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# HOUSING BUBBLE AND ECONOMIC THEORY: IS MAINSTREAM THEORY ABLE TO EXPLAIN THE CRISIS?

*Giancarlo Bertocco*

## **Abstract**

The current crisis in the global economy is considered on a par with the Great Depression of the 1930s. We can therefore ask whether the crisis will lead economists to revise the mainstream theory. The first result presented in this paper is to show that the traditional theory does not permit the formulation of a coherent explanation of the causes of the crisis because it uses concepts that are not coherent with the dominant theory of finance. The second result is to show that these concepts are coherent with a theory of finance that can be elaborated on the basis of the lesson of Schumpeter, Keynes and Minsky.

## **Introduction**

The financial crisis that erupted in the summer of 2007 with the collapse of the *subprime* mortgage market gave rise to a severe economic crisis. Because of its scale, the current crisis in the global economy is considered on a par with the two exceptional economic phenomena of the twentieth century: the Great Depression of the 1930s and the stagflation of the 1970s.

Both of these events caused economists to radically alter the theoretical model they used to interpret the working of the economic system. The Great Depression undermined confidence in the classical theory that considered the crises as accidental phenomena that would be spontaneously resolved by the normal working of market mechanisms. In 1936, in the *General Theory*, Keynes presented a new theory that instead postulated that crises are structural phenomena and that public sector intervention could prevent and attenuate the effects of such crises.

The stagflation of the 1970s led economists to question the capacity of keynesian policies to ensure high growth rates associated with low, or at least stable, rates of inflation. Milton Friedman wrote a strong critique that showed that keynesian policies were effective only in certain conditions that did not seem to be present in those years. This critique constituted the theoretical basis for the monetarist counter-revolution, whose basic tenet was that the excessive presence of the state in the economy, considered a nefarious consequence of keynesianism, was the underlying cause of the stagnation that characterised the global economy. To overcome the crisis it was necessary to allow the markets to function fully by reducing the presence of the state; this approach was put into

practice, starting in the 1980s, through the policies of privatisation and liberalisation carried out by Reagan and Thatcher, and has been accepted over the past forty years by the majority of economists.

We can therefore ask whether the current crisis will, as was the case with the two historic crises, lead economists to revise the prevailing theoretical model. Of course, the economists who are most closely associated with this model hold that no theoretical counter revolution is necessary; they believe that the mainstream theory constitutes a solid base on which to elaborate a satisfactory explanation of the causes and the characteristics of the crisis.<sup>1</sup> In this paper the opposite thesis is put forward, namely that the crisis should make economists alter their theoretical model substantially.

The first result presented in this paper is to show that the traditional theory does not permit the formulation of a coherent explanation of the causes of the crisis. It will be shown that the explanation of the origin of the crisis elaborated by mainstream economists uses concepts that are not coherent with the dominant theory of finance; in other words, it will be postulated that the explanation of the crisis elaborated by mainstream economists contains concepts that bring to the fore the limits of the theory of finance that they accept. The second result presented is to show that the concepts on which the mainstream explanation of the crisis is based are coherent with a theory of finance that can be elaborated on the basis of what we can learn from such economists, considered to be heterodox, as Schumpeter, Keynes and Minsky.

The paper is divided into three parts. The first part contains a brief description of the most important aspects of the crisis. The second part deals with the mainstream theory; the main elements of this theory of finance are recalled, after which the mainstream explanation of the origin of the crisis is analysed and it is shown that it is not coherent with the traditional theory of finance. In the third part a theory of finance is presented that allows us to give a theoretical foundation to some concepts that characterise the mainstream explanation of the origin of the crisis and to elaborate a coherent explanation of the phenomenon of the financial crises.

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<sup>1</sup> Taylor, for example, maintains: “The recent crisis gives no reason to abandon the core empirical ‘rational expectations/sticky price model’ developed over the past 30 years – whether you call this type of model ‘dynamic stochastic general equilibrium, ‘new Keynesian’ or ‘new neoclassical’” (Taylor 2010, p. 5). See also: Cochrane 2011.

## 1. A brief description of the crisis

The principal characteristics of the crisis in the global economy caused by the bursting of the housing bubble can be summarised as follows:<sup>2</sup> i) the financial crisis erupted in the United States, that is within the most developed financial system in the world, and it affected the entire global economy; ii) the financial crisis was triggered by insolvencies within a component of the mortgage market, the *subprime* mortgage market; iii) the collapse of the *subprime* mortgage market, although it constituted a relatively modest component of the financial system, had devastating effects on the financial system. Many banks failed, with the most impressive being the bankruptcy of Lehman Brothers in September 2008, and many financial institutions were saved due to the intervention of the governments of various countries; iv) the paralysis of the international financial system caused the worst global recession since the end of the Second World War.

This list raises a series of questions: i) what caused the most sophisticated financial system in the world to expand the supply of mortgages, and in particular the supply of *subprime* mortgages, to such an extent;<sup>3</sup> ii) why did individuals with low or no incomes apply for mortgages that entailed repayment commitments which were clearly incompatible with their financial situations; iii) how was it possible that the collapse of a modest component of the financial system such as the *subprime* mortgage market risked endangering the solidity of the whole financial system; iv) finally, through what channels did the crisis in the financial system spread to the real economy, causing a global fall in incomes and employment.

To answer these questions it is necessary to have a theoretical model that specifies the role of finance and that defines the relation, if any, between finance and the real economy. In the next section the most important aspects of the mainstream theory of finance and the mainstream explanation of the origin of the crisis are presented.

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<sup>2</sup> Many studies that describe various aspects of the crisis have been published; see for example: Morris 2008, Cooper 2008, Shiller 2008, Posner 2009, Fox 2009, Cassidy 2009, Acharya and Richardson (eds.) 2009, Stiglitz 2010, Roubini and Mihm 2010, Rajan 2010.

<sup>3</sup> Acharya, Philippon, Richardson and Roubini 2009 report that between 2004 and 2007 in the United States the proportion of subprime mortgages of the total of mortgages granted annually was an average of 43.8 % compared to 27.8 % for the previous eleven years.

## 2. The mainstream explanation of the crisis

### 2.1 *The mainstream theory of finance*

In this section the most important aspects of the traditional theory of finance are summarised.

a) *The finance phenomenon.* The mainstream theory defines the phenomenon of finance starting from saving decisions and investment decisions and it underlines that finance becomes relevant in a world in which the agents that save do not coincide with the agents who invest, that is in a world characterised by the dissociation between investment decisions and saving decisions. The key function of the financial system is to make possible the transfer of the resources saved by savers to agents who invest which we can identify with the firms. The saved resources are transferred by the savers to firms by means of a credit contract; the mainstream theory defines a causal sequence according to which saving decisions determine the supply of credit and therefore investment decisions. The rate of interest is the variable that puts in equilibrium demand for and supply of credit and therefore saving decisions and investment decisions.<sup>4</sup>

b) *The relation between money and credit.* The mainstream theory separates money and credit, that is it clearly separates the money creation process from the credit creation process. Money is created by the monetary authorities while the credit supply corresponds to saving decisions and is therefore independent of the money supply. This aspect of the mainstream theory is well illustrated by Friedman and Schwartz (1980) when they respond to the criticism levelled at the supporters of the quantity theory of money, of not having specified the transmission mechanism that links the variations in the quantity of money to the rate of inflation. They consider this criticism unfounded and state that in order to define this mechanism it is sufficient to recognise that the money market works in the same way

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<sup>4</sup> We can find these concepts in every finance handbook: “On the horizontal axis, we measure the quantity of funds, and on vertical axis, we measure the real rate of interest. The supply curve slopes up from left to right because the higher the real interest rate, the greater the supply of household savings. The assumption is that at higher real interest rates households will choose to postpone some current consumption and set aside or invest more of their disposable income to future use. The demand curve slopes down from left to right because the lower the real interest rate, the more business want to invest in physical capital. Assuming that businesses rank projects by the expected real return on invested capital, firms will undertake more projects the lower the real interest rate on the funds needed to finance those projects. Equilibrium is at the point of intersection of the supply and demand curves...”(Bodie, Kane, Markus, 2009, pp. 115-6)

as any other market; also in the money market the imbalances between supply and demand are eliminated through price variation.

