finance' (Gray, 2004, p. 110).

A fall in the effective US exchange rate implies an improvement in US net investment income by increasing the dollar value of its overseas earnings. At the same time, the value of its stock of net foreign debt will diminish via the 'valuation effect' of a dollar depreciation. In short, unlike the rest of the capitalist world, the USA is capable of borrowing abroad in its own currency. The risk of a dollar depreciation is incurred almost entirely by the foreign holders of US dollar-denominated assets. Between the beginning of 2002 and November 2007, the dollar had depreciated by 21 per cent on a trade weighted basis and more than 50 per cent against the euro (Godley et al., 2007, p. 8). It is precisely because of this dollar depreciation since 2002 that the USA has been able to prevent a major deterioration of its NIIP. This rather perverse logic has been possible because the investment income balance (the difference between what the USA pays and what it earns from the rest of the world) has not deteriorated as much as one would expect from a country experiencing quite chronic and cumulative current account deficits. Consequently, the USA has so far been able to finance these trade deficits without experiencing a major sell-off of US bonds and securities. Since almost all US foreign liabilities are denominated in its own currency and about 70 per cent of US foreign assets are in foreign currencies, a US dollar depreciation represents a net transfer of wealth from the rest of the world. Indeed, a 10 per cent depreciation of the US dollar translates into a transfer of around 5 per cent of US national income from abroad, which is sufficiently large enough to offset the US trade deficit itself (Iley and Lewis, 2007, p. 107). The extent to which

the USA can sustain this apparent enigma will ultimately depend upon the willingness of its international capitalist rivals to continue to finance the US current account deficits and the burgeoning foreign debt in the event of a major collapse of the US dollar.

> In a nightmare scenario, the US would have to cut its current account deficit sharply to reduce the amount of new financing that it needs to attract from the rest of the world even as it is starting to lose the advantages of being a reserve currency. In such a scenario, the US would have to offer foreigners much more attractive returns – either higher interest rates or forms of borrowing that transfer the risk of further depreciation from US creditors to US borrowers – to convince foreigners to continue to hold their savings in the US. The US could face higher interest rates on its existing stock of debt even as it has to curtail its new borrowing. (Roubini and Setser, 2004, p. 44)

The received wisdom is that foreign holders of US dollar assets cannot continue to finance US external deficits indefinitely. Sooner or later, the USA will be compelled to make a painful structural adjustment by curtailing its domestic consumption spending on imports (Davidson, 2006, p. 479). This adjustment will inevitably impart a depressive impulse on those countries in East Asia, which have relied too much on an export-led strategy of growth and to which the American domestic market continues to act as a market of last resort. The impact of a US recession could lead to a dampening of effective demand and falling profitability in those sectors in East Asia most exposed to exports as an engine of growth. It is at this moment that the problem of 'conflicted virtue' arises (McKinnon, 2005a). In the event of a sudden and quite severe dollar depreciation, the foreign holders of US dollar-denominated assets will confront enormous losses. The appreciation of the domestic currency against the US dollar could induce a deflationary adjustment domestically and set in motion a depressive spiral of falling profitability and income. Under the more extreme cases, analogous to the Japanese experience of the 1990s, the onset of deflationary trap could lead to a collapse in investment and the level of effective demand. 'Thus we have the syndrome of conflicted virtue for creditor economies, which is the mirror image or twin problem of original sin for debtor countries' (McKinnon, 2005b, p. 7).

The real danger, however, could emerge in which an event or a confluence of events hastens a flight from the dollar and precipitates a phase of severe financial turbulence in world markets. In this Minskyian drama, financial fragility could cause a series of cascading bankruptcies and financial defaults as holders of highly liquid US dollar-denominated

assets switch their portfolio preferences to non-US dollar assets (Gray, 1990, p. 283).[5] This critical moment would signify the exhaustion of the dollar:

> Exhaustion can come about for either of two reasons: the loss of confidence on the part of foreign lenders and their unwillingness to continue to hold or to increase their holdings of dollar-denominated assets: and, second, economic and political pressures in the US that derive from the burden in the domestic economy of the duties of being the global locomotive (injecting aggregate demand into the global system by running current account deficits, thereby reducing aggregate demand for domestic capacity), may become intolerable. (Gray, 2004, p. 8)

CONCLUSION

The outbreak of the global financial crisis in 2007–08 signified the breakdown of the mechanisms which have governed the dynamics of financialization over the past three decades. In very stylized terms, the accumulation of private debt and the recurrent asset price booms and busts, which have characterized the neoliberal era, could only be sustained as long as US dollar recycling from the surplus countries/regions continued unabated. Sooner or later, however, these imbalances and the insatiable appetite for debt in the deficit countries were bound to reach their limits. The US subprime crisis, which triggered the most serious recession since the 1930s, provided a sobering testimony to the devastating consequences of global financialization. It revealed just how interconnected and pervasive these financial markets have become. In short, the problem of global imbalances was inextricably connected with the mechanism of credit recycling from the surplus to the deficit poles of the global economy, which ultimately fuelled the speculative real estate boom in the USA in the years preceding the crash.

The US economy is effectively caught in a debt trap. As the world's largest debtor nation, it is impelled to attract a net inflow of capital in order to finance its ever burgeoning and cumulative current account deficits. At the same time, the USA needs to ensure that the rate of return on US dollar assets is high enough to maintain this inflow of capital and prevent a loss of confidence in the US dollar. Since the demise of the Bretton Woods system since the early 1970s, the USA has enjoyed the enormous benefits of international dollar seigniorage. Since 2000, however, the US net international investment position has deteriorated

quite dramatically although the immanent flight from US dollar assets has been temporarily postponed because the USA continues to exploit its hegemonic position as the pre-eminent international financial intermediary and store of value. Sooner or later, this position will no longer be tenable and a deflationary process of internal adjustment will occur as the fall-out from the vast accumulation of private debt could precipitate a phase of quite severe debt-deflation, similar to the Japanese experience in the 1990s (Halevi and Lucarelli, 2002). The logic of capitalist crises is precisely what Marx describes as 'the slaughtering of capital values'.

