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Title: The Goods Sector, Non-Financial Services & Disproportionality in Financial Sector Size

(An attempt to find an answer for the financialisation process in capitalism)

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To my wife Eliza and my son Kian

for their devotions, patience, and massive support

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Abstract

Profit maximisation has always had a central role in all capitalist economies. At the macro level, however, the monetisation of this profit has remained a major theoretical puzzle through the modern history of economics since Marx first discussed it in the 19th Century. It is called the "paradox of monetary profit" or simply the "paradox of profit" and it generally refers to the impossibility of the realisation of profit for all profit-seeking companies/institutions when the total wages paid to all workers in the whole economy is lower than the total revenues they expect to receive.

Attempts to resolve the paradox have been proposed. Monetary circuitist theorists have suggested solutions, but these do not go beyond Marx's "practical solution", in which more money is needed for the monetisation of profit over a fixed period. Theoretical solutions have also been proposed by some post-Keynesians, whereby the specific amount of credit/money in circulation (not extra injection) is enough to monetise the aggregate profit, but their solutions are defined in an infinite-period dynamic process which is not only in conflict with the core Keynesian monetary doctrine they presupposed. Further, it again a practical, rather than theoretical, solution.

The present theoretical study aims a) to provide a theoretical and intertemporal (but not infinite) solution in which the government has a central role in the redistribution of income, and b) to use the paradox to analytically elucidate the dynamic and gradual movement of capitalism from a productive economic structure to an unproductive financialised system in which a significant and disproportionate amount of profit can be made through money lending and speculating on the existing assets rather than through production.

To achieve the first aim, following the modern classification in economics, this study replaces "classes" in the initial form of the paradox with "sectors", namely the household, production, and financial sectors. Using an abstract and adjusted version of the Social Accounting Matrix (SAM), in combination with mathematical models of the monetary flows between the main sectors of an economy, this study sheds light on the shortage of money in circulation as the main characteristic of a profit-seeking monetary production economy, thus manifesting the validity of the paradox of profit. It will be shown that the paradox will disappear when the government sector acts as the main re-distributor of wealth following market distribution.

To achieve the second aim, this study goes further to show that in a credit-led monetary production economy the only practical remedy for the shortage of money in circulation is credit expansion, but this can only put the puzzle temporarily out of sight and at the cost of debt accumulation in favour of debt creators. This opens a new window to make a theoretical link between the shortage of money in circulation (as the manifestation of the paradox) and the continuing process of financialisation through the introduction of credit-debt reproduction mechanism in which, in a credit-led economy, credit creates debt above its initial level and more credit is needed to redeem the debt. So, in a credit-led and profit-seeking monetary economy in which the government sector is a reluctant observer of the income distribution by market forces, the paradox does exist and it provides a theoretical base for analysis of the process of financialisation. So, it would be wrong to associate financialisation with a specific period of capitalism. The birth of financialisation goes hand in hand with the presence of the profit-led monetary economy.

Chapter 1: Introduction

1.1. Outline of the Research, Motivation & Research Questions

The global economic and financial crisis of 2007-2008 happened only four years after the Nobel Prize-winning economist, Robert Lucas Jr., announced that macroeconomics had solved the problem of depression prevention. He opened his presidential address for the one-hundred and fifteenth meeting of the American Economic Association with a confident assessment of the field's achievements:

> Macroeconomics was born as a distinct field in the 1940s, as a part of the intellectual response to the Great Depression. The term then referred to the body of knowledge and expertise that we hoped would prevent the recurrence of that economic disaster. My thesis in this lecture is that macroeconomics in this original sense has succeeded: Its central problem of depression prevention has been solved, for all practical purposes, and has in fact been solved for many decades. (Lucas, 2003).

One year after Lucas' speech, Ben Bernanke, the two-term governor of the US Federal Reserve, spoke about "The Great Moderation", as a permanent reduction in the volatility of business cycles based on "structural changes" and "improved macroeconomic policies". He suggested that the focus should now shift to business cycles and long-term growth. (Bernanke, 2004)

When the economic and financial crisis started to spread around the world, many economists realised that they were not analytically equipped to understand all its dimensions. In *The Return of Depression Economics*, Paul Krugman, the 2008 winner of the Nobel Prize, said:

> The kind of economic trouble that Asia experienced a decade ago [around the 1990s], and that we are all experiencing now, is precisely the sort of thing we thought we had learned to prevent. (2008: 4)

This crisis was without a doubt a turning point as it brought mainstream assumptions and methods under unprecedented attacks, even from the old supporters who became the new dissenters. Richard Posner, an American jurist and economist who is famous for his support of free markets, said in his conversion statement (or as Lavoie (2014) called it, "recantation"): "We have learned since September [2008] that the present generation of economists has not figured out how the economy works". (2009)[1]

[1] https://www.law.uchicago.edu/news/richard-posner-how-i-became-keynesian , access 26/04/2019.