Friedman and Schwartz (1980, p. 26) accuse the critics of the quantity theory of money of confusing the price of money with the price of credit. The price of credit is the rate of interest while the price of money corresponds to the quantity of goods that must be given up to acquire a unit of money, that is the inverse of the price level; this definition is perfectly coherent with the specification of the basic function of money that, according to the quantity theory of money, is its being a means of exchange. An increase in the supply of money will trigger a fall in the price of money and therefore an increase in price levels. This can be explained by recalling that the quantitative theory holds that a rise in the supply of money determines a rise in the aggregate demand. On the contrary, an increase in the supply of credit will not have any effect on the aggregate demand since this originates with the decision of the operators to save more, that is by the decision to give up consuming goods; this decision is perfectly counter balanced by the increase in the demand for investment goods caused by the fall in the rate of interest.

c) *The theory of the financial intermediaries.* According to the mainstream theory the phenomenon of finance is based on the dissociation of saving decisions and investment decisions; this implies that a theory of financial intermediaries should explain the reasons why savers do not transfer the saved resources directly to entrepreneurs, or, likewise, explain what are the services provided by the financial intermediaries which compensate the costs of intermediation (Hellwig 1991, p. 42). The mainstream theory defines these services by observing that, in the real world, the markets are not perfect but there are obstacles, imperfections that make the direct exchange of the saved resources between savers and entrepreneurs difficult. The principal obstacle on which economists' attention has focused since the 1970s is the presence of asymmetric information. According to the mainstream theory the credit market can be compared to the used car market described by Akerlof (1970), who emphasised that the presence of asymmetric information stimulates the creation of agents whose purpose is to reduce the information costs; he considered, in particular, the activity of merchants that specialize in evaluating the quality of the goods exchanged. The banks play the same role in the capital market as the merchants play in Akerlof's used car market; as asserted by Blinder and Stiglitz (1983, p.299): "Imperfect information about the probability of default has several fundamental implications for the

nature of capital markets... it gives rise to institutions – like banks – that specialize in acquiring information about default risk.”<sup>5</sup>

d) *The relation between finance and economic development.* A financial system characterised by the presence of financial intermediaries capable of eliminating the consequences of asymmetric information facilitates economic growth in two ways. First, financial intermediaries make it possible to allocate the saved resources to the most productive investments; in this way they ensure that savers get higher interest rates and this can stimulate saving and thus economic growth.<sup>6</sup> Second, the presence of financial intermediaries ensures that all the resources saved are invested; in a world with imperfect information it can be very risky for savers who do not have sufficient information to directly finance firms. In this case the most risk-averse savers could decide to keep their savings under the mattress instead of investing them in the credit market, so only a part of the saved resources will be translated into investments. The following relation applies (see, for example: Pagano 1993; Chou 2007):

$$1) \quad \lambda S = I \quad 0 < \lambda < 1$$

‘S’ represents the flow of savings and ‘I’ the flow of investments; the value of  $\lambda$  will be lower the higher the level of information asymmetry between savers and firms. The presence of intermediaries capable of eliminating the problems of asymmetric information will drive the value of  $\lambda$  towards one.

e) *The neutrality of finance.* From what we have seen hitherto we can observe that the mainstream theory considers finance as a neutral phenomenon, that is one that does not influence the structure of the economic system. This conclusion is based on two elements. First, the mainstream theory states that it is possible to specify an ideal world characterised by perfect information, in which the savers directly finance firms and in which there are no intermediaries; in this world the rate of interest is determined, as we have seen, by saving decisions and investment decisions. The second point involves acknowledging that, by specializing in information acquisition, the financial intermediaries make it possible to

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<sup>5</sup> See, for example: Fama 1985, Stulz 2001, Watchel 2003, Gorton and Winton 2004, Capasso 2004, Levine 2005, Ferguson 2006.

<sup>6</sup> “The financial sector is important, because the financial intermediaries are responsible for resource allocation. Well-working financial intermediaries improve the efficiency of capital allocation, encourage savings, and lead to more capital formation. (Wachtel 2003, p. 35)



eliminate the obstacles that the presence of imperfect information creates, in the real world, to the achievement of the results which characterize the ideal world with perfect information. The neutrality of financial intermediaries is due to the fact that their presence does not modify the nature of the credit market with respect to the ideal world without imperfections; the key actors which operate in this market are the savers and investors, and the object of the exchange can either be a real good or money.

This characteristic of the mainstream theory is well illustrated by Merton and Bodie (2005), who propose making a synthesis of the different theoretical approaches elaborated in the last few decades to explain the phenomenon of finance. The first approach is *neoclassical finance*, which defines the role of finance in a world without imperfections in which perfectly rational agents operate. This approach therefore determines the prices and the rates of return that arise in the various markets in which the different financial instruments used to transfer the saved resources from the savers to the firms are traded; markets and prices that in the aggregated models are represented by a single market and a single interest rate determined by saving decisions and investment decisions. Merton and Bodie (2005) note that in recent years two theoretical approaches have developed that criticise the hypotheses on which the *neoclassical finance* theory is based. The first one, defined as *new institutional economics*, explicitly considers the effects of the presence of transaction costs and asymmetric information, while the second one, defined as *behavioral economics*, assumes that the agents take their financial decisions in conditions of limited rationality. The two authors hold that these three approaches must not be considered alternative, but rather complementary and they propose a new approach, defined as *functional and structural finance*, realised by making a synthesis of the three. This proposal is justified by the fact that, according to the two authors, the financial institutions, whose presence is overlooked in *neoclassical finance*, make it possible to obtain within actual economic systems, the results that characterise the ideal world described by the *neoclassical finance*; the financial institutions can therefore be considered neutral in that they do not influence the characteristics of the equilibrium that is realised in the ideal world towards which the actual economies converge.<sup>7</sup>

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<sup>7</sup> “The two fundamental tenets of the *functional and structural finance* are: i) neoclassical theory is approximately valid for determining asset prices and resource allocations... but offers little to explain which organizational structures for production and performing various financial functions and which particular market instruments and financial intermediaries will evolve: ii) Neo-institutional and behavioral theories are centrally important in analyzing the evolution of institutions including market instruments and financial

An application of the principle of the neutrality of finance can be found in the mainstream macroeconomic models that completely overlook the credit market and the phenomenon of finance; this framework reflects the fact that according to the mainstream theory the credit market coincides with the goods market. This point has been well explained by, for example, McCallum (1989) who introduces his Monetary Economics text by making explicit the reasons why he looks at the money market, completely leaving aside the credit market; he observes that this decision:

“... rests basically on the fact that in making their borrowing and lending decisions, rational households (and firms) are fundamentally concerned with goods and services consumed or provided at various points in time. They are basically concerned, that is, with choices involving consumption and labour supply in the present and in the future. But such choices must satisfy budget constraints and thus are precisely equivalent to decisions about borrowing and lending - that is, supply and demand choices for financial assets. ... Consequently, there is no need to consider *both* types of decisions explicitly. ... it is seriously misleading to discuss issues in terms of possible connections between ‘the financial and real sectors of the economy’, to use a phrase that appears occasionally in the literature on monetary policy. The phrase is misleading because it fails to recognise that the financial sector *is* a real sector.” McCallum (1989, pp. 29-30)

*f) The nature of the financial crisis.* The mainstream theory considers financial crises as accidental phenomena, extraneous to the normal working of the economic system. As we have seen, pursuant to this theory the fundamental function of financial institutions consists in annulling the effects of the presence of imperfections and of the limited rationality of agents. In this perspective the financial crises can be considered as the consequence of the errors or the improper behaviour of some components of the financial system. This approach is summarised well by Merton and Bodie:

“As we all know, there have been financial ‘incidents’ and even crises, that cause some to raise questions about innovations and the scientific soundness of the financial theories used to engineer them. There have surely been individual cases of faulty engineering designs and faulty implementations of those design in finance just as there have been in building bridges, airplanes, and silicon chips. Indeed learning from (sometimes even tragic) mistakes is an integral part of the process of technical progress.” (Merton and Bodie 2005, p. 3)

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intermediaries, but unlikely to provide significant and stable explanations of asset prices and resources allocations.” (Merton and Bodie 2005, p.6)

## ***2.2 The causes of the crisis under the mainstream theory***

The supporters of the mainstream theory hold that the excessive supply of mortgages and in particular of *subprime* mortgages from the US banking system is due to the presence of a system of incentives that influenced the behaviour of banks by increasing their propensity for risk.