NOTES

1. According to Schmitt: 'In 1979, for example, the top one per cent of all US taxpayers received about 8 per cent of national income; by 2007, the top one per cent received over 18 per cent. If we include income from capital gains in the calculation, the increase in inequality is even sharper, with the top one per cent capturing 10 per cent of all income in 1979, but over 23 per cent in 2007' (Schmitt, 2009, p. 2).
2. China introduced a new exchange rate regime in July 2005. The yuan would be set with reference to a basket of currencies and allowed to fluctuate by 0.3 per cent daily either side of parity on a bilateral basis. This implied a cumulative movement of 6.4 per cent either side of parity over a monthly period. However, central bank interventions have made these fluctuations negligible. The yuan remains essentially an adjusted peg in relation to the US dollar, with very limited flexibility (Frankel and Wei, 2007, pp. 582–3).
3. To quote from Helleiner: 'According to one estimate, each 10 per cent decline in the dollar has the effect of generating a loss equivalent to about 3 per cent of China's GDP. The losses in China's assets are increasingly becoming politicized within the country, with questions being raised about why such a large portion of Chinese savings are being transferred abroad instead of being invested domestically to boost China's standard of living' (Helleiner, 2009, p. 79).
4. According to James: 'In the whole period from 1960 to 2001, the annualized rate of return on US liabilities (3.61%) was more than two percentage points below the annualized real rate of return on US assets (5.72%), and that for the post-1973 period the difference is significantly larger (3.5% and 6.82% respectively)' (James, 2009, p. 35).
5. The future fate of the US dollar has already emerged as a major point of contention in international fora. According to Sacchetti: 'Finally, a major contentious item on the agenda of a meeting, in the near future, at the international level, on the global financial system, is likely to be the role of the US dollar as the major reserve currency. This anticipation is based on the complaints reportedly made by China, Russia, and the other major holders of reserve assets, and by their proposals to replace the dollar with another reserve asset' (Sacchetti, 2010, p. 14).

7. Faustian finance and the American dream

INTRODUCTION

The problem of growing international payments imbalances has spilled over into the US domestic economy and has set in train successive phases of excess liquidity and the accumulation of historically high levels of household and corporate debt. These predatory features of US capitalism have been characterized by recurrent booms and busts, which have emanated from the growing financialization of the economy. In other words, the normal investment cycle has been superimposed by a layer of synthetic, speculative finance, which tends to amplify the fluctuations of the business cycle. At the same time, the US Federal Reserve has contributed to these pathological phases of debt-induced speculative booms by cushioning the effects of sudden asset price and equity slumps by enacting expansionary monetary policies and acting as a lender of last resort in the event of a major credit crunch. In this context, the recent subprime crisis represents the most recent and devastating culmination of these speculative episodes. Indeed, many commentators have described the most recent crash as a 'Minsky moment', which implies that the whole financial structure has entered a zone of chronic instability. This chapter examines the immediate causes of the financial meltdown and explores the complex web of financial instruments and derivatives, which amplified a seemingly local problem of mortgage insolvencies into a major global recession.

FINANCIAL DEREGULATION AND SECURITIZATION

The mechanism of credit recycling between the surplus countries and the USA created a close connection between the rapid growth of US

mortgage debt and the foreign financing of this debt through the issuance of US Treasury securities. The confluence of these favourable set of circumstances set in train the US real estate boom in the years preceding the financial meltdown of 2007–08. Given the privileged status of the US dollar internationally, the US financial markets intermediated these capital flows and engaged in arbitrage operations by borrowing in the short term in order to invest in the rest of the world in the long term at a higher rate of return. The astounding growth of the securitization market in mortgage-backed securities can be attributable to a large degree to the inflow of foreign capital to offset the chronic US balance of payments deficits (Dymsky, 2010, p. 246). Indeed, the inflow of relatively cheap credit into the USA, as a result of the massive accumulation of US dollar reserves by the surplus countries in East Asia, created the conditions for the subsequent housing boom in the USA. At the same time, interest rates were kept at low levels by the US Federal Reserve after the crash of the dot.com boom in 2001 and in the wake of the events of September 11. These events set the stage for the real estate boom over the next five years.

Foreign purchases of US Treasury debt and mortgage-backed securities (MBSs) by Fannie May and Freddie Mac therefore imparted downward pressure on US interest rates in the five years preceding the crisis. Since almost all US mortgages are calculated based upon the ten-year Treasury bond yield, the recycling of East Asian surpluses into US Treasury bonds effectively depressed domestic interest rates quite drastically.[1] By the end of 2006, foreign investors held 52 per cent of US Treasury bonds and 16.8 per cent of outstanding US agency debt issued by Fannie May and Freddie Mac (Schwartz, 2009, p. 94). According to Schwartz:

> During the long 1990s, then, a virtuous (but not perpetual) cycle of rising home prices, rising consumption, rising income and employment, and rising profitability drew foreign capital into US dollar-denominated securities. Much of this investment flowed into Treasury and agency securities, reducing interest rates and providing a further boost to aggregate demand and housing prices. And this in turn reinforced investment flows from relatively slowly growing OECD economies toward economies with housing booms, particularly the US. All of this made US dollar-denominated securities attractive in the market, strengthening the dollar's value and restoring its position as a top currency after the turbulent 1980s. (Schwartz, 2009, p. 105)

The enormous inflow of relatively cheap credit therefore stimulated an increase in asset prices, which further encouraged greater financial

innovation and ever higher levels of leverage. This virtuous circle was characterized by a Minskyian dynamic, which propelled the financial system into a zone of extreme fragility. As speculative and Ponzi financial units increased their overall proportion of total financing, the previous margins of safety built into bank lending were progressively eliminated. The entire financial structure therefore became vulnerable to minor rises in interest rates or falling asset prices (Wray, 2009, p. 59).

The speculative booms throughout the 1990s and early 2000s also encouraged persistent demands by finance capital and its political representatives for greater deregulation, which in turn reinforced the incessant competitive struggle between the banks themselves, waged by pursuing ever more complex forms of financial innovation. In other words, as these asset price booms gained momentum, perceived and real institutional obstacles to the expansion of lending were systematically removed, thereby increasing the banks' exposure to risk. This culminated in the US Securities and Exchange Commission (SEC) agreeing to increase the officially sanctioned leveraging ratios from 12 times capital to 40 times capital in 2004. The SEC further succumbed to pressures from the investment banks and made compliance of these new leveraging ratios voluntary. The floodgates were effectively opened to a torrent of excess liquidity, which propelled a rising tide of asset prices. Since a rising proportion of borrowing was short term and highly liquid, the investment banks became exposed to the very real possibility of a reversal of deleveraging in the event of falling asset prices (Crotty, 2009, p. 574).