During a visit to the London School of Economics (LSE) in November 2008, the Queen asked economics professor Luis Garicano "Why did nobody notice it? .... If these things were so large, how come everyone missed them?" (Pierce, *The Telegraph*, 05/11/2008). The answer of the LSE professor at that time was: "At every stage, someone was relying on somebody else and everyone thought they were doing the right thing." (Ibid). In fact, this amounted to a restating of the familiar neo-classical interpretation of Adam Smith's "invisible hand", which is still dominant in mainstream textbooks under labels such as "self-correcting mechanism", "self-regulating system" or "efficient market hypothesis" (see McDowell et al., 2009; Begg et al., 2014). Eight months after the event, the British Academy, in a letter to the Queen, tried to give a better answer, but it was, in essence, the same, reflecting the inability of mainstream theories and their associated models to account for the problem from the theoretical point of view.

While academic professionals were struggling to comprehend the crisis fully using their models, a simple answer was re-fashioned right after the crisis mostly by non-academic professionals in interviews, blogs, etc. FCIC (2011), McArthur et. al (2017), and Karwowski (2019), among others, blamed the structure of financial systems for exacerbating the speculative behaviour of national and international financial institutions. This behaviour was rooted in the persistence and extension of predatory lending and excessive risk-taking for short-term profit, under lax and permissive regulatory regimes. This claim has been made after every major crisis in Latin America (1980s), South Asia (1990s), and in the advanced economies in Europe and America (early 1990s, early 2000s), yet regulations remained dangerously lax (see Krugman, 2008).

After 2008 many economists started to re-think the role of government in regulating the economy and, more specifically, financial markets. Some politicians demanded more international collaboration for imposing tighter rules and regulations on financial institutions' activities around the globe.[2]

[2] See for example, Gordon Brown's view (former UK Chancellor and Prime Minister) on the need for an international centre for financial regulation [https://www.ft.com/content/2bc2289e-caa2-11dc-a960-000077b07658 access 22/12/2018] and the establishment of the centre in 2009 in London [https://www.risk.net/risk-management/1499480/international-centre-for-financial-regulation-officially-launched-in-london access 22/12/2018]

Although the idea of bankers' predatory lending behaviour and greediness is easy to convey, and the popular remedy of imposing tougher rules and regulations on their activities seems to be a reasonable solution to avoid further crises, from an academic point of view it is analytically flawed for two reasons. First, economic history teaches us that tough rules and regulations that are usually imposed after crises[3] will eventually be replaced by laxer regulations sometime later, (see Johnston 2019: 149, and the official website of the U.S. Securities and Exchange Commission, cited in Footnote 3). One reason for this replacement is the fact that having easy access to international funds is an opportunity that no political leader wants to lose. It is a crucial way in which they can demonstrate, during their terms in power, that they are able to bring prosperity to their nations. Fear of losing this opportunity and of being left behind other nations intensifies national and international competition in capital markets, despite the socio-economic and political pains of previous crises.

Second, the regulatory solution is undermined by the philosophical foundation of capitalism, which is constructed on the concept of "the more, the better"[4] or "Private Vices, Public Benefits"[5]. Microeconomics theory holds that a "*rational*" consumer prefers a basket of five apples to a basket of four, even if the extra apple in the first basket is not needed. This notion of rationality is justified based on the principle of maximisation of utility since the consumer can trade the extra apple to reach a higher level of utility. If it is theoretically justifiable to believe that all agents are optimisers, then why not the bankers also? Under the pressure of intense competition, no one wants to fall behind and lose their share of the market, either nationally or internationally. One of the psychological foundations of capitalism is the perceived acceptance of self-interested activities that do not conflict with the interest of others.

[3] For example, in the United States the following Acts were passed after the Great Depression: The Glass-Steagall Act of 1933, The Securities Act of 1933, The Securities Exchange Act of 1934, The Investment Company Act of 1940 (updated by the Dodd-Frank Act of 2010), The Investment Advisers Act of 1940. For more information about these Acts see https://www.sec.gov/answers/about-lawsshtml.html access 22/12/2018]

[4] In the theory of consumer preferences, it is assumed that preferences exhibit no satiation, which means a bundle with more goods is preferred to a bundle with fewer goods as it allows the consumer to move to a higher level of utility.

[5] *The Fable of The Bees: or, Private Vices, Publick Benefits* is a book written by Bernard Mandeville in 1705. Using metaphorical language in a poetic form he tried to show that in a virtuous society there will be no prosperity or development.