This system of incentives is a consequence of the far-reaching transformation in the financial structure in the last few decades owing to technological changes and deregulation.<sup>8</sup> An important element of this transformation is the spread of the process of securitisation that transformed the banks' operative model from *originate and hold* to *originate and distribute*. In the past, the banks kept on their balance sheets the mortgages granted up to their expiration; they therefore directly bore the risk of a loss due to the insolvency of the mortgage holder. For this reason the banks evaluated very carefully the characteristics of potential mortgage holders. The spread of the process of securitisation and a system of incentives that linked the bank managers' remuneration to the returns obtained, severely weakened the propensity to scrupulously assess the characteristics of the mortgage holder. The banks had an incentive to expand the supply of mortgages also to agents with no capital or with low incomes. The expansion of the mortgage supply was facilitated by the distorted behaviour of another important category of financial agent: the rating agencies who were supposed to evaluate the characteristics of securities offered on the market and whose judgements were heavily influenced by their connections to the agents who issued the securities.

If the system of incentives and the process of securitisation can explain why the banks increased the supply of *subprime* mortgages, we still have to understand how subjects with no capital and with modest incomes could be willing to contract the mortgages that the banks offered them. The reasons behind this are generally pinpointed, both by mainstream and non mainstream economists, by using the concept of the asset bubble. Shiller (2008), for example, observes that the expansion in the supply of mortgages caused a big increase in the demand for houses in the real estate market and therefore a big increase in the price of houses; he notes that between 1997 and 2006 the price of houses rose 85% in real terms, a wholly unique phenomenon considering the entire observation period that starts in 1890, and that cannot be justified either by the rise in the population or the increase in the production costs. He considers this increase in the price of houses as a manifestation of the existence of an asset bubble fuelled by the spread of expectations of a continuous increase

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<sup>8</sup> See for example: Rajan 2006, 2010; Diamond and Rajan 2009.

in housing prices. Shiller (2008) points out that these expectations are founded on the spreading of ‘fairy tales’, that tell the story of the beginning of a new phase in history in which housing prices, for example, are destined to rise continuously. Likewise, Reinhart and Rogoff (2009) observe that in all the crises there is a widespread shared conviction that ‘this time is different’.<sup>9</sup> Thus, we can conclude that the willingness of low income agents to take out the mortgages that banks offered was justified by the fact that they were also convinced that ‘this time is different’ and that the prices of housing would continue to rise; this would have allowed them to substitute the old mortgage with a new one for a higher amount, guaranteed by the higher value of the property.

Of course, no asset bubble can last indefinitely. In the case of the housing bubble the first signs of the crisis were visible in the summer of 2007 when housing prices started to fall and there was a significant increase in insolvencies within the mortgage market; this triggered a rapid fall in the value of securities that had been issued by agents who had bought the mortgages issued by the banks.

Having explained the origin of the bubble, it is necessary to specify the reasons why this crisis, which seemed to involve only a secondary component of the financial markets, risked causing the whole financial system to collapse. One widespread explanation highlighted the fact that the subprime mortgages crisis had a big impact on the banks since a significant proportion of the mortgage backed securities was not sold on the market but stayed within the banking system. This transformed the subprime mortgage crisis into a banking crisis. To accept this explanation it is necessary to identify the reasons why the banks, which should have realised the poor quality of the subprime mortgages, decided to underwrite securities whose returns depended on those of the subprime mortgages. Diamond and Rajan (2009) and Rajan (2010) maintain that this behaviour was determined by two elements: i) the remuneration system of bank managers that led the banks to seek short-term gains by betting on the continuous rise in the price of housing; ii) the Federal Reserve’s pledge, known as the *Greenspan put*, not to intervene to halt the

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<sup>9</sup> “Financial professionals, and, all too often, government leaders explain that we are doing things better than before, we are smarter, and we have learned from past mistakes. Each time, society convinces itself that the current boom, unlike the many booms that preceded catastrophic collapses in the past, is built on sound fundamentals, structural reforms, technological innovation, and good policy.” (Reinhart and Rogoff 2009, p. xxxiv)

rise in housing prices and to intervene only when the bubble burst to limit the consequences.<sup>10</sup>

Moreover, it has been hypothesised that the banks manifested excessive trust in the effects of the financial innovation and they considered the complexity of new financial instruments as a significant indicator of their ability to attenuate the risk.<sup>11</sup> The involvement of the banks can explain the reasons why the financial crisis had such a big impact on income and employment globally; the heavy losses sustained after the bursting of the housing bubble, culminating in the bankruptcy of Lehman Brothers, paralysed the banking system and triggered a credit crunch that had serious repercussions for productive activity.

### ***2.3 The limits of the mainstream explanation***

Different mainstream economists have called the crisis a ‘failure of the market’. Tabellini, for example, states that:

“Without doubt the crisis revealed a serious failure of the most sophisticated markets in the world, the modern financial markets. A crucial task of financial markets is the allocation of risk. The financial sector failed utterly to do this. The risk was underestimated and many intermediaries took on an excessive amount of it.” (Tabellini, 2009)

The banks and the rating agencies driven by distorted incentives supposedly induced the financial system to underestimate the risk and to take on an excessive amount of it. But what risk was underestimated? The answer seems obvious if we consider the explanation of the origin of the crisis summarised in the previous section: the banks, the rating agencies and the other agents of the financial system underestimated the risk of insolvency of the holders of subprime mortgages. As the ability of subprime mortgage holders to reimburse

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<sup>10</sup> “Of course, originators could not completely ignore the true quality of borrowers since they would be responsible for initial defaults, but because house prices were rising steadily over this period, even this source of discipline weakened: the house price rise would give the homeowner the ‘equity’ with which he could finance loan repayment.” (Diamond and Rajan 2009, p. 607)

<sup>11</sup> Tabellini observes that the crisis could be considered as a consequence of an error of evaluation caused by the excessive complication of financial instruments: “A not implausible explanation (of the crisis) is that it was a mere error of evaluation. The financial innovation was so fast that even sophisticated agents were not always able to fully grasp the riskiness of the financial instruments that were created. The systemic implications of these instruments were even less clear. Consequently, many investors overestimated the capacity of resilience of the global financial markets, overlooking the systemic risk and the risk of illiquidity, which instead turned out to be crucial in this crisis. (Tabellini, 2009)

the loan essentially depended on the continued rise in housing prices, we can conclude that the banks, the rating agencies and the other financial operators had underestimated the risk that the housing bubble could burst.

This seems to be a reasonable response which makes Tabellini's statement acceptable; in actual fact this answer is not coherent with the mainstream theory of finance, the key elements of which were summarised in section 2.1. Indeed, this reply applies in a world in which the phenomenon of speculation is prominent and this presupposes the existence of markets in which financial assets are constantly traded, while the mainstream theory applies to a world in which these markets are not present and the phenomenon of speculation does not exist.

To illustrate this point, following the approach of Vernon Smith (1988, 2008), we can distinguish two types of market: the first are markets in which producers and purchasers trade goods that disappear from the market once they have been purchased; the second are markets in which goods that can be sold again at any subsequent time are traded. A speculative bubble can occur only in an economic system in which the second type of market exists where a good can be bought not in relation to the utility its use produces but depending on the price at which it can be sold in the future.

The mainstream finance theory applies to an economic system comprising only the first type of markets, indeed, the presence of the second type of markets characterises an economic system in which the concept of wealth is important, a concept which is difficult to associate with the world described by the mainstream theory. In fact, this theory, as we have recalled, defines the phenomenon of credit starting with the concepts of saving and investment: saving decisions determine the credit supply and therefore the flow of investments; banks are simply intermediaries who eliminate the effects of the presence of obstacles that impede the direct transfer from savers to firms. These relations can be applied to an economic system in which few goods are produced and in which money is a mere means of exchange. The traditional economic theory described the functioning of this economic system using models in which it is assumed that a single good is produced; this hypothesis is a common thread in the work of classic economists, neoclassicals right up to contemporary supporters of the mainstream theory. Smith (1776), for instance, describes the effects of saving decisions on the development of the economic system by considering a world in which only corn is produced; Böhm Bawerk (1884) instead consider a fishermen's economy in which only fish are produced. In these economies the saving corresponds to the amount of corn or fish produced which is not consumed and which can

therefore be used to produce capital goods that will be used to produce more corn or fish; the saving is represented, for example, by the quantity of corn or fish that is used to pay the workers involved in producing ploughs or boats.