After the repeal of the Glass-Steagall Act in 1999, which had legally enforced the separation of lending from underwriting, the commercial banks could now expand their lending through the new 'originate and distribute' banking model. Commercial banks were now permitted to engage in the underwriting of debt. This implied that the commercial banks could also originate loans and after 30 days, sell these CDOs into secondary bond markets. In most cases, these secondary markets were simply the affiliates of the banks themselves. It was from this process of 'securitization' that the origins of the 'shadow banking system' could be traced. In the words of Davidson: 'In order to "securitize" – that is, make liquid – the tranches in mortgage-backed assets, the underwriters had to assure buyers that the under-writers would function as a "market-maker" in the market for these assets. A "market-maker" is an institution that claims to guarantee holders of assets that the market for the resale of these assets always will be *well organised and orderly*' (Davidson, 2008,

p. 671, emphasis in original). CDOs became very attractive assets because they could be held off the balance sheets of commercial banks and therefore escape any capital reserve requirements (Crotty, 2009, p. 568). Quite simply, the commercial banks had discovered that the 'originate and distribute' model presumably liberated them from the constraints of illiquidity in order to continue to expand their lending. This obvious delusion was reinforced by the view that their balance sheets would be endlessly liquid as long as credit was cheap and plentiful and as long as their returns on the issuing of MBSs were also high. In other words, as long as the US housing market continued to boom and credit was cheap, these types of financial engineering could be validated. Indeed, the commercial banks established SIVs, which were affiliated financial companies that raised funds in the money market in order to purchase securitized assets. According to Mason: 'The value of asset-backed securities issued each year ballooned from a few billion in the late 1990s to $US2 trillion when the bubble burst' (Mason, 2009, p. 93).

These new financial instruments were closely connected with the extraordinary growth of complex networks of underwriting contracts or derivatives known as credit default swaps (CDSs) issued by the investment banks. These derivatives were designed to act as a form of insurance against counter-party default but soon became instruments of speculation. The CDS market expanded quite rapidly; between June 2005 and June 2007, the volume of CDSs traded increased from about $US10 211 billion to $US42 850 billion (Lapavitsas, 2009b, p. 136). Needless to say, the crisis first broke out in the money markets and then spread to the investment banks. The full magnitude of this speculative euphoria can be grasped by the sheer size of this market, which was estimated at $US62 trillion in December 2007, even though the total value of the assets insured was estimated at only $US5 trillion. In other words, more than 80 per cent of the CDSs outstanding were purely speculative (Crotty, 2009, p. 569). At the same time, the combined pre-tax profits of the five largest investment banks increased from $US9.5 billion in 2002 to over $US30 billion in 2006 (Mason, 2009, p. 93). By early 2007 the CDS market had turned into a gigantic casino that eventually contributed to the demise of the insurance behemoth American Insurance Group (AIG) and investment banks Bear Sterns and Lehman Brothers. The pernicious role of CDSs was evident in the pro-cyclical speculative frenzy which amplified the asset price boom but acted as a powerful trigger in the subsequent credit crunch. As Guttmann succinctly notes: 'The financial engineers of Wall Street put a highly

volatile synthetic multiplier of credit derivatives on top of a fragile structured layer of securitisation, thereby unwittingly setting the stage for a devastating chain reaction at the first signs of stress, which ended up paralysing the global banking system' (Guttmann, 2009, p. 58).

Financial deregulation witnessed a decoupling of the functions performed by financial intermediation, as commercial banks were no longer obliged to evaluate risk and the creditworthiness of borrowers since the loans which were originated could be sold to the secondary bond markets in the form of collateralized assets. This implied that the traditional role of banks in the evaluation of risk was transferred to the powerful credit agencies. The primary concern of banks was the ability to sell these collateralized assets in order to earn a fee or a commission. These assets, in turn, were selected on the basis of their investment yield rather than by the past credit profile of the borrower. In other words, financial deregulation allowed banks to issue loans and sell these assets into secondary markets, which were then repackaged and blended into other classes of yield bearing financial assets. The whole logic of 'securitization' was aimed at overcoming financial regulations, which had prevented formerly illiquid assets held in banks' own portfolios from being transferred into banking affiliates and sold into secondary bond markets.

Consequently, the secondary bond markets incorporated these collateralized assets into MBSs, which were issued on the basis of their yield, calculated in terms of the expected streams of income in the form of interest and principal payments from the underlying pool of mortgage debt. As banks moved their securitized loans off their books, there was a proliferation of mortgage companies and real estate developers who entered the market, which had the effect of accentuating the gulf between the ownership of assets and the risks incurred. The whole process led to the downgrading of credit risk, outright fraudulent practices and the alarming growth of Ponzi schemes. Indeed, in the aftermath of financial deregulation, MBSs emerged as one of the largest pools of financial assets traded in the US capital markets (Beitel, 2008, p. 29). It was the rapid growth of these new classes of engineered financial assets, or CDOs, which acted as the trigger for the subprime crisis as defaults began to escalate. The value of CDOs issued had tripled between 2004 and 2006, from $US125 billion to $US350 billion per year (Lim, 2008, p. 4). The amount of mortgage debt held by issuers of asset-backed securities had skyrocketed from $US55 billion in 1990 to $US2117 billion in 2006 (Panitch

and Konings, 2009, p. 75). As defaults mounted, the entire structure of debt began to collapse and the contagion effect soon spread to safer assets as investors lost confidence. Widespread panic led to a stampede out of these markets, which hastened a crash and the ultimate termination of funding for CDOs.

> Given the enormous short-term profits being made, the Wall Street banks appeared blissfully unconcerned about the fact that the growing volume of CDOs were being built upon an enormous mass of highly questionable and ultimately non-redeemable debt. The major credit agencies, Moody's, Fitch and Standard and Poor's, shared in the vast profits of the boom at the cost of abandoning their supposed role of providing prudent monitoring and oversight of the quality of the underlying pools of mortgage debt. (Beitel, 2008, p. 33)

Indeed, as the US Federal Reserve eased interest rates after the bursting of the dot.com bubble and the events of September 11, real estate was perceived as a relatively safe haven by investors. The subsequent housing boom created a whole new plethora of exotic mortgages, the so-called subprime market, which offered low income earners 'interest-only' and 'option adjustable rates' mortgages. These new Ponzi schemes soon became a ticking time bomb as the original low interest payments were later adjusted upwards, which dramatically increased the debt burden. Needless to say, mortgage defaults exploded. The entire debt pyramid generated by these parasitical forms of financial bondage – or what Harvey (2003) has described as the processes of 'accumulation through dispossession' – were governed to a large extent by a deregulated banking system in which banks were not obliged to report how many of these subprime mortgages had been incurred. The risk was essentially diversified by repackaging these financial units to the large hedge funds in Wall Street.