Therefore, the search for more virtuous and public-inspirited incentives leads us to have to think beyond such 'pure' forms of capitalism.

Among the various scholarly views on the cause of financial crises, some underline the size of the financial sector and highlight the issue of the accumulation of debt (see Crotty, 2009; Haldane, 2012). The blame is again placed on financial institutions, but not for their self-interest or predatory behaviours; instead, it is on account of their structure, size, and the mechanism of their activities on the grounds that these intensify the debt level under a semi- or de-regulated system. The logical implication of this line of thought is that we should search for an optimal size for the financial sector, that is sustainable and proportionate with the real sector of the economy. The idea here is that there must necessarily be an optimal size for the financial sector that is discoverable and capable of being maintained (see Santomero & Seater, 1999; Haldane, 2012; Cœuré, 2014). Knowing the optimal size can help policymakers to define a sustainable and proportionate relationship between the real side and the financial side of the economy and, at the same time, equip them with a warning system ahead of another possible crisis when the relative size is out of the expected normal range, (which should be defined separately).

So, if markets are efficient, agents are rational, and the imposed rules and regulations are based on their expediency and necessity at the time, why do we experience repeated crises in capitalism? Can rigid rules and regulations be imposed perpetually to prevent such crises? If the size of the financial sector has grown without adequate control and is seen as being responsible for such crises, do we have any idea about its optimal size? Is it possible to control and maintain the size and the activities of the sector by imposing rules and regulations? The failings of the mainstream literature in analysing, finding a pattern, and predicting recurring economic and financial crises motivated the researcher to examine the extensive heterodox literature on the intrinsic instabilities of the capitalist system (starting from Marx, 1885; Schumpeter,1934; Kalecki, 1935, 1942; Robinson, 1966; Minsky 1975).

The above questions arose at the beginning of the study. Further research revealed that more questions needed to be answered, more specifically – from a theoretical perspective – about the role of credit and debt in the dynamics of the capitalist system. How can profit be monetised? What are the roles of credit and debt in the formation of profit? And most importantly, what is the connection between the exacerbation of financial activities (by financial and non-financial agents) and the mechanism by which profit is monetised?

One of the goals of the present research is to show theoretically that the idea of blaming the size of the financial sector and trying to determine its optimal size, is futile: this effort is wrong in its core argument, due to the lack of differentiation between cause and effect. Despite having a logical appearance, the approach fails to reflect the debt reproduction mechanism embedded in capitalism. This means that the capitalist system cannot endure financially without the presence of a continuous process of lending, which is the flip side of the process of debt creation. In other words, in capitalism, lending at interest (as a profit-seeking action) inevitably creates debt above the initial level of lending and a shortage of money in circulation that prevents the lenders from monetising their profit.

The impossibility of monetising profit due to the shortage of money is called the paradox of profit; and this profit cannot be redeemed unless the lenders (as the credit providers in the whole system) lend more, which eventually means creating more debt. Therefore, debt reproduces itself through lending, and lending reproduces itself through debt. This generates a dynamic loop which is also synergetic due to the compounding nature of the interest rate. For this reason, it can also be called the credit-debt reproduction mechanism. The role of this mechanism in the capitalist economy is to perpetually maintain the demand for money above the supply of money. This means that the shortage of money in circulation is one of the most important features of all monetary production economies.

This mechanism reveals many hidden structures in the capitalist system. It shows how the monetary form of capital gradually gets more weight and status compared to other factors of production in the economy; and how financial institutions get bigger in terms of their size and importance as the result of their lending activities. It also shows how debt accumulation makes the profit margins gradually narrower in the production sector and how it pushes the whole system to make a profit from financial activities rather than investing in the production sector.

The term "financialisation", introduced by heterodox literature (Magdoff & Sweezy 1987; Hudson, 2003; Kripner, 2004; Epstein, 2005) can also be explained in terms of the credit-debt reproduction mechanism. From this perspective, the size of the financial sector is not the cause but the outcome of this mechanism in operation over the centuries since the rise of the "monetary production economy"[6]. This gradual and almost riskless profit accumulation

[6] "Monetary economy" is Keynes' phrase to indicate the importance of the role of money in an economy, as opposed to a "real exchange economy". The later is similar to a barter economy in which money has no key role

practice eventually leads to the dominance of this sector over others, a situation that is now called "financialisation". This term can be defined as a gradual capital accumulation process by which capital owners can raise their share of profit and extend their dominance over the distribution of income, relative to other factors of production, through debt creation and the interest rate mechanism on a national, and even international, scale.