It is difficult to associate wealth with this type of economic system; it is unrealistic to hypothesise that, for example, a carpenter is willing to accumulate a big quantity of tables that permit him to purchase at any future time, an unlimited quantity of food or clothing. We can reasonably assume that in this economy there is a limit to the amount of goods that an individual wishes to accumulate and, therefore, that the concept of wealth is hardly relevant.

If we exclude the concept of wealth it becomes unrealistic to assume the existence of markets in which financial assets are traded on the basis of the expectations about the price that they will fetch in the future, and therefore to hypothesise the presence of financial crises caused by the underestimation of the risk of insolvency of those who gamble on the continuous rise in the price of assets. In the economy described by the mainstream theory the only risk is that associated with the presence of asymmetric information; this risk can be described by means of the example used by Stiglitz and Weiss (1990) to describe the role of banks by considering an agricultural economy, in which the object of the exchange is seed to be planted in plots of land having different productivity:

“The need for credit arises from the discrepancy between individual’s resource endowments and investment opportunities. This can be seen most simply if we imagine a primitive agricultural economy, where different individuals own different plots of land and have different endowments of seed with which to plant the land. ... The marginal return to additional seed on different plots of land may differ markedly. National output can be increased enormously if the seed can be reallocated from plots of lands where it has a low marginal product to plots where it has a high marginal product. But this requires *credit*, that is, some farmers will have to get more seed than their endowment in return for a *promise* to repay next period, when the crop is harvested. Banks are the institutions within this society for screening the loan applicants, for determining which plots have really high marginal returns, and for monitoring, for ensuring that the seed are actually planted, rather than, say, consumed by the borrower in a consumption binge” (Stiglitz and Weiss 1990, pp. 91-92)

It is difficult to hypothesise that in this economic system a crisis can occur because of the underestimation of the risk by the banks whose decisions are supposedly influenced by a system of perverse incentives. The risk that banks must face is the one related to the evaluation of the quality of the plots of land and the characteristics of the farmer who wishes to use the saved corn. Of course, it is possible to imagine that there could be a banker who is incapable of assessing the quality of the plots of land or to distinguish a good farmer from a swindler, but that is not sufficient to trigger a crisis. A crisis could manifest itself only if we assume that a large part of the bankers-merchants have become

suddenly incapable of assessing the quality of the terrain or to distinguish a good farmer from a swindler. Moreover, if we consider an economy of this type, it is not even possible to state that the crisis has been triggered by the innovation process which supposedly induced the agents to believe the ‘fairy tale’ of the era which had started thanks to the production of new financial instruments capable of reducing the risk. In an economy in which the credit market has the characteristics described by the example of Stiglitz and Weiss (1990), which are analogous to those of Akerlof’s used car market, the innovation does not lead to the underestimation of the risk but it determines the creation of instruments that permit mechanics to assess with greater precision the quality of the used cars and bankers to better assess the characteristics of agricultural land.

We can conclude that the mainstream explanation of the origin of the subprime mortgage crisis allows us to identify the characteristics that a theoretical model should have in order to explain the process of the formation of financial crises. In the first place, this theoretical model should define the concept of risk in a different way to that which could be associated with the credit market described by the mainstream theory of finance. Second, this model should be able to explain the phenomenon of speculation and the presence of what V. Smith (1998, 2008) defines as asset markets. In the last part of this paper it will be shown that it is possible to elaborate a theoretical model that possesses these characteristics using what we learn from the theories of Keynes, Schumpeter and Minsky.

### **3. An alternative theory of finance**

Many economists have highlighted the need to recuperate Keynes’s teachings and to reevaluate the work of Minsky.<sup>12</sup> In this paper we set out a theory of finance which takes as a starting point Keynes’s 1933 works in which he highlights the need to elaborate a *monetary theory of production* in order to explain the phenomena of the crisis and the fluctuations in income and employment, and he notes that the inability of the classical theory to explain these phenomena is due to the fact that this theory considers money as a

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<sup>12</sup> See for example: Akerlof and Shiller 2009, Krugman 2009, 2011, Skidelsky 2009, 2001, Sachs 2009, Colander 2009, 2010, Crotty 2009, 2011, Kregel 2009, Lawson 2009, Leijonhufvud 2009, Wray 2009, Arestis and Singh 2010, Stiglitz 2010, Laidler 2010, Roubini and Mihm 2010, Goodhart 2010, Roncaglia 2010, Lucarelli 2011.



neutral variable.<sup>13</sup> Keynes's key message is to stress that the presence of money constitutes the necessary condition to explain the crises and thus the two elements on which the explanation of the origin of the crisis elaborated by the mainstream economists is based. Following Keynes it is possible: i) to specify the relation between money and the concept of uncertainty, which unlike that of risk which characterises mainstream theory, allows us to elaborate a meaningful explanation of the crisis; ii) specify the relation between money and speculation. The next section describes the relation between money and uncertainty, while in the following one the relation between money and speculation will be described. The last section contains an explanation of the crisis elaborated on the basis of the new theory of finance.

### ***3.1 Money and uncertainty***

Keynesian economists such as Skidelsky (2009, 2011), Akerlof and Shiller (2009), and Crotty (2011) state that the mainstream theory is not able to elaborate a meaningful explanation of the crisis because it uses the concept of risk and overlooks completely the keynesian concept of uncertainty.<sup>14</sup> I believe that this thesis can be reinforced if instead of assuming the presence of uncertainty as an exogenous element that characterises the keynesian world, we show that the importance of the dimension of uncertainty is a consequence of the presence of money, or, in other words, is an expression of the non-neutrality of money.

To illustrate the relation between money and uncertainty it is useful to start with Rajan (2006, 2010), an economist who can hardly be defined as keynesian. On the occasion of the 2005 Jackson Hole Conference that was supposed to celebrate the Greenspan era, Rajan presented a paper that generated a lot of controversy. Describing how the financial sector had evolved during Greenspan's era, Rajan observed that the profound transformation in the financial system in the preceding decades produced great benefits but, at the same time, drove the financial system and in particular the banks, to create a considerable amount of risk:

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<sup>13</sup> "...the conditions required for the 'neutrality' of money... are, I suspect, precisely the same as those which will insure that crises *do not occur*."(Keynes 1933, 410-11)

<sup>14</sup> Skidelsky for example, maintains: "Keynes' view that uncertainty about the future is the root cause of financial crisis may be contrasted with today's conventional view that the recent banking collapse was caused by the 'mispricing of risk'." (Skidelsky 2011, p. 3)

“...the data suggest that despite a deepening of financial markets, banks may not be any safer than in the past. Moreover, the risk they now bear is a small (though perhaps the most volatile) tip of an iceberg of risk they have created” (Rajan 2006, p. 502)

What stands out from Rajan’s analysis is his claim that the banks created an ‘iceberg of risk’. It is difficult to reconcile this statement with the mainstream theory of finance which considers risk as a given element that can be allocated, divided and distributed but not created by the banks. If we consider the mainstream theory of financial intermediaries and the example of Stiglitz and Weiss, we note that the risk is that of assigning saved corn to an inefficient farmer or a conman and that the presence of banks, capable of evaluating the characteristics of the farmer and the plots of land, attenuating the effects of the presence of asymmetric information, reduces the dimension of risk. Rajan’s claim that it is finance that creates the risk can be justified by considering the relation between money and uncertainty that can be defined by following Keynes’s theory.

This causal relation can be illustrated by considering a world in which a particular money as bank money is used. This is a point common to Keynes and Schumpeter; they both distinguish between two types of economies. The first one is an economic system, which Keynes defined as a *real exchange economy* and Schumpeter as a *pure exchange economy*, in which money is neutral. The second one, which Keynes defines as a *monetary economy* and Schumpeter as a *capitalist economy*, is an economic system in which the presence of bank money radically changes the structure of the economic system compared with a *real exchange economy*. It is not simply the presence of money that characterises a *monetary economy* but the presence of money that has particular characteristics that Keynes and Schumpeter identify in bank money. They both underline that the spread of bank money eliminates the distinction between money and credit; in a world in which bank liabilities are used as a means of payment, money is created by means of a credit contract. The process of money creation cannot be separated from the process of credit creation, and the supply of credit becomes independent of the saving decisions. All this has a big impact on the structure of the economic system.<sup>15</sup>

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<sup>15</sup> On this point there is a substantive difference between Keynes and Schumpeter on the one hand, and Wicksell on the other. Wicksell, before Keynes and Schumpeter, claims that in an economy in which bank money is used the distinction between the process of money creation and credit creation disappears, but despite this he denies that the spread of bank money changes the structure of the economic system compared to the one that characterises a world in which capital goods are exchanged without the use of money. His thesis is based on the distinction between the natural rate of interest and the monetary rate of interest; both

The first structural element that characterises a *monetary economy* and whose presence can be explained by the spread of bank money is uncertainty. The causal sequence that links bank money and uncertainty and thus permits us to consider the financial system as a creator of uncertainty, in line with Rajan's affirmation, can be defined by considering two relations: the first is the relation between investment decisions and uncertainty; the second is the relation between money and investment decisions. These relations are dealt with in the next two sections.

