

ECONOMICS FOR A NEW ERA

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Abstract

Mainstream macroeconomic research will, no doubt, take cognisance of the new challenges that became evident during and after the recent financial crisis in the sense that particular market phenomena such as risk miss-pricing were difficult to assess in terms of conventional models. It is argued that this defectiveness can be explained in terms of the particular Walrasian view of markets adopted by mainstream economics. This market view appears to have serious deficiencies which can be eliminated by opting for alternative market models. The Marshallian view of markets appears to be more helpful in developing a systematic explanation of macroeconomic events. Moreover, this opens the possibility of accommodating real world time, learning and market adjustments that tend towards equilibrium but sometimes fail in achieving this owing to disequilibrating forces.

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1. Introduction

The Great Recession of 2007-2009 is likely to have a definite effect on the future research programme of mainstream economics. This event has challenged the basic methodology of modern macroeconomic analysis. This should be seen as a positive development in shaping a revised research programme. The mere size and global extent of this crisis is not only affecting economics but many aspects of the financial sector and real sector activities as well.

Mainstream scientific progress is often characterised by an uncritical rejection of alternative intellectual paradigms. Mainstream economics is no exception to this as has been claimed by Goodhart (2009) with reference to the dismissal of important contributions in respect of financial fragility by Minsky as well as efforts to accommodate bank defaults in macro modelling. At this juncture it is of importance to accommodate new thinking in order to accomplish better real world relevance in economics.

The present challenges to mainstream economics will be illustrated below in terms of the central role of markets in economic analysis and the particular view of markets as it has been envisaged by mainstream economics. It will be demonstrated to what extent fundamental aspects of this view have been challenged by the Great Recession. The first paragraph below describes the neo-classical Walrasian view of markets. This is followed by an exposition on the Marshallian approach to markets and thereafter we discuss the role of human behaviour and time in understanding markets. Our market view is then applied in assessing the ability of mainstream economics to analyse the Great Recession. Finally we report our conclusions.

2. The neo-classical Walrasian view of markets

In neo-classical economics markets are envisaged as a mechanism that allocates resources in the most efficient way in response to relative price differences. This thinking adheres to perfect competitive markets that are dependent on the information on prices. Price information is disseminated by the Walrasian auctioneer who supplies

this information free of charge. The allocation process of markets is induced by relative price differences and reallocation as well as market adjustments take place instantaneously. In a similar way that the Walrasian auctioneer provides information without charge, the adjustment process associated with reallocation, occurs without cost. In view of the central role of the Walrasian auctioneer in disseminating information this intellectual framework is known as one of price takers. Moreover, this exposition has no time framework. In essence it is a static view of the world that does not take cognisance of uncertainty. This is equivalent to an equilibrium exposition of constantly clearing markets where equilibrating forces permanently overrule disequilibrium conditions. Uncertainty here refers to Knightian uncertainty that excludes the possibility of assigning probabilities to the outcome of uncertain events. The Walrasian analysis makes an important contribution by emphasising simultaneously interconnected markets. In general this system is associated with equilibrium, particularly in the long term owing to the availability of information together with no cost of adjustment. The equilibrium feature of the Walrasian system should not be isolated as its only characteristic since Bénassy (1993) demonstrated the possibility of non-clearing markets within this framework. This outcome is achieved by introducing the so-called rule of the minimum or rationing.

If we consider a particular market k within a system of n markets and denote the actual demand and supply of goods by s and d respectively while the desired quantities that market agents wish to trade by s^p and d^p the rule of the minimum can be formulated as follows for $k \in n$

$d = s = \min (d^p, s^p)$, which means that for

$d^p \neq s^p \Rightarrow d < d^p$ and or $s < s^p$

The important constraint in this analysis is that the rule of the minimum or rationing of supply and demand does not occur in the same market. If it does, these agents on the “short side” of the market can realize market clearing through further trading activities. The special feature of rationing is that it allows agents with $d^p \neq s^p$ to trade in other inter connected $n - k$ markets. In this sense there is non-clearing markets but this is a voluntary condition that is eventually (in the end) resolved through trading in the $n - k$ markets. There is no market failure. The absence of market failure or the inability to explain involuntary unemployment within this analytical framework signals a deficiency in explaining real world phenomenon.