> Such funds are among the institutions that are relied most heavily in issuing commercial paper in the past few years. As recently as the end of 2006, Wall St banks lent liberally to such funds, and much of that borrowed money was used to invest in huge packages of mortgages. However, when it became increasingly clear that large numbers of homeowners could not repay their mortgage obligations, the cash flowing to hedge funds dried up, and fund managers found themselves sitting on enormous losses. (Whalen, 2007, p. 9)

THE SUBPRIME DEBACLE

Household debt in the USA rose from around 93 per cent of disposable income in 2000 to exceed 130 per cent by the end of 2006 (Iley and Lewis, 2007, p. 11). This dramatic upsurge in household indebtedness appeared to coincide with the end of the 'new economy' bubble and was instrumental in providing a major catalyst for the recovery from the mild recession of 2001–02. By mid-2006, household debt service payments reached a record high of 14.5 per cent of disposable income. Much of this debt was incurred during the housing boom of 2002–05. For instance, between 2000 and 2004, household wealth based on the ownership of real estate increased by more than 50 per cent (Brenner, 2006, p. 218). The level of borrowing as a percentage of personal disposable income was estimated to have been more than twice the level at the peak of the dot.com boom in 2000 and more than 20 per cent higher than the previous record set in 1985 (Brenner, 2006, p. 315). At the time, the US personal saving rate was negative at minus 0.5 per cent of GDP. This implies that mortgage debt in the USA has been increasingly financed by foreign holdings of MBSs. By March 2006, these securities were estimated at over $US1 trillion and accounted for about a third of the increase in net foreign indebtedness since the mid-1990s (Iley and Lewis, 2007, p. 187).

In the decade 1997–2007, real estate values had more than doubled – from about $US10 trillion to over $US20 trillion. Home mortgage liabilities rose even faster during this period – from US$2 trillion to over US$10 trillion (Wray, 2007, p. 27). The ratio of the median house price to median household income increased from about three to one in 2000, which reflected a relatively stable ratio over the previous three decades, to a historically unprecedented ratio of five to one in 2006 (Lim, 2008, p. 2). Indeed, between 1995 and 2007, house prices had risen by more than 70 per cent in real terms (adjusting for inflation). This represented an additional $US8 trillion generated by the housing wealth effect (Baker, 2007, p. 2). The housing boom was doubtless fuelled by the easing of monetary policy as the interest rate on mortgages fell to a 30-year low – from 8.29 per cent in June 2000 to 5.23 per cent in June 2003 (Brenner, 2006, p. 315). In this speculative frenzy, the proportion of Ponzi financial units was on the ascendant. Subprime mortgages accounted for 20 per cent of total mortgages issued in 2006. These loans grew by almost fivefold between 2001 and 2005, estimated at an average of $US625 billion annually (Baker, 2007, p. 10). Despite its Minskyian dynamics, the

unique feature of the recent global financial crisis lies in the fact that it originated in the subprime mortgage market in the USA. The penetration of bank lending – made possible by securitization – into some of the most deprived and socially excluded regions, ravaged by deindustrialization, set the stage for the subsequent subprime crisis. The origins of the crisis were therefore quite different from the Minskyian dynamic of endogenous instability generated by the investment cycle.

Sooner or later, however, these inflated market values would inevitably retreat to their historical averages. The US Fed also raised interest rates between mid-2004 and mid-2006 by four percentage points, which triggered a spike in the mortgage delinquency rate. Furthermore, the home mortgage debt had increased faster than the market value of these assets as households indulged in a hyper-credit binge, financed to some degree by leveraging their home equity. It has been estimated that the propensity to consume out of each additional dollar of housing wealth is between 4.5 and 16 cents. Every dollar of home equity which is leveraged represents 10 to 50 cents of additional consumer spending (Papadimitriou et al., 2007, p. 7). As house prices began to fall from early 2006 onwards, the reverse wealth effect led to a severe retrenchment of private spending. It has been estimated that a 20 per cent fall in house prices is equivalent to a $US2 trillion destruction of asset wealth. At the same time, mortgage debt as a share of disposable income had increased from 60.9 per cent on average during the 1990s to over 75 per cent in 2007 (Boushey and Weller, 2008, p. 3). By the beginning of 2008, an estimated 8.8 million households, or a tenth of the total, had experienced negative equity (Blackburn, 2008, p. 71). Real estate prices fell on average by 10.2 per cent between January 2007 and February 2008; the largest fall in the Case-Shiller home price index in over 20 years (Sapir, 2008, p. 90).

Defaults on mortgages increased from early 2007 onwards and, by February 2008, more than 24 per cent of subprime mortgages were in foreclosure. This represented more than 1.3 million households which were facing foreclosure, an increase of 79 per cent from the previous year (Sapir, 2008, p. 90). By mid-2008, the number of monthly foreclosures reached levels not witnessed since 1929, on the eve of the Great Depression. As mortgage defaults and foreclosures escalated, the market for securitized assets collapsed and their holders in SIVs and hedge funds encountered insolvency problems. Since the underwriters of these assets were the commercial banks themselves, they were obliged to repurchase them at an enormous discount and incurred devastating

losses. This inevitably led to the sudden curtailment of lending as banks now scrambled to replenish their capital. The existence of these toxic assets and the inability of the banks to isolate them witnessed a complete breakdown of the inter-bank lending markets. This chain of events reverberated in a whole series of bankruptcies, insolvencies and the emergence of a pervasive credit crunch. The inevitable retrenchment of household wealth has doubtless led to cascading declines in consumer spending and a dampening of the level of effective demand.

The initial shock waves of the subprime crisis occurred in July 2007 when two Bear Sterns hedge funds, which held about $US10 billion in MBSs, went into liquidation and were later sold at a fraction of their market value to JP Morgan, supported by a $US30 billion credit line from the US Federal Reserve Bank (Foster, 2008, p. 8). This crash was soon followed by the failure of the British mortgage lender, Northern Rock, which was eventually bailed out and nationalized by the government. In response to the emerging credit crunch, the US Federal Reserve Board injected liquidity into the financial system and drastically cut the prime rate from 4.75 per cent in September 2007 to 3 per cent in January 2008. In addition, the US Congress convened to announce a fiscal stimulus package of $US150 billion in tax cuts. In March 2008, the world's central banks coordinated an emergency line of credit of $US200 billion to distressed banks (Blackburn, 2008, p. 65). At about the same time, the US Federal Reserve Bank injected an additional $US400 billion into the financial system. Interest rates were cut yet again – by 0.75 per cent to 2.25 per cent in March.