### **3.1.1 Investments, innovation and uncertainty**

The relation between investment decisions and uncertainty can be explained by recalling that Keynes (1937a) claims that the classical theory is able to describe only a world without uncertainty, that is an economy in which consumption decisions prevail and decisions on investment and wealth accumulation, whose results are not predictable in probabilistic terms, are absent.<sup>16</sup> Naturally it would be excessive to claim that the classical theory describes an economic system based only on consumption decisions; instead, what divides the classical theory from the Keynesian theory is the specification of the characteristics of investment decisions. The classical theory considers investments as a phenomenon that depends on saving decisions and is independent of the presence of bank money. What distinguishes the investments that characterise the *monetary economy* described by Keynes is the fact that they are closely associated with the dimension of uncertainty. Of course even in the case of an economy that produces just one good, we can assume that an entrepreneur is not able to predict in probabilistic terms the future results of his decisions. This situation arises due to extra-economic factors such as unfavourable climatic conditions that ruin the harvest, or social-political events such as the break-out of a war, and so forth. What distinguishes the investments that are made in a *monetary*

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Keynes and Schumpeter abandon the concept of the natural rate of interest and stress the monetary nature of the interest rate.

<sup>16</sup> "The whole object of the accumulation of wealth is to produce results, or potential results, at a comparatively distant, and sometimes at an *indefinitely* distant, date. Thus the fact that our knowledge of the future is fluctuating, vague and uncertain, renders wealth a peculiarly unsuitable subject for the methods of the classical economic theory. This theory might work very well in a world in which economic goods were necessarily consumed within a short interval of their being produced. But it requires, I suggest, considerable amendment if it is to be applied to a world in which the accumulation of wealth for an indefinitely postponed future is an important factor; and the greater the proportionate part played by such wealth accumulation the more essential does such amendment become." Keynes (1937a, p. 113).

*economy* is the fact that the impossibility of predicting their results in probabilistic terms is due to factors of an economic nature, that is the factors which make the distinction between the production phase and the sale phase relevant. This conclusion can be understood if we consider the examples of investment decisions used by Keynes:

“Our knowledge of the factors which will govern the yield of an investment some year hence is usually very slight and often negligible. If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence of a railway, a copper mine, a textile factory, the goodwill of a patent medicine, an Atlantic liner, a building in the City of London, amounts to little and sometimes to nothing; or even five years hence.” (Keynes 1936, 149-50)

The future yield of a railway, a copper mine or an Atlantic liner are not easily foreseeable because they do not coincide with the productivity of some specific productive factor such as land in the case of the Smith’s *corn economy*, or the boat in the case of Böhm-Bawerk’s *fishermen’s economy*. The investments considered by Keynes have the same characteristics as the innovations that are at the centre of Schumpeter’s analysis. As is well known, Schumpeter (1912) holds that innovations constitute the first endogenous factor that brings about the process of change characterising a capitalist economy. The phenomenon of innovation regards the sphere of production and it may consist of the realization of a new product, the introduction of a new productive method or the opening of new markets.

We can consider the investments of the keynesian entrepreneur as the tool that firms use in order to launch new products on the market, or modify the productive process through which the existing goods are realized, or even open new markets; so the keynesian entrepreneur who takes the investment decisions coincides with the schumpeterian entrepreneur who introduces innovations. This economy cannot be described using a theoretical model that assumes that a single good is produced since the entrepreneurs, with their investment decisions, introduce innovations which create new goods are introduced.

This characteristic gives prominence to the uncertainty dimension. In an economy in which just one good is produced, such as a *corn economy* whose investments are made up of unconsumed corn, entrepreneurs are sure of selling everything they produce because the good produced is what ensures the survival of consumers. This does not hold when we consider innovations that give rise to the production of new goods: the entrepreneur who produces the new good is not at all sure that he will be able to sell, making a satisfactory profit, all of the production because the innovation alters the existing world, making it very

difficult to predict the reaction of the consumers to the new proposal (Schumpeter 1912, 65).

For this reason, both Keynes and Schumpeter note that investment decisions and innovations are carried out by agents who have particular skills, that is by agents who are able to take decisions in conditions of uncertainty, guided by what Keynes defined as *animal spirits*:

“... 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 days 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. Enterprise only pretends to itself to be mainly actuated by the statements in its own prospectus, however candid and sincere. Only a little more than an expedition to the South Pole, is it based on an exact calculation of benefits to come. Thus if the animal spirits are dimmed and the spontaneous optimism falters, leaving us to depend on nothing but a mathematical expectation, enterprise will fade and die...” (Keynes 1936, 161-2)<sup>17</sup>

In a world in which several goods are produced, the investments that lead to the production of new goods are made in conditions of uncertainty as the entrepreneur is not able to know, for example, how many cars he will be able to sell and at what price.

### **3.1.2 Bank money and investment decisions**

The second link of the causal sequence between money and uncertainty is constituted by the relation between bank money and investments. To explain this relation we can observe that both the Keynesian entrepreneur and the Schumpeterian innovator-entrepreneur must have the resources available to them to carry out their investments; bank money is the tool that enables them to obtain these resources. The importance of bank money can be explained by recalling that the investments that characterise a *monetary economy* are very different from those that are found, for example, in Smith's *corn economy*. In a *corn economy* to invest means to decide not to consume a part of the corn crop in order to produce more corn, while in a *monetary economy* to invest means, for example, to decide to build a railway; building a railway would be very difficult without bank money.

Indeed, let us suppose that in our *corn economy* an entrepreneur emerges who, following his *animal spirits*, plans to build a railway the construction of which requires the

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<sup>17</sup> Some years earlier Schumpeter (1912) noted that the introduction of innovations required very different capabilities from those needed to run existing firms and he describes the decisions of the innovating entrepreneur using similar terms to those used by Keynes (see: Bertocco 2007).

employment of a certain number of workers for ten years. Let us further suppose that the existing production techniques make it possible to produce a quantity of corn sufficient to guarantee the survival of the farm workers and those that might be employed in the construction of the railway. We can observe that the railway, at least theoretically, could be built also in a *corn economy*; in this case the construction of the railway is financed by the corn producers who give to our entrepreneur the corn necessary to pay the workers involved in building the railway. In return, they receive debt claims that will give them, when the railway is built, the right to obtain a quantity of corn equal to the amount lent during construction plus a premium consisting of the interest.

There is at least one fundamental element that impedes the realisation of this credit contract. It is the fact that it is very difficult for corn producers to assess whether the entrepreneur who plans to construct the railway will be able to return the loaned capital because the credit contract necessary to finance the construction of the railway is very different from the one, that is usually made in a *corn economy*, under which the corn producer gives the excess corn over the amount he intends to consume to another producer who will use it to produce corn. In this case, given the production technique, it is easy for the creditor to calculate the yield of the loaned corn and thus to define the rate of interest to apply to the debtor; in the case of the railway this evaluation is much more difficult because there is no physical law that makes it possible to calculate how much corn will be obtained by the sale of train tickets starting from the amount of corn used to build the railway.

The construction of the railway becomes easier in a world in which bank money is used. In this case our entrepreneur will have to convince the banks, not the corn producers, of the profitability of his project. The banks will finance the construction of the railway by creating new money with which our entrepreneur will pay the workers who will then be able to buy corn. The corn producers will not have any difficulty in exchanging corn for bank money, which is a perfectly liquid debt claim that can be used as a means of payment at any time. Although they do sell corn to the workers involved in building the railway, the corn producers are not creditors of our entrepreneur who is instead in debt to the bank, which is in turn in debt to those who own bank money. These agents may be the corn producers if we assume that the latter decide to accumulate the money obtained by selling the corn, or other agents that decided to accumulate the money obtained from payment of goods or services.