New classical economics complemented this analysis by abandoning the Walrasian auctioneer but recapturing it in the sophisticated framework of rational expectations. The latter is closely related to the efficient market hypothesis that claims that market information is reflected in the price of, say an equity stock, on a particular day while the price of the following day will reflect all the available news of only that day. As indicated by Malkiel (2003) this hypothesis has been criticized extensively and behavioural finance has gained influence on this hypothesis. This is particularly the case under volatile market conditions when the mathematical constraints of its associated random walk pattern are unlikely to be satisfied.

Rational expectations originated with Muth (1961) and claims that market participants will acquire all relevant information to form expectations about the future. There is no cost associated with these efforts. In forming expectations market participants do not make systematic errors. They have access to the correct economic model while uncertainty is excluded. In essence this is a sophisticated formulation of the information disseminating Walrasian auctioneer of neo-classical economics. The rational expectations hypothesis has an important defect in that the envisaged expectations are converging expectations. As indicated by Torr (1984), they converge towards the known model of the economy as suggested by new classical theory. As has been argued by Lachmann (1973), under converging expectations market transactions are unlikely to occur. They happen in the event of diverging expectations. In accordance with the hypotheses of neo-classical Walrasian economics the new classical framework accepted that the economic system was basically stable with effective market clearing. Government policies were regarded as interventions that disturb a stable economy. Moreover, rational expectations secured information about policy actions so that they were fully anticipated by market agents. Policy actions were not regarded to have any effect on real variables, at least not in the long term, except when they came as a surprise. This outcome supported the view that money is neutral i.e. it does not affect the real sector.

Apart from the rational expectations hypothesis, new classical economics embarked on the real business cycle or equilibrium business cycle research programme. This work is particularly associated with Kydland and Prescott (1982). Following the neutrality of money hypothesis, the presences of cyclical economic patterns were explained in terms of real shocks, notably technological shocks. In this sense the theory opened up the possibility of an integrated approach that accommodated economic growth with cyclical developments. Economic agents adhered to optimisation rules so that economic instability caused by cyclical events were not welfare reducing phenomena but Pareto-optimal outcomes based on optimisation behaviour of rational economic agents. Unemployment featured as a voluntary affair, a deliberate choice by economic agents. They were, so to speak, on holiday in the terminology of Krugman.

This school of thought was unsuccessful in defending this particular version of Walrasian economics as this intellectual framework appeared to have little real world content. Nevertheless, the particular feature of individual economic agents that adhered to optimal behaviour rules inspired renewed research on the so-called micro foundations of macroeconomics. The typical Walrasian choice theoretic experiments started to feature prominently in the analysis. In order to give these choice theoretic experiments a macroeconomic content the optimal behaviour patterns were aggregated as representative agents. Although this appeared to be a new development within macroeconomics we have to emphasise that microeconomic foundations were well-known within macroeconomics prior to this emphasis by new classical economics, as it was associated with general equilibrium analysis within macroeconomics. General equilibrium was not necessarily associated with the Walrasian analysis as, for instance, indicated by Weintraub (1979). The new classical preference for a Walrasian general equilibrium approach is evident in terms of their emphasis on Pareto-optimal behaviour rules that offered the promise of a perfect match with the Walrasian choice theoretic framework where uncertainty and non-clearing markets were unknown features. Individual optimising agents in consumption were combined with optimising behaviour in production in a way that, unfortunately, does not fit the real world of a decentralised market economy as argued by Solow (2008)

The emphasis on micro foundations in new classical economics could also be explained as a reaction to the so-called Lucas critique as argued by Ryan and Mullineux (1997). This critique claimed that large scale macroeconomic models are unsuitable for economic prediction, or policy assessment, because optimizing economic agents will react to policy changes and the parameters of the model, that are based on past observations, will no longer be valid. In order to accommodate the Lucas critique the behaviour of economic agents had to be included in the model to reflect their optimal behaviour and expectations in terms of choice theoretic micro foundations under rational expectations.

2.1 The new neoclassical synthesis

As indicated by Mankiw (2006), new Keynesian economics not necessarily rejected the neo-classical-Keynesian synthesis but envisaged an extension of this analysis by using the tools of microeconomics. This research agenda explored the conditions of non-clearing markets and the effect of money on real economic variables, even under the assumption of rational expectations. This research emphasised the significance of price setting behaviour by firms under imperfect competition and the failure of market clearing owing to certain rigidities. These are, for instance, explained in terms of “menu costs” that discourage firms to change prices readily or “efficiency wages” that firms pay their workers in excess of the market clearing price to secure productivity performance by workers. New Keynesians accept the existence of heterogeneous labour together with asymmetric information to market participants. Moreover, they allow for markets with coordination failure. The essence of this approach implies an acceptance of market adjustments through income changes as opposed to price changes. In order to achieve this, certain constraints were introduced on price adjustments. Analytically this amounts to selecting a Keynesian adjustment process as opposed to a Walrasian one.