By early September, the US Treasury intervened to bail out mortgage insurers and lenders, Fannie May and Freddie Mac, which had incurred over $US15 billion in losses and had shed about 80 per cent of their shareholder value over the previous year. These two government-sponsored mortgage companies own or guarantee about half of the $US12 trillion mortgages in the USA. The $US200 billion renationalization of Fannie May and Freddie Mac was not only driven by the inherent risk that their possible collapse represented to the entire US housing market but also by the enormous exposure that these agency securities represented for their foreign holders. By 2008, the largest holder of these securities was the Chinese central bank, which accounted for about one eighth of all portfolio holdings of US securities. Indeed, it was the refusal of the Chinese central bank to purchase more agency MBSs which eventually forced the US authorities to renationalize Fannie May and Freddie Mac (Schwartz, 2009, p. 111).[2]

The collapse of Lehman Brothers in mid-2008 triggered a financial panic which effectively froze credit markets and hastened a chain reaction of counter-party defaults in derivative contracts (Wade, 2008). The refusal of the US Treasury to bail out Lehman Brothers, one of the biggest investment banks, proved to be a major blunder as the crisis now spread to the other major investment banks and hedge funds. The final remnants of trust between banks evaporated, which led to the cessation of inter-bank lending (Lapavitsas, 2009a, p. 10). The spectre of a full blown financial meltdown was temporarily averted when the US Treasury bailed out the world's largest insurance corporation, AIG, by providing a credit line of $US85 billion, in mid-September. AIG had mutated into a hedge fund by issuing $US500 billion of CDSs against CDOs which turned out to have had a high exposure to subprime mortgages. By mid-October most of the major US banks were on the brink of insolvency. A series of mergers and forced acquisitions were hastily engineered and supported by the US Treasury, including J.P. Morgan Chase's acquisition, at a fraction of its market value, of Washington Mutual; the absorption of Countrywide and Merrill Lynch into the Bank of America; and Well Fargo's purchase of Wachovia (Foster and Magdoff, 2008, p. 2). For the first time in over 50 years, the reserves of US banks held by the US Federal Reserve were negative.

The response to the crisis by the US state has been to socialize the losses and privatize the profits. Nowhere has the enormous power of finance capital been more evident than with the final Congressional approval of a $US700 billion bailout package by the US Treasury to purchase a vast amount of toxic securities from the ailing banking system at well above their market value.[3] In light of their ideological adherence to the ostensible virtues of neoliberalism and the dangers of 'moral hazard' risks, US policy makers succumbed to the threat that these financial institutions were 'too big to fail'. Taxpayers in 'main street' would be bailing out the very architects of the crisis in Wall Street. The other response by the US Fed under Bernanke has been to undertake the risky operations of 'quantitative easing' by expanding its balance sheet to absorb a wide range of low grade financial assets and expanding the money supply by issuing unlimited Treasury bonds and securities. By the end of 2008, the US Fed's balance sheet had surged to over $US2 trillion. In the last quarter of 2008, the share of Treasury bills on the asset side of the Fed's balance sheet fell from 90 per cent to 21 per cent as the Fed was encumbered with riskier assets, including MBSs and commercial paper (Vasudevan, 2009, p. 32). The real danger now

lies in the possible emergence of a glut of Treasury bills in global markets, which could induce a fall in bond prices and an upsurge in interest rates. The foreign holders of US securities, most notably China, will perform a decisive role on how this game is eventually played out.

By the end of 2008, these bankruptcies and defaults have threatened the very citadels of US capitalism as the spectre of a severe credit crunch began to reverberate in Wall Street itself. The emergence of a credit crunch signifies an evaporation of bank lending to the private sector, which is also accompanied by a deterioration of the balance sheet of banks as the rate of non-performing loans skyrockets. As the corporate sector experiences a falling rate of profit, the ability to service previous debts creates widespread and pervasive financial distress and a rising tide of bankruptcies. The tightening of credit conditions leads to a scramble for liquidity and a rebalancing of portfolios away from equities and towards more liquid assets in bonds and securities. Long-term interest rates also rise but at a slower rate than short-term rates, which leads to an inverted yield curve as higher long-term rates cause a further portfolio adjustment into long-term bonds (Arestis and Karakitsos, 2004, p. 32). To quote Kregel: 'The system thus seems poised for a Minsky-Fisher style debt deflation that further interest rate reductions will be powerless to stop' (Kregel, 2007, p. 26). It can be surmised that the harbinger of a global financial crisis emerged as the fall-out from the subprime crisis engulfed global markets and hastened the most severe global recession since the Great Depression.

CONCLUSION

The breakdown of the perpetual cycles of credit-induced asset booms, which have sustained financialization, culminated in a full-blown economic slump by the end of 2008. Although the crisis can be characterized as a 'Minsky moment' in terms of its evolution from a relatively stable financial structure leading to speculative and Ponzi phases of financial instability, the origins of the crisis were to be found in the pernicious growth of securitization in the subprime housing market. The crisis therefore exhibits quite unique and specific historical pathologies. Unlike previous capitalist crises, the origins are quite specific to the financialization of personal income rather than to the logic of speculative investment cycles. Financialization, in turn, was driven by the emergence of quite severe international payments imbalances, which

generated a powerful mechanism of credit recycling from the surplus to the deficit countries. As the world's largest debtor nation, the USA benefited enormously from the inflow of cheap credit, which fuelled the asset boom in the housing market. Similarly, the unique role of the US dollar as the world's foremost reserve currency attracted a steady inflow of offshore portfolio investment. What the crisis reveals most starkly are the limits to this rather perverse logic which governs the destructive nature of financialization on a global scale.

NOTES

1. Some estimates suggest that these ten-year Treasury bond yields were responsible for depressing housing interest rates by as much as one percentage point during the late 1990s and early 2000s, peaking at 150 basis points in 2005 (Schwartz, 2009, p. 94).
2. According to Schwartz: 'Up until July 2008, foreign official investors were absorbing about $US20 billion per month in agency debt. But in July and August, China actually shed $US4.6 billion in agencies, while other foreigners sold $US10.1 billion. Fears that foreigners would sit out a $US200 billion refinancing for Freddie and Fannie in September 2008 prompted the Treasury to impose its conservatorship in the two agencies' (Schwartz, 2009, p. 111).
3. The strategy of merely purchasing these toxic assets eventually proved ineffectual and the US Federal Reserve resorted to direct capital injections, which would support new lending and reverse the process of severe deleveraging that was responsible for the drying up of the supply of credit (Ferguson and Johnson, 2009a, p. 29).

Conclusion

> Just as Clemenceau once said that war is much too serious a thing to be left to the generals, I think the economy is far too serious a thing to be left to the economists.
>
> Robert Triffin (1985)

The entire history of capitalism has been punctuated by the instability generated by business cycles. Crises are an inherent mechanism by which the system temporarily restores equilibrium, once it has been momentarily ruptured. But this new equilibrium might not necessarily correspond with full employment. Under the mature stages of finance-monopoly capitalism, however, these crises become more pervasive both in magnitude, duration and frequency. They appear to acquire a destructive logic of their own. Financialization, in the absence of a better term, carries with it the destructive cataclysm that one normally associates with a nuclear chain reaction or with the devastating force of a tsunami. These analogies are quite apt if the current crisis is any testament to the enormous scale of human misery and the collateral damage inflicted by these economic disasters.