Banks therefore carry out a key role in a *monetary economy*: they evaluate the applications for financing presented by entrepreneurs. The banks share with the entrepreneurs the responsibility of deciding which investments are carried out; with their decisions they influence the development of the economic system; it is a very different role from that of mere intermediary that they could perform in a *corn economy* by facilitating the transfer of corn saved to the producers who intend to expand their grain production. Thus, we can maintain that the presence of bank money, and a well-developed credit market, constitutes the necessary condition for the development of an economy in which investment decisions become relevant and in which the presence of uncertainty becomes an essential factor. It is an economic system in which banks create uncertainty through the production of money and credit, since, by financing the construction of railways, they induce the economic system to take on a risk, which cannot be calculated in probabilistic terms, about the success of the railway; we can state that uncertainty is not merely an exogenous dimension, but it becomes a factor whose presence is explained by the spread of bank money.

### ***3.2 Bank money and speculation***

The phenomenon of speculation is the second element that must be explained by a theory of finance capable of elaborating a meaningful analysis of the origin of the subprime mortgage crisis. To explain the phenomenon of speculation it is necessary to justify the presence of what V. Smith defines as asset markets, that is markets dealing in financial assets that after purchase do not disappear from the market but can be continuously traded in the future. To explain the presence of these markets it is necessary, as we have already noted, to define the concept of wealth. It can be shown that the presence of a bank money and the elements that characterise the relation between bank money and uncertainty that we have illustrated in the previous section, allow us to define the concept of wealth and thus of speculation.

We have already noted that it is unrealistic to associate the concept of wealth with an economic system that can be compared to Smith's *corn economy* in which a single good is produced. This does not apply in the case of the *monetary economy* described by Keynes in which the existence of bank money radically changes the concepts of credit and saving. In a *corn economy* decisions of the producer-saver are at the origin of the causal sequence that determines the supply of credit and the investment decisions, but in a world in which bank money is used this causal sequence is no longer valid. In this case the corn producer,

for example, produces corn to meet the demand of the workers involved in the construction of the railway who purchase the corn in exchange for the money created by the banks to finance the innovator-entrepreneur who decided to build the railway.

The corn producer does not become a saver at the moment when he decides to produce grain and to consume just a part of it, but at the moment in which he sells the corn for money and decides to accumulate money. The corn producer becomes a saver not because he is the creditor of a specific agent to whom he lent corn, but because he decides to accumulate purchasing power, obtained by selling corn, that can be used at any future moment to purchase goods. Money transforms savers into wealth owners; this point is highlighted by Keynes when he states that: "... the act of saving implies... a desire for 'wealth' as such, that is for a potentiality of consuming an unspecified article at an unspecified time." (Keynes 1936, p. 211).

Of course the presence of savers-wealth owners cannot be explained within an economic system in which a single good is produced, rather it characterises a system in which multiple goods are produced that can be classified in two categories: the goods necessary to satisfy what Keynes describes as the absolute needs, and the goods that are required to meet the relative needs.<sup>18</sup> In this economic system any carpenter or corn producer who would not be willing to accumulate wealth in the form of tables or corn, will instead be willing to accumulate wealth in the form of money.

Having defined the concept of wealth and considering the elements of the relation between bank money and uncertainty described in the previous section, it is possible to explain the presence of markets in which financial assets such as long term bonds and stock are traded. The presence of these markets allows wealth owners to become speculators; once the savers-wealth owners decide how to use their disposable income by

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<sup>18</sup> "Now it is true that the needs of human beings may seem to be insatiable. But they fall into two classes – those needs which are absolute in the sense that we feel them whatever the situation of our fellow human beings may be, and those which are relative in the sense that we feel them only if their satisfaction lifts us above, makes us feel superior to, our fellows. Needs of the second class, those which satisfy the desire for superiority, may indeed be insatiable; for the higher the general level, the higher still are they. But this is not so true of the absolute need – a point may soon be reached, much sooner perhaps than we are all of us were of, when these needs are satisfied in the sense that we prefer to devote our further energies to non-economic purposes." (Keynes 1931, *CW vol. IX*, p. 326)



choosing between consumption and saving, they will have to define the composition of their wealth by choosing money or alternative financial instruments.<sup>19</sup>

Keynes considers at least two alternative assets to money: long term bonds and shares. The presence of long term bonds can be associated with the realisation of long term investments such as, for example, railways, and/or the presence of a public sector that produces services that represent a significant amount of GDP.<sup>20</sup> Keynes uses the presence of long term bonds to explain an important aspect of the phenomenon of speculation, i.e. speculative demand for money; wealth owners become speculators in that they choose the composition of their wealth depending on their forecasts, formulated in conditions of uncertainty, about prospective gains to be made from bonds which depends on the future value of the rate of interest.<sup>21</sup>

The second type of asset that can be accumulated by savers as an alternative to money is shares. Keynes (1936, chapter 12) notes that the spread of shares characterises a phase in the development of the modern economy in which the ownership of the firm is divided up among many owners who do not directly manage the firm; this evolution can be explained by thinking of the realisation of innovations that require large investments as in the case of railways. In this phase markets develop in which shares and long term bonds are continuously traded and the figure of the speculator emerges alongside that of the entrepreneur. Keynes distinguishes between speculation and enterprise by proposing to use: "... the term *speculation* for the activity of forecasting the psychology of the market,

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<sup>19</sup> "The psychological time-preferences of an individual require two distinct sets of decisions... The first... determines for each individual how much of his income he will consume and how much he will reserve in *some* form of command over future consumption. But this decision having been made, there is a further decision which awaits him, namely in *what form* he will hold the command over future consumption which he have reserved... Does he want to hold it in the form of immediate, liquid command (i.e. money or its equivalent)? Or is he prepared to part with immediate command for a specified or indefinite period, leaving it to future market conditions to determine in what terms he can, if necessary, convert deferred command over specific goods into immediate command over goods in general?" (Keynes 1936, p.166)

<sup>20</sup> "The entrepreneur when he decides to invest has to be satisfied on two points: firstly, that he can obtain sufficient short-term finance during the period of producing the investment; and secondly, that he can eventually fund his short term obligations by a long-term issue on satisfactory conditions." (Keynes 1937b, p. 217)

<sup>21</sup> "There is ...a necessary condition failing which the existence of a liquidity-preference for money as a means of holding wealth could not exist. This necessary condition is the existence of *uncertainty* as to the future of the rate of interest, i.e. as to the complex of rates of interest for varying maturities which will rule at future dates." (Keynes, 1936, p. 168)

and the term *enterprise* for the activity of forecasting the perspective yield of assets over their whole life...” (Keynes 1936, 158). The element that the activity of the speculator and the entrepreneur share is the fact that they both rely on expectations even if these expectations happen to be different. The entrepreneur takes his decisions on the basis of expectations about the future profits of investments ‘over their whole life’ while the speculator must predict ‘the psychology of the market’.

Keynes distinguishes two categories of speculators: professional speculators who take their decisions by gathering information on the financial situation of the various firms, making evaluations about their future value. These decisions are taken on the basis of the so-called fundamentals. The second category is made up of ‘ignorant individuals’ that is, those who purchase and sell firms’ stock without having professional knowledge of the firm or the economic system (Keynes 1936, 154). Keynes further notes that in the financial markets, although it may not seem logical, the effects of the choices of the professional speculators do not necessarily prevail over those of the second group of speculators (Keynes 1936, 154). And this influences the behaviour of the professional speculators for whom it is more profitable to try to predict how the market will evaluate bonds and stock rather than elaborate forecasts based on their professional competencies (Keynes 1936, 155).

Finally, Keynes wonders how speculation can influence investment decisions such as the construction of a railway, an ocean liner, a new drug, on which society’s welfare depends. He notes that the presence of very liquid financial markets and an intense speculative activity can impede the realisation of these investments since the speculation may offer easier opportunities for gains.<sup>22</sup> Keynes believes that speculation can compromise the entrepreneurial spirit:

“Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool 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. The measure of success attained by Wall Street, regarded as an

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<sup>22</sup> “Investment based on genuine long-term expectation is so difficult to-day as to be scarcely practicable. He who attempts it must surely lead much more laborious days and run greater risks than he who tries to guess better than the crowd how the crowd will behave; and, given equal intelligence, he may make more disastrous mistakes. ... It needs *more* intelligence to defeat the forces of time and our ignorance of the future than to beat the gun. Moreover, life is not long enough; -human nature desire quick results, there is a peculiar zest in making money quickly, and remoter gains are discounted by the average man at a very high rate.” (Keynes 1936, p. 157) Recently many economists have underlined this concept; see for example: Tobin 1984, Dore 2009, Stiglitz 2010.

institution of which the proper social purpose is to direct new investment into the most profitable channels in terms of future yield, cannot be claimed as one of the outstanding triumphs of *laissez-faire* capitalism -which is not surprising, if I am right in thinking that the best brains of Wall Street have been directed towards a different object.” (Keynes 1936, p. 159)<sup>23</sup>

These considerations allow us to underline the weakness of the mainstream theory that assumes the presence of asset markets and speculative bubbles in a world in which one good is produced, and in which the role of the financial system is to intermediate funds from savers to entrepreneurs.