The new neoclassical synthesis, a term used by Goodfriend and King (1997), refers to a synthesis between new classical and new Keynesian macroeconomics, as for instance discussed by Woodford (2009) and Mankiw (2006). This implies that the choice theoretic market framework of new classical economics, together with its integrated approach regarding economic growth and business cycles are, metaphorically speaking, accommodated under the same roof with an analytical framework that accepts non-market clearing. Moreover, the non-clearing feature is achieved through the existence of certain rigidities regarding price setting by market participants. As if these contradicting elements were not enough, the assumption of rational expectations was maintained.

Price setting conduct emerged as an important element of the new intellectual framework. The microeconomic nature of price setting appealed to the new classical Walrasian approach and it became part and parcel of its new micro foundations. There is, nevertheless, a vast difference between new Keynesian price setting behaviour as micro foundations as opposed to Walrasian micro foundations. The latter are choice theoretic individual experiments while the former can better be described as market experiments. The synthesis qualifies as a general equilibrium system with strong emphasis on the inter connection between markets. Its dominating analytical features are Walrasian in nature. As indicated above, the synthesis is burdened by several contradicting analytical elements. Its important tool of analysis and policy simulation is the Dynamic Stochastic General Equilibrium Model (DSGE).

In view of the prominence of pricing behaviour together with the new Keynesian Phillips curve in DSGE models, it is important to acknowledge the progress in research regarding price setting conduct. Álvarez (2008) reviewed 25 theoretical models in terms of their ability to match micro stylised facts. The outcome of his analysis is that most models are not supported by the data. Moreover, most models that are presently featuring prominently in DSGE models fail in complying with micro data. Recently Creamer (2010) conducted similar research on price setting conduct in terms of South African micro data. This research confirms the difficulty of these models in matching South African micro data.

Some observations on the analytical features of this research are in order. The principle of sticky but variable prices is supported by the evidence. The absence of heterogeneity in the frequency of price changes is an important assumption in this literature but refuted by the evidence. Closely related to this feature is the hypothesis on continuous price setting conduct that does not find support in the evidence. Moreover, the hypothesis that firms set prices in terms of optimal rules is rejected by the evidence. The outcome of this research is that the hypotheses regarding pricing conduct in DSGE models are lacking real world relevance.

An important real world consequence of the outcome of this research for DSGE models is the fact that if allowance is made for heterogeneity in price setting conduct then monetary shocks have larger and more persistent real sector effects than suggested by conventional DSGE models. Moreover, a notable fraction of firms follow non-optimal price setting procedures. This means that the Walrasian micro foundations of new classical economics that are featuring prominently in new Keynesian economics and DSGE models in particular, are not supported by the evidence. Furthermore, non-optimal pricing means that nominal shocks are likely to have larger real sector effects than is suggested by the new synthesis. In fact, the synthesis is favouring Walrasian microeconomic assumptions to new Keynesian assumptions.

Economic theory emphasises the importance of heterogeneous pricing behavior. Hicks (1965 Ch. 7) distinguished between flexprice and the fixprice theories while associating the fixprice with macroeconomics. Fixprice markets do not necessarily change whenever supply and demand are unequal. That is what characterises flexprice markets. Fixprice models are dependent on non-perishable stocks so that, in the absence of equilibrium, the non-clearing features are carried to the future. This explicit emphasis on heterogeneous market processes in the literature has been overlooked by price setting conduct models as we know them today.

3. The Marshallian market view

The Marshallian market approach is focusing on the industry and a period analysis (Marshall, 1920:274-275). In the short period, or also referred to the ultra-short period, supply is not determined by the cost of production but by stocks. In this respect we are reminded that in this instance Marshall was discussing a country corn market (p.277). In the long period cost of production influences supply while in the very long period supply will be influenced by the cost associated with the production of inputs. In the Marshallian exposition the market clears through the forces of supply and demand that determine the price at which equilibrium is attained when both are equal.

Our exposition of the Marshallian approach is focused on the short period when the fixed equipment of the industry is given, or the corn market that trades non-storable goods.