Unfortunately, economic theory has become disconnected from history. Much of the present malaise has been the result of historical amnesia and myopia. As the historical memories of the Great Depression have receded, so too have the lessons of that era been erased from historical memory. Yet history can only solve those problems for which there are some precedents. It seems that the bitter lessons of the 1930s depression will need to be revisited. This implies that the prevailing economic orthodoxies should be subjected to an imminent and comprehensive critique. The essential aim of this study has been to contribute to this critique and restore the original insights of Marx, Keynes, Kalecki and Minsky, to mention only a few of the leading lights of the heterodox tradition. The myth of the efficacy of the free market can no longer be legitimized. Equally, prevailing neoclassical and Monetarist theories have lost most of their credibility in the face of the

present crisis. As long as these orthodoxies continue to inform economic policies, these recurrent crises will inevitably reappear with even greater destructive consequences.

The study of economics is inextricably bound up in the dominant ideology of an era. To paraphrase Marx: 'The ruling ideology of an era is also the ideology of the ruling class'. Unlike the more exact natural sciences, economics remains the prisoner of ideology. Contrary to the positivistic claims of neoclassical theory, economics is governed by politics. In the words of E.H. Carr: 'The science of economics presupposes a given political order and cannot be profitably studied in isolation from politics' (Carr, 1951, p. 17). Given this unpalatable reality, the only temporary solution to the current crisis – in the absence of a post-capitalist alternative – presupposes the transformation of the capitalist state itself. The guiding principles in this transformation should be the 'socialization of investment' and the 'euthanasia of the rentier'. This implies the reregulation and nationalization of the financial system. In other words, the time has come to overthrow the ruling neoliberal order and reinstate state intervention and forms of indicative planning to reactivate a sustained recovery.

In order to restore full employment as the cornerstone of macroeconomic policy, Kalecki's theory of the political business cycle provides invaluable insights. As was predicted by Kalecki as early as 1943, opposition to full employment emerged as a result of the restoration of the class power of business and rentier interests. This hegemonic transition from the post-war Keynesian consensus was informed by the abandonment of full employment and the elevation of price stability as the overriding aim of macroeconomic policy. According to Kalecki, these ideological objections to the maintenance of full employment were: '(1) the dislike of government interference on the problem of employment as such; (2) the dislike of the direction of government spending (public investment and subsidising consumption); (3) the dislike of the social and political changes resulting from the *maintenance* of full employment' (Kalecki, 1943, p. 324, emphasis in original). With the onset of stagflation during the 1970s and 1980s as a result of successive oil price shocks, the rise of Monetarism was used as an ideological device to invoke the spectre of inflation in order to oppose wage rises and increase the share of profits in national income. Indeed, the existence of full employment during the post-war boom had deprived the 'captains of industry' the weapon of the reserve army of labour to depress the level of wages. Instead, the spectre of inflation

was exploited as a means by which to impose the burden of adjustment onto wages and employment.

The contention that government intervention would erode 'business confidence' was also invoked to oppose social spending and the ideological opposition to government deficit spending on the basis of the doctrine of 'sound finance' and the economic dogma of the 'crowding out' of private investment. As Kalecki quite presciently declared: 'Hence, budget deficits necessary to carry out government intervention must be regarded as perilous. The social function of the doctrine of "sound finance" is to make the level of employment dependent on the "state of confidence"' (Kalecki, 1943, p. 325). Doubtless, these conventional nostrums already appear to be quite antiquated in light of the current crisis. The return of depression economics as governments throughout the world resort to conventional Keynesian policies of deficit spending to stabilize their economies is perhaps the most devastating indictment of these neoliberal/Monetarist dogmas. The insistence of balanced budgets under existing conditions would be tantamount to engineering another great depression. Yet these prescriptions are precisely what most governments in the OECD intend to pursue over the next few years in order to balance their respective budgets.

One of the major legacies of the 1930s depression was the rise of fascism and the creation of employment through the massive expansion of military spending. Indeed, it can be argued that the onset of world war resolved the pre-war problems of chronic excess capacity and unemployment and stimulated the post-war recovery through the Schumpeterian dynamic of 'creative destruction'. In order to avoid this unthinkable possibility in the nuclear age, the restoration of full employment through peaceful means should be the primary objective of progressive governments. Several proposals will be examined while avoiding too much technical detail.

At present, the mechanism by which wage and price stabilization is achieved is by relying on the persistence of a large pool of unemployed labour and unused productive capacity. In order to achieve both price stability and full employment it is necessary for the national government to act as an 'Employer of Last Resort' (ELR) (Wray, 1998b, p. 540). The government determines the minimum wage at which it will employ idle labour, which then acts as a buffer stock to regulate the price of labour. The ELR in this sense provides employment and sets the minimum wage which covers the entire workforce. By acting as a buffer stock, social expenditure in creating employment augments effective demand and

prevents the economy from sliding into a prolonged recession. Economic growth and potential output are therefore at a level approaching full employment. The unemployed themselves benefit by maintaining their skill levels, while the negative externalities associated with crime and anti-social behaviour are reduced. At the same time, the absorption of the unemployed would improve the efficiency and productivity of public services and infrastructure. Similarly, the private sector benefits indirectly by the provision of public goods and the improvement of skills and education of ELR workers. More importantly, by increasing potential output and generating productivity growth, ELR programmes will tend to dampen the general level of prices.

The maintenance of full employment therefore need not be incompatible with price stability as suggested by the non-accelerating inflation rate of unemployment (NAIRU). By absorbing unemployed workers from the private sector, the 'buffer stock' acts as a stabilizing mechanism and sets a wage floor for the economy as a whole. By doing so, the buffer stock employment (BSE) prevents the onset of deflationary forces. As employment in the non-BSE sector increases, wages will tend to rise relative to the BSE wage and labour will be attracted out of the BSE sector. As the economy reaches full employment capacity, however, there is always the danger of a wage price spiral in the absence of government anti-cyclical measures. In this case, the imposition of tight fiscal and monetary policies will have the opposite effect as resources are transferred from the inflationary non-BSE sector to the BSE sector, which tends to stabilize the level of wages and thus counteracts an inflationary wage price spiral. Since the BSE wage is set by the government, the inflationary pressures are counteracted. According to Mitchell: 'The disciplinary role of the NAIRU, which forces the inflation adjustment onto the unemployed, is replaced by the compositional shift in sectoral employment, with the major costs of unemployment being avoided. That is the major advantage of the BSE approach' (Mitchell, 1998, p. 552).