Therefore, even if the optimal size of the financial sector could be determined, once it is reached it cannot be maintained for long because the debt reproduction process, resulting from the interest rate mechanism, is inherently progressive in nature and so will inevitably lead to size increases surpassing all boundaries. A study undertaken by IMF economist Philip Barrett (2018: 4, 28) tried to define the maximum sustainable debt level for a country as the difference between its future nominal interest and growth rates. The research shows that "point estimates of the long-run average interest-growth differential in advanced economies are frequently negative. If true, the consequences are rather unpalatable: unless governments can commit to infinitely large deficits, they can issue as much debt as they like without becoming insolvent. … This [result] is robust across countries, periods, and estimation methods. This represents a very serious challenge to models of debt sustainability; if true it means that debt limits are not finite" (ibid). This offers a clear indication that the size of the financial sector is not bounded if the main source of money in circulation is credit.

Put simply, since the inception of the monetary production economy, two processes have worked together, feeding one another, resulting in a gradual riskless accumulation of capital and the dominance of capital owners in all parts of the economy: 1- Lending at interest, thus creating debt above the principal borrowing and a shortage of money in circulation, which can be called the "debt creation process", (which in normal conditions happens at no risk, as it has been always protected by law or collateral since 4000 BC. See Chapter 2 for more on the types of collateral); 2- Creating a new line of credit at interest to compensate for the shortage of money in circulation caused by the first process, which can be called the "credit production process". The first line of credit creates a permanent shortage of money in circulation, increasing the demand for more credit in the second line. This means that the debt resulting from issuing credit at interest will necessarily reproduce itself. Financialisation is the synthesis

in everyday life. The phrase will be briefly explained further in footnote 12 and fully explained in Chapter 2, Section 2.1.

of these two processes. Perhaps, a good parable for that is when slightly salty water is given to a thirsty person, he/she will become thirstier, asking for more water.

This process has been happening for centuries, even before the inception of money usage (in everyday life) and the formation of the monetary production economy (see Hudson, 2018; Homer & Sylla, 2005)[7]. But financialisation is a specific characteristic of the monetary production economy, in which the importance and weight of money (in investment and financing decisions) increases compared to other factors of production, such as labour, land, and knowledge.

Despite the historical record, the founders of the first economic doctrine (the Classical doctrine) were in denial over the role of money (and credit) in the real side of the economy. Instead, they created a dichotomy based on nominal and real values, in which money as a "veil" simply changes nominal values without any impact on real values. This is reflected in the Quantity Theory of Money. Based on this doctrine, money emerges to facilitate the trade of goods and services between people, introducing an easier way to trade compared to that in the barter economy. In such a system, money and credit have the same meaning and functionality but, as mentioned above, money does not create debt, whereas credit does. In mainstream textbooks, there is still no differentiation between money and credit in this respect.[8] The money issuer is government or its monetary authorities, and its supply is exogenous and fixed, whereas the credit issuers are banks and the supply of credit is endogenous, depending on the level of GDP and the demand for money. One of the reasons that many macroeconomics scholars no longer believe in the traditional monetary theory (LM equation), or the concept of achieving equilibrium in the money market through the idea of loanable funds, is the paradox in the concept of the supply of money. (see Carlin & Soskice, 2015; Rochon and Rossi, 2016). The

[7] Hudson (2018: 15) use Genesis 47:20-31 to explain how debt worked in ancient times before the inception of money: "The story of Joseph advising Egypt's pharaoh how to obtain all the land for himself by getting the population into debt during the famine illustrates the typical cause of personal debt throughout the ancient world".

[8] But financiers know the difference. A quotation attributed to J.P. Morgan when he was testifying to the US Congress in 1912 states "gold is money, everything else is credit". [Testimony of J.P. Morgan before the Bank and Currency Committee of the House of Representatives at Washington D.C., December 18 and 19, 1912. Available online at https://www.zerohedge.com/news/2014-11-21/gold-money-and-nothing-else-jp-morgans-full-december-1912-testimony-congress accessed 25/12/2018]

story behind the origin and inception of money, and why the Classical account of this is flawed will be discussed in the next chapter. (see Lavoie, 2016, Wray, 2012, 2013)

It is now more appropriate to say that the interest rate should no longer be seen as a simple and innocent monetary variable that comes from the intersection between demand and supply in the money market; rather it should be viewed as the engine of a profit-seeking mechanism that creates debt, shortage of money in circulation, and excess demand for money. From a practical point of view, there is no difference between the functionality of the interest rate and usury. Further, there is no reason to believe that the term "interest rate" is scientific while the use of "usury" is based on value judgment. In Old English Law, *any* form of compensation above the amount lent to anybody was considered usury (see Encyclopaedia Britannica, under the term "usury"). For Adam Smith and Keynes, the terms "usury" or "practising usury" come as synonyms of the term "interest rate" or "taking interest rate", though Keynes did not use the term until Chapter 23 of his *General Theory*. Thus, in this study, the terms usury and interest rate are used interchangeably: this use of usury is thus distinguished from its more colloquial, but much less precise, meaning. This choice of the term and its brief historical root will be discussed in detail in Chapter 2, where we will see that the interest rate acts as the main factor in money devaluation, which leads to the issuance of more fiat money.[9]