Hicks (1989) gave an exposition on the Marshallian industry in the long period. The short-term price setting in the corn market is not dependent on the Walrasian auctioneer but on the bargaining process conducted by sellers and buyers. The bargaining process may result in prices that are not necessarily equilibrium prices. They are described as “false” prices. As indicated by Hicks (1965) these “false” prices redistribute purchasing power. If they are too high in comparison with the clearing price, the income effects of the redistribution favour the sellers and *vice versa* it favours buyers if it is too low. Hicks regarded these income effects to be limited so that they do not overrule the adjustment process. The question about the market form in the Marshallian exposition is somewhat complicated. It is evident that it is not Walrasian perfect competition but Hicks (1965) suggested that although Marshall adhered to perfect competition, his firms are not price makers. As mentioned above, prices are determined by the flexible process of the market bargaining process (Marshall, 1925:277-278). During the short period this process will, in the end, result in a price that is determined by supply and demand. In achieving this result the bargaining process lacks the instantaneous adjustment of Walrasian analysis while allowing for ignorance on the part of market participants as some trading will occur at “false” prices. As indicated by Hicks (1946:127-129), this Marshallian market bargaining process was effective in achieving the flexibility whereby prices could move up or down. He did not have to revert to “recontracting”, an important element in the exposition by Edgeworth. In the latter analysis, trading at a fixed price that happened to be a non-equilibrium price could be reversed through recontracting that secured trading at the equilibrium price.

The Marshallian market has several important features within the framework of micro foundations. As opposed to the Walrasian individual choice theoretic framework with its Pareto optimal equilibrium features, the Marshallian approach considers the market adjustment to be driven by market participants through a bargaining procedure. This feature renders the Marshallian market suitable for a decentralised market economy as opposed to the Walrasian one that suits a centralised economy. Under present institutional arrangements real world markets perform within decentralised market economies. Market participants do experience a degree of ignorance regarding the adjustment and “false” trading is not excluded. As indicated by Leijonhufvud (1968:50-55) the Marshallian market is characterised by quantity adjustments. Similarly Weintraub (1979) emphasised the Marshallian process as a market outcome. In terms of micro foundations one infers that the Marshallian market outcome is a market experiment relying on bargaining while adjustments are quantity driven. Moreover, the adjustments towards equilibrium are not all perfectly matching events. They are not instantaneously achieved. This is very different from the individual choice theoretic Walrasian experiments.

In macroeconomics where aggregate variables are important, our interest is primarily focused on market outcomes that are the result of bargaining activities conducted by market participants. This means that the real world of macroeconomics appears to be behaving in a manner that is more Marshallian than Walrasian. This does not mean that we have to abandon studying interconnected markets or for that matter abandon general equilibrium analysis. This methodology is not a Walrasian monopoly. In this respect Hicks (1937) presented his interpretation of Keynes’s *General Theory*, that became known as the IS-LM model, as Marshallian theory. Moreover, as indicated by Leijonhufvud (1968), Keynes himself followed the Marshallian as opposed to the Walrasian market adjustment process and this is a fairly general methodological interpretation as, for instance, also argued by Weintraub (1979) and De Vroey (2009). In terms of our exposition it is evident that, like the Walrasian analysis, the Marshallian

approach can accommodate the study of interconnected markets. The Marshallian analysis can claim superiority in its handling of inter market pressures, spillover effects and transmission mechanisms within interconnected markets. A modern example of an application of these principles is Romer (2000). The Marshallian market experiments appear to be more in accordance with macroeconomic events. What renders the Walrasian approach unworkable in the real world is that we do not have representative agents to assist us in aggregating individual choice theoretic outcomes.

3. Markets, human behaviour and time

The market features that we identified under the Marshallian approach will now be extended with more emphasis on human behaviour, the market process and the importance of time.

Von Mises (1963:315) referred to the typical neo-classical view of markets as anonymous automatic forces that activate the allocation mechanism. As opposed to this, Von Mises described the market as a social body in the sense that market outcomes are the result of active human participation. The interactions between market participants determine the exchange ratios in terms of which trade is conducted. The market is seen as a process that is driven by the actions of people.