### ***3.3 The explanation of the crisis***

What we learn from Keynes e Schumpeter allows us to formulate a theory of finance that is alternative to the mainstream one. Both highlight that, in contrast to what the mainstream theory holds, the spread of bank money radically changes the structure of the economic system. In the first place, the nature of credit changes since it eliminates the causal relation between saving and credit supply. Second, the use of a bank money allows us to state that finance creates uncertainty. Third, the presence of a bank money makes it possible to underline the link between saving and wealth accumulation and to define the concepts of wealth and speculation.

These features which characterise Keynes’s *monetary economy* and Schumpeter’s *capitalist economy* have two important consequences. First, they lead us to recognise that there is no ideal world without imperfections in which the financial system is made only of savers who directly finance firms, and towards which concrete economic systems converge thanks to the action of financial intermediaries such as banks, whose function is to annul the effects of the imperfections that characterise the real economy.

Second, these characteristics make it possible to highlight the fragility of an economy characterised by the presence of a developed financial system, that is to emphasise the fact that the *monetary economy* is prone to crises. Minsky (1975, 1980,1982) who had been a student of Schumpeter, and on several occasions had recommended combining the

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<sup>23</sup> The prevalence of speculation over enterprise would have high social costs: “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 the most skilled investment to-day 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)

approaches of Keynes and Schumpeter<sup>24</sup> is the contemporary economist who described the financial nature of the instability of a *monetary economy*. It is easy to understand the reasons for this instability if we bear in mind that the money is created by means of a credit contract that provides that the debtor must repay the amount received at a set future date. It is a different credit contract from the one that characterises Smith's *corn economy*; in that case, the farmers who produced more grain than they required for their own consumption needs and their investment capacity, loan the corn to other farmers who are willing to invest it to produce more corn in the future. The higher production of corn obtained through the investment will allow the debtor to reimburse the loan obtained; a *corn economy* is not a fragile economy even in the presence of a high level of dissociation between saving and investment.

Instead, in the case of a *monetary economy* the credit contract by means of which money is created is used to finance investments with which innovations are realised; the financing of innovations makes the system fragile because it occurs in conditions of uncertainty. The entrepreneur who took out a loan to build a railway will be able to repay the loan only if he is able to sell a sufficient quantity of train tickets. Unlike what happens in the case of corn, in which the proceeds are determined by the productivity of the corn used as a means of production, there is no objective criteria for predicting the monetary proceeds that will be produced by the railway.

The fragility of a *monetary economy* does not only derive from the financing of innovations but also from speculation. Indeed, the credit contract through which money is created can serve to finance the speculative demand for assets; also this operation is performed in conditions of uncertainty and therefore the stability of the system increases. The subprime crisis can be seen as an important example which confirm Keynes's thesis that a *monetary economy* is very fragile: "...when enterprise becomes the bubble on a whirlpool of speculation..." (Keynes 1936, p. 159)

The financial crisis generated by the subprime mortgages can therefore be explained by taking into account the elements that characterise a *monetary economy*: i) the process of money creation managed by the banking system that makes it possible to explain the expansion in the supply of mortgages; ii) the creation of uncertainty on the part of the

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<sup>24</sup> As well as Minsky (1986, 1993) other authors have emphasised the desirability of integrating the Keynesian theory of income determination with Schumpeter's theory of economic development; see for example: Morishima (1992); Goodwin (1993); Vercelli (1997); Bertocco (2007).

financial system by means of the expansion of the supply and demand of subprime mortgages determined by the widespread conviction that: ‘this time is different’; iii) the importance of the speculation phenomenon.

## Conclusions

The supporters of the mainstream theory state that the economic crisis triggered by the collapse of the subprime mortgage market should not induce economists to abandon the dominant theory, as happened in the case of the Great Depression of the 1930s and the stagflation of the 1970s.

The first result presented in this paper is to show that the mainstream theory of finance does not constitute an instrument capable of explaining the origin of the crisis. The reasons that justify this conclusion were identified by analysing the explanation of the origin of the subprime mortgage crisis elaborated by the supporters of the *mainstream theory*; it has been shown that this explanation is based on two elements which are not coherent with the traditional theory of finance: i) a concept of risk which is different from the one on which the mainstream theory of financial intermediaries is based; ii) the concepts of speculation and speculative bubble which are not covered by the economic system described by the mainstream theory. This implies that an explanation coherent with the origin of the crisis of the *subprime* mortgages must be based on a theory of finance which is capable of including these two elements.

The second result of this paper is to present a theory of finance that makes it possible to explain these two elements. It is a theory based on the keynesian concepts of uncertainty and speculation. Unlike the many works that, after the crisis arose, maintain the need to recuperate Keynes, in this paper uncertainty has not been considered simply as a fact that characterises the keynesian economic system and is overlooked instead by the mainstream theory. But, starting with the Keynesian concepts of *monetary theory of production* and *monetary economy*, it has been shown that the importance of the dimension of uncertainty derives from the existence of a money such as bank money. In a *monetary economy*, finance, which can be identified with the process of money creation through a credit contract, not only creates uncertainty but it determines the conditions for the concepts of wealth and speculation to come to the fore. This relation between money, uncertainty and speculation was illustrated by highlighting the complementary nature of the theories of Keynes and Schumpeter. Finally, referring to Minsky’s theory, it is concluded that the

causal sequence that links money to uncertainty and speculation allows us to explain the financial nature of the instability that characterises a *monetary economy*.

## References

- Acharya, V., Philippon, T., Richardson, M. and Roubini, N., 2009. The financial crisis 2007-2009: causes and remedies, in: Acharya, V. and Richardson M., (eds.), 2009. *Restoring financial stability*, John Wiley & Sons, Hoboken, New Jersey.
- Acharya, V. and Richardson M., (eds.), 2009. *Restoring Financial Stability*, John Wiley & Sons, Hoboken, New Jersey.
- Akerlof, G., 1970. The market for 'lemons': qualitative uncertainty and the market mechanism, *Quarterly Journal of Economics*, 84, 488-500.
- Akerlof, G. and Shiller, R. 2009. *Animal Spirits*, Princeton University Press, Princeton.
- Arestis, P. and Singh, A., 2010. Financial globalization and crisis, institutional transformation and equity, *Cambridge Journal of Economics*, 2010, 34, 225-238.
- Bertocco, G., 2007. The characteristics of a monetary economy: a Keynes-Schumpeter approach, *Cambridge Journal of Economics*, vol. 31, 1, 101-122.
- Blinder A. and Stiglitz, J. 1983. Money, credit constraints, and economic activity" *American Economic Review Papers and Proceedings*, 72, 297-302.
- Bodie, Z., Kane, A. and Marcus, A. 2009. *Investments* (eighth edition), McGraw-Hill, Boston.
- Böhm-Bawerk, E. 1884. The problem of interest, in *Capital and Interest*, reprinted in: Cohen, A. and Harcourt, G. (eds.) *Capital Theory*, Elgar, Cheltenham.
- Capasso, S., 2004. Financial markets, development and economic growth: tales of informational asymmetries, *Journal of Economic Surveys*, vol. 18, n. 3, 267-292.
- Cassidy, J., 2009. *How Markets Fail*, Farrar, Straus and Giroux, New York.
- Chou, Y., 2007. Modelling financial innovation and economic growth: why the financial sector matters to the real economy, *Journal of Economic Education*, winter, 78-91.
- Cochrane, J., 2011. How did Paul Krugman get it so wrong? *Iea economic affairs*, June, 36-40.
- Colander, D., 2009. How economists got it wrong: a nuanced account, *Middlebury College Economics Discussion Paper 09-09*.
- Colander, D., 2010. The economics profession, the financial crisis and method, *Middlebury College Economics Discussion Paper 10-38*.
- Cooper, G., 2008. *The Origins of Financial Crises*, Vintage books Edition, New York.
- Crotty, J., 2009. Structural causes of the global financial crisis: a critical assessment of the 'new financial architecture'", *Cambridge Journal of Economics*, 33, 563-580.
- Crotty, J., 2011. The realism of assumptions does matter: why Keynes-Minsky theory must replace efficient market theory as the guide to financial regulation policy, PERI Working Papers Series, 255, march.
- Diamond, D. And Rajan., 2009. The credit crisis: conjectures about causes and remedies, *American Economic Review: Papers & Proceedings*, 99, 606-610.
- Dore, R., 2009. *Finanza Pigliatutto*, Il Mulino, Bologna.
- Fama, G., 1985. What's different about banks?, *Journal of Monetary Economics*, 15, 29-39.
- Fergusson, L., 2006. Institutions for financial development: what are they and where do they come from?, *Journal of Economic Surveys*, vol. 20, n. 1. pp.27-69.
- Fox, J., 2009. *The Myth of the Rational Market: a History of Risk, Reward, and delusion on Wall Street*, Harper Collins, New York.
- Goodwin, R., 1993. Schumpeter and Keynes, in: Biasco S., Roncaglia A., Salvati M. (eds.): *Markets and Institutions in Economic Development*, The Macmillan Press, London.
- Gorton G. and Winton A. 2004, Financial intermediation, in: Constantinides, G., Harris, G. and Stulz, R. (eds.), *Handbook of the Economics of Finance*, Elsevier Science, The Netherlands.
- Goodhart, C., 2010. Macro-economic failures, in: Skidelsy R. and Westerling Wigström (eds.): *The Economic crisis and the State of Economics*, Palgrave Macmillan, Houndsmills.