The concept of the present value of a monetary flow reflects the devaluation of fiat money caused by the interest rate.[10] A simple enquiry into the history of the interest rates reveals that this profit-seeking mechanism existed long before the inception of money and proved to be a peculiar troublemaker from the beginning.[11] In a non-monetary system, lending one bag of barley and expecting one and a half bags of barley at the end of the year creates a half-bag shortage of barley that must be obtained from the land, but the land should be fertile enough to yield a good surplus and terminate the next term's borrowing. In a monetary system, lending £100 today in the expectation of getting £110 a year later creates a permanent shortage of £10 in circulation from the year of redemption, unless the extra £10 is created by the lender.

[9] In contrast to "commodity money", such as gold and silver, "fiat money" or "fiat currency" has no intrinsic value and its value comes from the denomination declared by government or monetary authorities.

[10] For example, the present value of £100 that is going to be received next year is equal to £100/(1+r), where r is the interest rate, which is also called the "discount rate" in a financial context.

[11] Perhaps this was one reason why major religions condemned the practice of usury.

The profit-seeking mechanism in a monetary production economy[12]is not confined to the interest rate mechanism. Any form of profit-seeking mechanism eventually leads to a shortage of money in circulation. Any company that sets the price in order to make a profit (called mark-up pricing), thereby initiates this shortage. At the level of an individual company, the validity of this claim might not be obvious, but when we look at the national level, it makes sense: if all producers (in aggregate as a production sector) are profit-maximisers, they must earn more than they pay. Therefore, the value of all their products in total should logically be bigger than the value of their total cost. If they aim to sell all their products at the same (marked-up) price, there will not be enough monetary funds in circulation for the products to be purchased. This shortage of money remains until money or credit is created for such purchases.

The main idea, initially explained by Marx in his theory of surplus-value, is what is now known as the "paradox of monetary profit" or simply the "paradox of profit". Marx divides the share of total income in an economy between two classes: workers and capitalists. The theory posits that capitalists (in aggregate as a class) cannot make any profit when the total value of their products is more than whatever they have already paid their workers (as another whole class) in the form of wages. In the best possible scenario, workers can spend all their wages on the products, but this will still not make any profit for the capitalists because of the lack of sufficient funds in circulation. This empirically means that the capitalists cannot make any profit unless the shortage of money for the realisation of profit is somehow financed.

In mainstream macroeconomics textbooks, the same conclusion (zero profit) has been reached using the neoclassical theory of income distribution, on the grounds that the value of production should be equal to the value of income distributed. Regarding the notion of profit, neoclassical theory posits zero profit as a theoretical concept, but the paradox of existing profit in the real world leads them to create further assumptions that involve differentiating between "economic profit" and "accounting profit". These assumptions are consistent with the traditional version of capitalism in which the owner, investor, and beneficiary are the same person, thereby

[12] The term Monetary production economy (or simply monetary economy, as Keynes (1933: 409) called it) refers to an economic system in which money is not "a neutral link between transactions in real things and real assets". In such an economy, production starts with an initial amount of money (the cost of all factors of production) in the expectation of getting more money at the end of the production period. In contrast to the "real exchange economy" in which money does not "enter into motives or decisions" (such as the barter economy), in the monetary production economy, monetary profit is the objective of production. More explanation is provided in Chapter 2, Section 2.1.

overlooking the role of credit and financial institutions in the creation of debt (see, e.g., Mankiw, 2016: 57).

These two profit-seeking mechanisms (the interest rate and mark-up pricing) can be used to explain the accumulation of debt in a monetary production economy. They can also be used to explain the recurrence of crises in the system, as they ceaselessly create a shortage of money in circulation and predispose the system to demand additional credit, thereby eventually accumulating more debt in the same way after each crisis. It seems that no realistic alternative has been imagined by either economists or politicians for centuries.[13]

Based on the discussion above, a new approach is utilised in the present study to show that the paradox of profit in both forms (i.e., the original form in Marx's theory of surplus and the new form using the interest rate) is still the most important problem in a monetary production economy and can be used to address the intrinsic instability and unsustainability of the system. But the original formulation must first be modified to reflect the reality of monetary fund transactions between different sectors, rather than socio-economic groups/classes. Replacing the two classes with three sectors, the household, production, and financial sectors is required for two reasons: First, the current separation between management and ownership means that the new capitalists are not producers anymore, whereas, in aspects of Marx's interpretation, the capitalist as the profit (rent)-seeker is also the producer. Second, more assumptions are needed for modelling when we separate consumers or income earners (or rent/profit earners) based on their socio-economic classes. From a macroeconomic perspective, we do not need such a classification as all capitalists' consumptions are part of the household sector's consumption.