The market as a process has been an important discovery that opened up the possibility of introducing human behaviour as well as dynamic elements of time. Lachmann (1986) distinguished different market processes namely, intra-market processes, inter-market processes and macroeconomic processes. These processes are typical of a market economy comprising a network of markets in a decentralised economy. The second type of process is of particular importance to us because inter-market processes are originated in markets that are in disequilibrium. Excess pressure can thus be transferred between markets and in this sense we refer to market spill over effects. These are primarily evident in intertemporal markets. Inter-market processes will take our market analysis beyond the interconnected market phenomena of Walrasian economics. As indicated above, in accommodating these inter-market processes our analysis will be more in accordance with real world markets as opposed to neo-classical markets.

Market processes can be influenced by expectations and as indicated by Lachmann (1986:17-18) expectations are of particular importance in asset markets such as equity and bond markets. In the event of convergent expectations market participants will not conclude transactions. Only under conditions of diverging expectations are transactions feasible.

Market processes open another aspect of dynamic markets in the sense that market participants act in terms of their plans regarding transactions that will enable them to achieve specific goals. Markets could therefore play an important role in disseminating information that could assist market participants in formulating their plans. In this sense the anonymous allocative function of markets, as emphasised by Walrasian economics, is explicitly substituted for a framework which not only accommodates human behaviour but markets feature as information disseminating institutions as indicated by Strydom (1994). Markets are usually associated with the dissemination of price information but they could also disseminate other information such as fairness, reliability or integrity (see Akerlof and Shiller, 2009). Moreover, in the Marshallian framework the market process is dependent on income changes as opposed to price changes. In this exposition it is not of material importance whether one chooses an income or price changing mechanism.

This choice is dependent on the assumptions underlying the analysis. The Keynesian approach in *The General Theory*, for instance, was based on income adjustments coupled with price rigidity. This short-term framework has been explicitly adopted by new Keynesian economics.

Having recognised the presence of human activity in the market process it is easy to extend this thinking pattern by taking cognisance of human behaviour. Keynes (1936, chapter 9) explicitly recognised the importance of this element but he linked human behaviour explicitly with uncertainty. In similar vein behavioural economics elaborated on human behaviour as related to market outcomes as explained by Akerlof (2002). By analysing microeconomic behaviour patterns of individual market participants the importance on non-clearing markets and involuntary unemployment could be presented within a logical framework of, for instance, asymmetric information, efficiency wages and rule-of-thumb pricing behaviour. These market rigidities have been extensively applied by new Keynesian economics in achieving interesting results regarding non-clearing markets and the significance of money in the economic process.

We conclude our exposition on markets by introducing time. The presence of time enables a dynamic analysis. As indicated by Hicks (1946), in economic dynamics every quantity must be dated. We distinguish two concepts of time. The first is Newtonian time or logical time while the second is Bergsonian or calendar time as has been described by Rizzo (1994) and O'Driscoll and Rizzo (1985). In Newtonian time each moment in time has no relation to what has happened earlier or what is still to take place. There cannot be any novelty going from one point in time to the next. Put differently, Newtonian time merely implies a connection between different static states. It is this concept of time that has been embraced by neo-classical economics and its application by mainstream economics is clearly illustrated by Wickens (2008:203-229).

The Bergsonian time framework or calendar time involves a progression in knowledge by individuals through time and it will be reflected in their revised plans of action. In this respect Lachmann (1986:4) made the crucial observation: "Time cannot elapse without the state of knowledge changing". The passage of time enables individuals to experience new opportunities whereby their present knowledge is linked to the past as well as expectations of the future. This dynamic evolution of knowledge and skills is reminiscent to "learning by doing" in terms of Arrow (1962).

Equilibrium economics is unfeasible within a Bergsonian time framework since "equilibrium is continually destroyed ... as individuals face a continual flow of novelty" (Rizzo, 1994:114). A recent study by Carolyn Ardington (2008) is an example of an application of this time framework. Ardington studied the schooling performance of children affected by parental death owing to HIV/AIDS in South Africa. The research relies on observations on the schooling outcomes of the same children followed through time with the death of parents recorded as they occur. Here we see the importance of changing knowledge through calendar or Bergsonian time.

Returning to Keynes we establish his preference for applying Bergsonian time. He distinguishes the theory of shifting equilibrium as "the theory of a system in which changing views about the future are capable of influencing the present situation. *For the importance of money essentially flows from its being a link between the present and the future*" (Keynes, 1936:293 italics in the original). Critics tend to associate *The General Theory* primarily with activist fiscal policy that appears to be valid in the special case of

the liquidity trap. This view overlooks the contribution by Keynes in taking cognisance of human behaviour in the development of his analysis while acknowledging the importance of uncertainty. Moreover, today we would classify his analysis within the Bergsonian time framework. The assessment by Lange that his work was merely a special case of Walrasian analysis, as reported by Schumpeter (1954:1082), does not hold in terms of our analysis.