The restoration and maintenance of full employment presupposes that each nation cannot engage in 'beggar-thy-neighbour' type policies by running successive balance of payments surpluses and thereby 'exporting' unemployment onto its rivals. This problem was quite rampant during the 1930s depression and its solution formed the basis of Keynes's proposals for an international clearing union, or the 'Bancor' regime during the Bretton Woods negotiations in 1944. A very brief analysis of these trade and payments imbalances and the collapse of the

gold standard regime during the 1930s might provide a useful context and also reveal some striking parallels with the asymmetries afflicting the existing international monetary system.

The collapse of the international monetary system under the aegis of the gold standard was the central event in the prolongation of the 1930s depression. Deprived of a universally accepted means of payments and reserve asset, the international financial system experienced a period of anarchy, which spilled over into the rise of economic nationalism and autarkic trading blocs. After the stock market crash of 1929, a scramble for liquidity ensued in which US investors recalled their funds from abroad. This action merely triggered a vicious cycle of protectionist 'beggar-thy-neighbour' policies as the indebted countries of Europe and the primary producing countries sought to protect their own domestic markets. A cumulative process of severe deflation, accompanied by a sudden collapse in income and output, characterized this depressive spiral as each country imposed import restrictions and capital controls. The outbreak of this 'tariff mania' after the Hawley-Smoot Tariff enacted by the US authorities in 1930 culminated in the emergence of protectionist trading blocs and the ascendancy of national autarkic policies. In the words of H.W. Arndt:

> The combined effect of the fall in world prices, the contraction of international trade, the recall of short-term funds and the failure of continued American long-term investment brought about financial and economic crises in almost every country and in most of them set going cumulative processes of decline similar to that which was going on in the USA. The worst hit were the overseas primary producing countries which were brought to the verge of bankruptcy by the fall in agricultural and commodity prices, and the European debtor states, whose economic prosperity had been built up on continued foreign borrowing. Pressure on its gold and foreign exchange reserves forced one country after another to protect its currency by exchange rate depreciation or exchange control. At the same time, the efforts of every country to maintain its exports and protect its balance of payments by imposing increasing tariffs and import restrictions still further diminished the flow of international trade and increased the difficulties of every other country. The American slump and depression cannot be said to have caused the world depression, but they upset the unstable economic equilibrium of the world and gave the impetus to a similar economic decline in other countries. (Arndt, 1963, p. 19)

The existence of the gold standard regime made it more difficult for deficit countries to adjust to these external shocks. Under this regime it was not possible, in theory at least, for countries to adjust their respec-

tive exchange rates in the event of a capital flight or adverse terms of trade. Since the relative value of all currencies were maintained at relatively stable parities in relation to the gold standard, any imbalances in their international payments could not be corrected by an adjustment of the exchange rate but had to be corrected by an adjustment of national price or income levels. In other words, the fixed exchange rate pegged to the gold standard tended to impart a powerful deflationary tendency in the deficit countries. The whole edifice of the gold standard had been constructed on the foundations of a competitive market economy. In this regime, the price mechanism constituted the sole means of exchange rate adjustment. Before the First World War, the gold standard had functioned quite smoothly as the free convertibility of national currencies fostered a multilateral settlement of international payments. If a country incurred a trade deficit, it would automatically experience a deflationary adjustment and an outflow of gold reserves. Conversely, a trade surplus would attract an inflow of gold reserves and a rise in nominal incomes and prices (Tew, 1960).

After the First World War, however, this international trade and payments equilibrium had disappeared. The USA emerged as the principal creditor nation to replace Britain as the major international investor. Despite the emergence of the USA as the principal creditor nation, its status as a reserve currency nation and 'central banker' for the international payments system did not evolve until after the Second World War with the signing of the Bretton Woods Agreements which established a fixed, though flexible exchange rate system based on gold/dollar convertibility. During the inter-war years, however, the decline of Britain and the gold standard had only accentuated the chronic instability in international monetary relations. The UK itself had become a net debtor country and could no longer act as the 'central banker' for the international capitalist economy. The inevitable breakdown of the gold standard in 1931–33 was caused by the acute disequilibrium in the international balances of payments as countries resorted to autarkic 'beggar-thy-neighbour' policies and competitive devaluations.

The Keynes plan proposed during the Bretton Woods negotiations in 1944 involved the creation of an International Clearing Union (ICU), which would act as an international central bank and issue its own currency, the bancor, the value of which would be determined at a fixed price to gold. Each member country would establish a fixed but adjustable exchange rate in relation to the bancor. International payments balances would be settled by using the bancor as a unit of

account. The bancor would have very limited convertibility; countries could purchase bancors but could not convert them into gold. In other words, bancor reserves would remain within the system to avoid the possibility of a drain on reserves. Each country would also be allocated a quota of bancor based upon their levels of imports and exports. The essential aim of Keynes's ICU was to prevent the onset of competitive devaluations and to mitigate the deflationary tendencies caused by the reluctance of surplus countries to reflate and stimulate aggregate demand for the deficit countries. The pre-war system had imparted a contractionary bias which forced the deficit countries to adjust internally by imposing deflationary policies. Keynes had envisaged an international system which would reverse this deflationary bias and impart an expansionary impetus which would allow deficit countries to pursue full employment policies. This necessarily implied that the surplus countries would be obliged to incur more of the burden of adjustment. The dilemma arose that the surplus countries could continue to accumulate foreign exchange reserves almost without limit, as long as the central bank could sterilize the inflationary effects. The deficit countries, on the other hand, would eventually run out of foreign exchange reserves and be exposed to speculative attacks on their currencies. In this sense, the burden of adjustment would be borne almost entirely by the deficit countries, which would be forced to enact contractionary policies and experience higher levels of unemployment. These asymmetrical shocks would ultimately depress international effective demand and have an adverse effect on the exports of the surplus countries themselves. As Crotty contends:

> There can be no doubt that the international financial system that Keynes proposed and defended in the early 1940s had as a major objective the facilitation of high rates of growth and low rates of unemployment in its constituent countries. Under the prevailing system, serious payments imbalances created deflationary pressures on deficit countries. The ensuing contractions that developed in these countries could then spread to surplus countries through the erosion of their export markets. In the extreme instance, this chain of events had the power to generate a world-wide slump. (Crotty, 1983, p. 62)

The Keynes plan proposed that any country which experienced severe and prolonged balance of payments deficits (equivalent to half of its bancor overdraft) would be charged interest on its bancor account. It would also be obliged to devalue in order to prevent the outflow of capital. On the other hand, the surplus countries would be forced to reduce

their balances of payments surpluses and revalue their respective exchange rates. To prevent the deficit countries from incurring the entire burden of adjustment, Keynes proposed that the surplus countries, which had accumulated a bancor balance equivalent to more than half of their overdraft credits, would be charged interest at 10 per cent per annum. If their credit balance exceeded the total value of their permitted overdraft at the end of the financial year, the surplus would be confiscated. The overriding aim of these rules was to compel surplus countries to clear their international balances and force them to incur some of the burden of adjustment. Unfortunately, Keynes's bancor plan was defeated by US opposition, led by their delegate H.D. White, at the Bretton Woods conference. The US dollar, tied to gold at a fixed price of 35 dollars per ounce, would instead perform the functions of reserve asset, unit of account and means of payments for the international monetary system governed by fixed but adjustable exchange rates (Skidelsky, 2000, p. 231).