In revisiting the paradox of profit in the present study, it is important to note that some post-Keynesians and circuitists have claimed that they have been able to solve the paradox of profit. This study challenges this claim. Their analytical flaws will be discussed later in this chapter,

[13] It is still very difficult to imagine non-profit lending and non-profit production, or any form of distribution mechanism that equitably divides the profit among all agents (including producers, sellers, consumers, landowners, financiers, technology providers, researchers etc.). There is still a common assumption that profit is made through the hard work of people on the supply side (CEO, CFO etc.) with the financial help of share/bond holders, but that consumers have no role in the formation of profit. This is like a gambling game when the winner is not ready to share his winnings and he/she is happy to end the game as soon as the others lose their money. This type of game cannot continue forever when the losers have no more money to bring into a new game or when they are reluctant to play further. In economics, this situation equates to a crisis, when there is no effective demand.

and in more detail in Chapter 3, where it will be shown that the paradox has no theoretical solution unless the government sector follows a specific fiscal policy that aims to distribute wealth between the various sectors. This policy will be discussed at the end of Chapter 4.

1.2. Methodology

This study will highlights six major points about the paradox of profit that are addressed:

1- The paradox of profit has not been resolved, as claimed by some circuitists and some post-Keynesian economists. It creates an unequal distribution of monetary funds between sectors on a national scale and even between countries on an international scale.

2- The paradox can be extended beyond Marx's original framework (i.e. talking about socio-economic classes in capitalism) to include all profit-seeking mechanisms, such as the interest rate mechanism (charged either by domestic or international lenders) and the pricing mechanism (charged by producers). Therefore, the intrinsic instability of capitalism is not limited to what we have seen after the industrial revolution, but we must include mercantilism in the monetary production economy's framework.

3- No proposed solutions by heterodox scholars provide theoretical and consistent solutions in which the initial amount of money put into circulation is enough to monetise profit over a specific period. The practical but temporary solution for the paradox is credit expansion, which can explain the accumulation of debt in a monetary production economy under capitalism. This is a unique accumulation process in which credit creators will gradually take a dominant role in the economy.

4- The paradox can explain why economic and financial crises in capitalism are a repetitive phenomenon, despite the imposition of tough regulations. It will be explained (in Chapters 2 and 6) why these tough rules and regulations do not have sufficient stamina, as a result of:

   a) the competitive and ceaselessly expansionary nature of capitalism; and, more importantly, b) the consequent perpetual need for more money/credit.

5- There is a direct link between the shortage of money in circulation and the process of financialisation. The paradox, as a theoretical justification of this shortage, can explain how financialisation, as a direct result of the debt reproduction mechanism, develops through an accumulation process.

6- It is proved in this study that there is only one theoretical solution for the paradox, that is, one in which the government imposes and reinforces a specific fiscal policy that extends its active role as the major distributor of welfare to the whole society.

To address the above points, which are the main contributions of this study, a specific methodology is needed to capture the flow of fund transactions between the main sectors of the economy, using a model similar to Quesney's 1758 Economic Table (Tableau économique), or an abstract and more modern version of that, the *circular flow of income* (which can be found in all macroeconomics textbooks). In addition, the methodology must be able to investigate and explain the interconnection between the various sectors of the economy in the form of sectoral balances (either theoretically or empirically) and show the monetary imbalances that predispose the economic system to economic and financial crises.[14]

Some Post-Keynesian scholars have developed a methodology based on an accounting view of national accounts in order to capture both the stocks and the flows between various sectors. This methodology, which is called "*stock-flow consistent (SFC)*", follows the early argument of Morris Copeland in 1949 and 1952 regarding the flow of funds. His fundamental questions about money transactions in US national accounts allowed a general macro view of the financial interactions between various sectors. His intuition led to the formation of the first accounting view based on various sectors of the economy, called a "*Social Accounting Matrix (SAM)*", which focuses exclusively on the transaction of flows from one account into another within the national accounts framework.