4. Mainstream economics and the Great Recession

The financial crisis that started in 2007 has already been analysed extensively in the literature and will not be revisited here. In terms of our market approach it appears to be reasonable to relate the different factors that have been signaled out in explaining the crisis to be the miss-pricing of risk. We distinguish private as opposed to public sector risk to include the European sovereign debt crisis of 2010 and the following year with the miss-pricing of sovereign risk. The miss-pricing of private sector risk eventually resulted in institutional market collapse. In this respect we refer to the devastating effects on the international property market as well as the collapse of the interbank money market with the downfall of Lehman Brothers. Similarly, the miss-pricing of sovereign risk disrupted capital markets, particularly in the Eurozone. Moreover, the miss-pricing of sovereign debt risk and the sharp fall in the price of Eurozone public debt instruments that followed, disseminated a clear message that the Eurozone welfare state had become far more expensive than suggested by the subsidised price of public sector borrowing, particularly in the European periphery countries.

The question that we are going to address in this section is whether mainstream economics is analytically equipped to analyse the miss-pricing of risk as discussed above and following from this, whether it can be of assistance in understanding the Great Recession. Following our market approach the answer is an unambiguous no because mainstream economics embraces the neoclassical Walrasian view of markets. As we have indicated, this comprises a static view of markets, a perception of anonymous markets, in the terminology of Von Mises that cannot accommodate the human behaviour associated with the miss-pricing of risk. In the Walrasian equilibrium framework there is no room for risk miss-pricing. Such surprises simply do not happen. A pertinent feature of the Great Recession was the importance of market spill overs. The markets in disequilibrium started spill over effects domestically but, more importantly, on a global basis. We were witnessing spatial market spill overs on a scale unknown before. The financial crisis became a global event. These dynamic effects fall outside the analytical framework of a static equilibrium framework. These remarks require a closer analysis.

The special position of the Walrasian analysis and its particular market perceptions were evident in economics over a long period. It is primarily in new classical economics that this position again occupied a prominent place. The different elements of this can be related to the equilibrium nature of the analysis. Moreover, in view of the information disseminating Walrasian auctioneer the analysis could not address any problem associated with uncertainty. In new classical economics these Walrasian elements were captured in the sophisticated framework of rational expectations. As has been indicated above, rational expectations is a concept that is closely related to the efficient market hypothesis but in new classical economics it captured the features of the Walrasian auctioneer and in this format it entered mainstream economics. The outcome of this analysis was that money had no real sector effects, the so-called neutral money doctrine. Looking at the financial crisis and the specifically monetary effects that did not

only affect the financial sector adversely but also the real sector, it is evident that this analysis does not have the theoretical tools to explain these events. The essence of time coupled with knowledge progression, as we have described above, does not feature here.

New classical economics probably made a substantial contribution towards the development of market fundamentalism. This is an intellectual belief that markets are bound to converge on the equilibrium solution because of the inherent stability of the economic system. Corrective measures were seen to be disruptive and in the event of systemic failure the proposed strategy was to stay put and clean up the mess afterwards. The experience of the Great Recession has unequivocally challenged the intellectual wisdom of this fundamentalism. In terms of our exposition this reasoning is perfectly valid under rational expectations where expectations converge on the relevant economic model that eliminates uncertainty in a similar fashion as the Walrasian auctioneer. We have indicated above that this framework of analysis is of little help in understanding the real world.

We turn to the work horse of mainstream economics, the DSGE model for a closer assessment. Our analysis above shows that the microeconomic foundations of these models, in their present format, reveal a number of deficiencies. We have argued above that the individual choice theoretic applications are inspired by typical Walrasian elements so that human behaviour in the sense of adjustment through time is missing. Phelps (2007) referred to such models as being conspicuous in the absence of people. The adjustment process that is intended to be associated with human behaviour does not exist in this framework with its instantaneous adjustments without uncertainty. Moreover, in terms of time we identify a Newtonian time presentation. There is no progression in knowledge in this micro foundation. The logical time framework is not helpful in understanding the real world. The Pareto optimal individual behaviour in the equilibrium business cycle component of these models is denying real sector effects coming from financial disruptions. This view has recently been defended by Ohanian (2010) in his new Keynesian analysis of the Great Recession. The outcome of his analysis is an explicit challenge of the financial explanation of the Great Recession. The main emphasis in explaining the crisis returns to technology shocks and policy errors as real business cycle theory would have it.