- Hellwig, M., 1991. Banking, financial intermediation and corporate finance, in Giovannini, A. and Mayer, C. (eds.), *European Financial Integration*, Cambridge, Cambridge University Press.
- Keynes, J.M., 1973a (1931). Economic possibilities for our grandchildren, in: J.M. Keynes, *The Collected Writings*, London, Macmillan Press, vol. IX, 321-332.
- Keynes, J. M., (1973b [1933]). A monetary theory of production, in: J.M. Keynes, *The Collected Writings*, Macmillan, London, vol. XXIX, 408-411..
- Keynes, J.M., 1973c (1936). *The General Theory of Employment, Interest, and Money*, in: J.M. Keynes, *The Collected Writings*, London, Macmillan Press, vol. VII
- Keynes, J.M., 1973d (1937a). The general theory of employment, *The Quarterly Journal of Economics*, in: J.M. Keynes, *The Collected Writings*, London, Macmillan Press, vol. XIV, 109-123.
- Keynes, J.M., 1973e (1937b). The 'ex ante' theory of the rate of interest, *The Economic Journal*, in: J.M. Keynes, *The Collected Writings*, London, Macmillan Press, vol. XIV, 215-223.
- Kregel, J., 2009. Why don't the bailout work? Design of a new financial system versus a return to normalcy, *Cambridge Journal of Economics*, 33, 653-663.
- Krugman, P., 2009. How did economists get it so wrong?, *The New York Time Magazine*, September, 6.
- Krugman, P., 2001. The profession and the crisis, *Eastern Economic Journal*, 37, 307-312.
- Laidler, D., 2010. Lucas, Keynes, and the crisis, *Journal of the History of Economic Thought*, 32, 1, 39-61.
- Lawson, T., 2009. The current economic crisis: its nature and the course of academic economics, *Cambridge Journal of Economics*, 33, 759-777.
- Leijonhufvud, A., 2009. Out of the corridor: Keynes and the crisis, *Cambridge Journal of Economics*, 33, 741-757.
- Levine, R., 2005. Finance and growth: theory and evidence, in: Aghion, P. and Darlauf, S., (eds.), *Handbook of Economic Growth*, Elsevier Science, The Netherlands.
- Lucarelli, B., 2011. *The Economics of Financial Turbulence*, Edward Elgar, Cheltenham.
- McCallum, B., 1989. *Monetary Economics. Theory and Policy*. Macmillan Publishing Company, New York.
- Merton, R. and Bodie, Z., 2005. Design of financial systems: toward a synthesis of function and structure, *Journal of Investment Management*, 3, 1-23.
- Minsky H., 1975. *John Maynard Keynes*, Columbia University Press.
- Minsky, H., 1980. Money, financial markets and the coherence of a market economy, *Journal of Post Keynesian Economics*, vol. 3, 21-31
- Minsky H., 1982. *Can 'It' Happen Again? Essays on Instability and Finance*, M.E.Sharpe, New York.
- Minsky, H. 1986. Money and crisis in Schumpeter and Keynes, in: Wagener, H. and Drukker, J. (eds.), *The Economic Law of Motion of Modern Society*, Cambridge, Cambridge University press
- Minsky, H. 1993. Schumpeter and finance, in: Biasco, S., Roncaglia, A. and Salvati, M. (eds.): *Markets and Institutions in Economic Development*, London, Macmillan Press.
- Morishima M., 1992, *Capital and Credit. A New Formulation of General Equilibrium Theory*, Cambridge, Cambridge University Press.
- Morris, C., 2008. *The Trillion Dollar Meltdown*, Perseus Books Group, Philadelphia.
- Pagano, M., 1993. Financial markets and growth. An overview, *European Economic Review*, 37, 613-622.
- Posner, R., 2009. *A Failure of Capitalism*, Harvard University Press, Cambridge, Mass.
- Rajan, R., 2006. Has finance made the world riskier?, *European Financial Management*, 12, 4, 499-533.
- Rajan, R., 2010. *Fault Lines*. Princeton University Press, Princeton.
- Reinhart, C. and Rogoff, K., 2009. *This time is different*, Princeton University Press, Princeton.
- Roncaglia, A., *Economisti che sbagliano. Le radici culturali della crisi*, Editori Laterza, Bari.
- Roubini, N. and Mihm, S., 2010. *Crisis Economics. A Crash Course in the Future of Finance*, The Penguin Press, London.
- Sachs, J., 2009. Rethinking macroeconomics, *Capitalism and Society*, 4, 3, 1-8.

- Schumpeter, J. 1934 [1912], *The Theory of Economic Development*, Cambridge Mass., Harvard University Press.
- Shiller, R. *The Subprime Solution*, Princeton University Press, Princeton.
- Skidelsky, R., 2009. *The Return of the Master*, Allen Lane, Penguin Books, London.
- Skidelsky, R., 2011. The relevance of Keynes, *Cambridge Journal of Economics*, 35, 1-13.
- Smith A. 1904 [1776], *An Inquiry into the Nature and Causes of the Wealth of Nations*, Oxford University Press.
- Smith, V., Suchanek, and Williams, A., 1988. Bubble, crashes, and endogenous expectations in experimental spot asset markets, *Econometrica*, 56, 5, 1119-1151.
- Smith, V., 2009. Il nemico siamo noi, in: Mingardi, A., (ed.): *La crisi ha ucciso il libero mercato?*, IBL libri, Torino.
- Stiglitz, J., 2010. *Frifall*, W.W. Norton & Company, New York.
- Stiglitz, J., and Weiss, A., 1990. Banks as special accountants and screening devices for the allocation of credit, *Greek Economic Review*, 85-118.
- Stulz, R., 2001. Does Financial Structure Matter for Economic Growth? A Corporate Finance Perspective, in: Demirgüç-Kunt, A. and Levine, R., (eds.) *Financial structure and Economic Growth*, The MIT Press, Cambridge Mass.
- Tabellini, G., 2009. Idee e regole per il mondo dopo la tempesta. *Il Sole 24 Ore*, May, 5.
- Taylor, J., 2010. Macroeconomic lessons from the great deviation. Remarks at the 25<sup>th</sup> NBER *Macro Annual Meeting*, May.
- Tobin, J., 1984. On the efficiency of the financial system, *Lloyds Bank Review*, July, 1-15.
- Vercelli, A., 1997. Keynes, Schumpeter and Beyond, in: *A 'Second Edition' of The General Theory*, vol. 2, edited by Geoffrey Harcourt and P Riach, London: Routledge.
- Wachtel, Paul., 2003. How Much Do We Really Know About Growth and Finance? *Federal Reserve Bank of Atlanta Economic Review*, first quarter, (2003): 33-47.
- Wray, R., 2009. The rise and fall of money manager capitalism: a Minskian approach, *Cambridge Journal of Economics*, 33, 807-828.