Copeland's questions led to the development of a new methodology that brought the financial side of the economy into consideration:

[14] It should be noted that, although there is no official academic definition of "economic and financial crisis" in this research, the phrase refers to the periodic violent disturbances in the real side of the economy (sharp reduction in GDP, production, employment and investment) as well as the financial side of the economy (sharp reduction in the price of assets, debt accumulation, balance sheet issues, dryness of credit markets) which are both rooted in the business cycles of the capitalist economy. It should also be noted that, in this research, the phrase has been purposefully used to indicate the impracticality of separating the financial and real sides of the economy. There is a simple reason for this; any financial crisis has an impact on GDP, employment and investment on the real side of the economy, and thus it is essentially meaningless to separate them in any analytical discussion that is based on a heterodox view of the economy.

> When total purchases of our national product increase where does the money come from to finance them? When purchases of our national product decline, what becomes of the money that is not spent? (1949: 254)

So, the main questions were where money comes from and where it goes to. Copeland's idea was followed by Stone & Brown (1962) in Cambridge, where they set up a matrix for national accounts with various sectors, and subsequently by Pyatt (1985), who developed the model at the World Bank. According to Mitra-Kahn (2008), by early 1980 social accounting matrices became the backbone of World Bank analyses and were even used by neo-classical Computable General Equilibrium (CGE) modellers.

Both SFC and SAM are suitable for application to this research, but SAM will be implemented for its simplicity and lack of a need for parameter calibration, (the latter being required for SFC models).[15] But it should also be noted that in this research, SAM has been used in a unique way (as shown in the differences between Tables 1.1 and 1.2), which has no counterpart in the existing literature.

This is another important contribution of this study in terms of its methodology. Specifically, the type of SAM that is usually implemented at the sectoral level is based on aggregate values in the national accounts (i.e., consumption, government expenditure etc.). Table 1.1 below shows a typical SAM for an open economy, borrowed from Mitra-Kahn (2008). In this table, each row displays the monetary inflow received by one sector (coming from other sectors), while each column shows the monetary outflow from one sector (received by other sectors). At the end of each row/column, there is a summation of inflows/ outflows received/ paid out by that sector. For example, the household sector in total receives wage bill ($\boldsymbol{W}$) from the production sector (firms), wage bill ($\boldsymbol{G_H}$) from government and monetary surplus from net exports ($(\boldsymbol{X-M})_{\boldsymbol{C}}$), while this sector pays consumption expenditure ($\boldsymbol{C}$) to firms, tax to the government ($\boldsymbol{T_H}$), expenditure for import goods ($(\boldsymbol{X-M})_{\boldsymbol{C}}$) and has a saving ($\boldsymbol{S_H}$). The Net Acquisition of Financial Assets (NAFA) in monetary form can be calculated through total receivable minus total payable.[16]

[15] All parameters in the SFC models must be calibrated and the result of implementing the model with real data is sensitive to the value of the parameters.

[16] This has the same structure as the SFC methodology that Keen (2010) and Zezza (2011) have used to solve the paradox But we show that their solutions are not consistent with the core monetary view of their doctrine.

Table 1.1: Typical SAM for an open economy

	Firm	Household	Government	Rest of Economy	Net Investment	Total (Received)
Firm		C	G_F	$(X\text{-}M)_K$	I	$C+G_F+(X\text{-}M)_K+I$
Household	W		G_H	$(X\text{-}M)_C$		$W+G_H+(X\text{-}M)_C$
Government	T_F	T_H				T_F+T_H
Rest of Economy	$(X\text{-}M)_K$	$(X\text{-}M)_C$				$(X\text{-}M)_K+(X\text{-}M)_C$
Net Investment		S_H	S_G			S_H+S_G
Total (Expended)	$W+T_F+(X\text{-}M)_K$	$C+T_H+(X\text{-}M)_C+S_H$	$G_F+G_H+S_G$	$(X\text{-}M)_C+(X\text{-}M)_K$	I	

Source: Mitra-Kahn (2008: 55)

This is an empirical model but in the present study, the aim is to provide a theoretical answer to a theoretical puzzle. Based on various scenarios, a variety of theoretical models are constructed to establish whether the paradox of profit (or shortage of monetary funds in circulation) can be traced to the transactions between sectors or not.

Given the theoretical nature of the present study, there are three reasons that an empirical SAM has not been used. First, with data inconsistency between the national accounts of various countries, an empirical model cannot provide proof of a theoretical debate.[17] Second, as Mitra-Kahn (2008: 57) says: "A theoretical SAM always balances, but empirically estimated SAM's never do in the first collation". Third, the impact of various interest rates and pricing strategies cannot be observed in the typical SAM, whereas this can be done with the modified theoretical version of SAM developed for this research. One of the theoretical versions of SAM, based on the capital structure choice with no government, is illustrated in Table 1.2.