The dollar/gold convertibility regime established by the Bretton Woods Agreements had inherited a serious flaw, which became more evident as the US economy began to experience growing balance of payments deficits during the late 1960s. Robert Triffin (1961) was one of the first prominent economists to warn of the impending demise of the Bretton Woods system as a result of the role performed by the US dollar as an international means of payments and international reserve asset. The 'Triffin dilemma', as it became known, essentially states that in order to supply the international economy with US dollars, the USA itself would be obliged to run burgeoning balance of payments deficits to avoid a drain on international liquidity. But the very growth of these US deficits would ultimately undermine the international status of the US dollar and hasten a series of crises. This contradiction would set in motion cycles of expansion and contraction of international liquidity and generate systemic instability. After the demise of the Bretton Woods system in 1971–73, these destabilizing flows of short-term speculative capital became more pervasive as countries abolished capital controls and deregulated their financial markets. As the issuer of the global reserve currency, the USA enjoyed the enormous benefits of dollar seigniorage. In other words, the USA was no longer constrained by dollar/gold convertibility. Unlike the rest of the capitalist countries, the USA could finance its burgeoning balance of payments deficits by the issuing of US dollar-denominated bonds and securities without the limits imposed by the accumulation of foreign exchange reserves. US

policy makers could now pursue an unfettered strategy of restoring their international competitiveness by resorting to successive dollar devaluations. The dollar crisis therefore not only imparted a powerful inflationary impulse, which forced other countries to impose quite severe deflationary policies, but successive dollar devaluations also threatened to erode the competitiveness of their capitalist rivals in Europe and East Asia (Parboni, 1981).

The problem of growing international payments imbalances has since emerged as a major source of financial instability. Indeed, the current crisis is quite unique because international 'money' ceases to have a standard unit of value, analogous to the dollar/gold convertibility system or the nineteenth-century gold standard regime under the aegis of *Pax Britannica.* In the absence of an objective standard of value, currencies only possess 'fiat' values, which are governed by future expectations under the guise of hedging and speculative operations performed by the foreign exchange and derivatives markets. In the event of a credit crunch, the US dollar assumes its role as a safe haven and reserve asset. Paradoxically, even though the international economy might experience an increase in the supply of US dollars as a result of the easing of US monetary policy, the velocity of circulation tends to fall as US dollars are hoarded. As long as deflationary forces remain quite robust, an increase in international liquidity is thwarted (Vasudevan, 2009, p. 31). It can be surmised that the existing system of deregulated financial markets and worsening payments imbalances cannot be sustained. Sooner or later, an irreversible dollar crisis will emerge, which will signify the end of the existing fiat money regime. At this moment, the political imperatives for international monetary reform will become irresistible.

In the tradition of the Keynes plan, Davidson (1992–93) has devised a more simplified plan to reform the international financial and monetary architecture. Davidson proposes an International Money Clearing Union (IMCU), similar to the original Keynesian bancor regime. Although a fixed exchange rate regime is proposed, countries would be allowed to adjust their respective parities to reflect permanent structural changes in unit labour costs and current account deficits at full employment equilibrium (Arestis, 1999). At the same time, nation states would not surrender their control of the national banking system and would preserve their ability to pursue independent fiscal policies to maintain full employment. According to Davidson, the basic architecture of the IMCU would be designed:

> (1) to prevent a lack of global effective demand due to any nation(s) either holding excessive idle reserves or draining reserves from the system, (2) to provide an automatic mechanism for placing a major burden of adjustment on the surplus nations, (3) to provide each nation with the ability to monitor and, if desired, to control movements of flight capital, and finally (4) to expand the quantity of the liquid asset of ultimate international redemption as global capacity warrants. (Davidson, 1992– 93, p. 158)

The basic features of the Davidson plan involve the issuing of an international reserve asset to provide liquidity in the form of the IMCU, which would be held exclusively by central banks. IMCUs would only be convertible into the deposits of a nation's currency in the clearing union and act as a unit of account between central banks. An overdraft facility would also be created for short-term creditor balances and a trigger mechanism established to prevent creditor nations from accumulating excessive credit balances as a result of running persistent current account surpluses: 'The excessive credits can be spent in 3 ways: (1) on the products of any other member of the clearing union, (2) on new direct investment projects and/or (3) to provide unilateral transfers (foreign aid) to deficit members' (Davidson, 1992–93, p. 160). Davidson also recommends the forcible confiscation and redistribution of the surplus countries' credits to the deficit countries in the unlikely event that these credits are not eliminated. On the other hand, if a deficit country experiences persistent current account deficits at full employment, this would constitute evidence that the country is living beyond its means and cannot maintain its existing standard of living. In this case, the deficit country would be obliged to undertake an internal adjustment with the imposition of contractionary policies. Davidson's plan effectively abandons Keynes's original idea of a world central bank and substitutes a more modest international clearing union, which would issue IMCUs. However, the basic Keynesian idea of shifting the burden of adjustment to the surplus countries forms the cornerstone of the Davidson plan. These arrangements would doubtless impart an expansionary rather than a contractionary impetus to the global economy.

It should be conceded that despite the desirability and urgency of these reforms, the outcome will be ultimately determined by the configuration of international political power and geo-political imperatives. It appears that the US monetary authorities would be very reluctant to surrender their privileges of dollar seigniorage until the outbreak of a major dollar crisis. The present international monetary system hinges upon very fragile and perilous foundations. The whole system is essentially governed

by the willingness of surplus countries (mostly in East Asia) to continue to accumulate US dollar reserves in order to finance successive and cumulative US balance of payments deficits. This very delicate 'balance of financial terror' to paraphrase Summers (2004) can be described in Gramscian terms as a state of 'catastrophic equilibrium' which is propagated purely on the basis of political convenience but which could quite easily unravel with devastating consequences reminiscent of the 1930s experience.

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