Turning to the non-market clearing aspects of mainstream economics we have already indicated above that the accommodation of new Keynesian market rigidities within the individual choice theoretic general equilibrium framework is subject to important logical contradictions. Moreover, we have argued that the particular price setting conduct that features so prominently in these models is contradicted by micro evidence. Over and above this empirical problem we have serious concerns about the methodological inconsistencies of these models.

In terms of our market approach it follows that mainstream economics has been unable to develop an analytical framework to analyse the miss-pricing of risk during the Great Recession. The reason for this is that the analysis is embracing the static market framework of neo-classical Walrasian economics. Within this framework mainstream economics have developed equilibrium models where money often features as a monetary shock but in the absence of an explicit money transmission mechanism. The analysis cannot accommodate similar financial shocks as we have experienced during the Great Recession. As indicated by Goodhart (2009) the famous DSGE models run

with a single interest rate that applies equally to all economic agents. Risk premia cannot feature in such a framework and in terms of our exposition risk premia are important market phenomena that were very prominent during the Great Recession.

Following on the view expressed by Goodhart, above, it is important to elaborate on this particular issue. During the recent financial crisis, whether we consider private or public sector risk miss-pricing, interest rate spreads featured prominently in the daily market assessments. This important phenomenon falls outside the present new Keynesian macro models. The significance of these widening interest rate spreads during the financial crisis signaled the absence of arbitrage activities. They were absent because of uncertainties that discouraged portfolio switching. In terms of the Marshallian market view this means that the bargaining process became stuck, with eventual market failure. In modern parlance it is referred to as a Lehman moment. Recently Woodford (2010) acknowledged the significance of multiple interest rates. In terms of our exposition this is an important challenge to macroeconomic research but again, in terms our exposition above, these phenomena are typical market experiments that cannot be addressed effectively by the individual choice theoretic Walrasian framework of new Keynesian economics.

In a recent paper Bernanke (2010) encouraged the inclusion of banking and credit relations in DSGE models while he reported on new research in this direction. Although the importance of including these financial and banking aspects into the analysis is acknowledged, it should be emphasised that the financial crisis was triggered by the so-called shadow banks, not the fully regulated banks. More importantly, it appears that we still have to make substantial progress in macroeconomics in order to understand that the intermediation process by banks has changed radically from the so-called originate and hold business model to the originate and distribute model. Moreover the funding of banks via the interbank and money market as opposed to conventional deposit taking are complicating issues that should not escape our attention in developing new models. Researching these issues is becoming an imperative in macroeconomics. Progress in this direction is only possible if the research agenda allows for disequilibria. This does not mean that our analysis is rejecting the importance of the equilibrium concept in economics. We reject the biased approach that embraces equilibrium analysis without taking cognisance of disequilibrating forces evident in the real world.

Conclusion

We developed a market approach in order to assess the ability of mainstream economics to analyse the Great Recession effectively. Following our approach we isolated the miss-pricing of risk as a major feature of the financial crisis. We demonstrated that in its development, mainstream economics made an important trade off. It embraced the static neo-classical Walrasian market framework in order to achieve mathematical elegance as opposed to a real world friendly dynamic market view but with less mathematical appeal. The outcome of this trade off is that mainstream economics could be described as static equilibrium economics with Newtonian time. The dynamic features of human behaviour, uncertainty, monetary transmission channels, calendar or Bergsonian time with changing knowledge, market spill overs in a local as well as a spatial sense have no place in equilibrium economics that subscribes to Newtonian time. It is evident that, in its present form, it is not in a position to explain an important market phenomenon such as the miss-pricing of risk. We have demonstrated that the individual choice theoretic framework of new Keynesian economics is not very helpful in understanding macroeconomic phenomena. In the real world we do not have

representative agents to aggregate these phenomena on our behalf. Market experiments as suggested by the Marshallian market approach appear to be more appropriate in understanding macroeconomic phenomena. In this respect macroeconomic models could make a leap forward by taking multi interest rate patterns into account to accommodate interest rate spreads because they reflect real world uncertainty. In similar vein, financial intermediation and the spill over effects on the real sector should feature prominently in our research programme.

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