Table 1.2: Theoretical SAM for the fundamental model with no government

Sector	Firm	Household	Bank	Total Receivable
Firm		$\boldsymbol{n(1+\theta)\times\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right]}$		$\boldsymbol{n(1+\theta)\times\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right]}$
Household	$\boldsymbol{n_1 w\ (=B)}$		$\boldsymbol{n_2 w + \alpha n w \times i}$	$\boldsymbol{B + n_2 w + \alpha n w \times i = nw(1+\alpha i)}$
Bank	$\boldsymbol{\lambda B r + (1-\lambda)B(1+\beta)}$			$\boldsymbol{\lambda B r + (1-\lambda)B(1+\beta)}$
Total Payable	$\boldsymbol{B + \lambda B r + (1-\lambda)B(1+\beta)}$	$\boldsymbol{n(1+\theta)\times\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right]}$	$\boldsymbol{n_2 w + \alpha n w \times i}$	

[17] This is like proving the identity $\boldsymbol{(a+b)^2 = a^2 + 2ab + b^2}$ by using different values for $\boldsymbol{a}$ and $\boldsymbol{b}$, which is not a theoretical proof but an illustration of the correctness of the identity.

This table is designed based on the assumption of having a closed economy with no government. The monetary transaction flows between the sectors have been obtained based on a scenario in which lending is the only available source of funds, which will be fully paid to workers. There are many assumptions, terminologies, and variables in this table, which will be fully explained in Chapter 4.

1.3. An Overview of Key Concepts

Despite many similarities between most economic and financial crises, economists from various schools of thought seem to be more concerned with the internal coherence of their ideological-/philosophical-based abstract models and assumptions, than their alignment to real-world experience such as, exogeneity of the interest rate (Carline & Soskice: 2015, Rochon and Rossi: 2016), massive credit creation by financial institutions byond the fractional-reserve theory (Wray: 2012; Hudson: 2018), debt accumulation (Minsky; 2008), class struggles (Marx, 1885 [1969]), uncompetitivness nature of the markets due to imbalance of power (Graeber: 2011, Baran and Swezzy:1966), the existence of the monopoly power of the globalised institutions (Hudson: 2015; Graeber: 2011). Some models might not have "descriptive accuracy" or "analytical relevance" (as Friedman, 1953, discusses), but it will be problematic if models that are constructed on some ideological/philosophical foundations lack both. For example, conventional mainstream textbooks still teach models in which the "state of equilibrium" (a term borrowed from the physical sciences in the 19th century) is achievable through market forces interacting while in reality there is no such equilibriumin a real dynamic world Robinson (1980), believed that the whole idea of reaching equilibrium in a real dynamic world is hard to justify. The analogy of running a bicycle by moving from one disequilibrium position to another one describes economic dynamics better. For example, the circular flow model is based on the equilibrium assumption in which the value of total output is equal to the value of total distributed income, through which profit must be zero, but this theoretical puzzle is either avoided in the mainstream textbooks or, like Mankiw (2016: 57), they provide an explanation which is grounded in a questionable differentiation between economic and accounting profit (see footnote 50). The approach adopted in this research, outlined below, therefore focuses on the financial transactions between sectors of the economy but does not seek equilibrium.

Another example is the loanable funds theory. According to this theory, in a closed economy the interest rate, as an endogenous variable, is determined by the demand and supply for money.

The source of bank loans is savers' deposits (S) which are transferred by banks (as intermediary institutions) to investors. This means the volume of credit a bank can lend depends generally on the volume of deposits it receives from its depositors. In this theory, the interest rate works as an equaliser between saving (S) and investment (I) to satisfy the equilibrium condition $S = I$.

This theory, part of the macroeconomics curriculum, has been criticised by Keynes and many heterodox economists from different angles. For example, Keynes (1936) believed saving occurs as the result of a habit, convention, or social norm and depends on the level of income (i.e. $S = S(Y)$), while investment depends on the level of interest rate and also on investors' expectations about future profit, (i.e. $I = I(r, \pi^e)$), so there is no coordinating variable to bring supply and demand together in the loanable funds (capital) market. There is no reason to assume that supply equals demand in this market and without a coordinating variable, AD = AS can only happen by chance. On the other hand, post-Keynesians believe that the causality direction is the reverse, that is, bank lending leads to the formation of deposit accounts, not the other way around, and thus has an active role in the economy, (see Lavoie, 2014). Accordingly, the volume of credit that banks can create is much higher than that which fractional-reserve banking can create.

There are similar issues with other mainstream theories, such as the neoclassical theory of income distribution, in which equilibrium is reached when the marginal products of the factors of production (mainly, labour L and capital K) are equal to the marginal costs of employing them (i.e. real wage w and real interest rate r), based on simple profit maximisation. This objective cannot be achieved by many companies under monopoly capitalism (see Sawyer, 1988) and in some cases, for those firms with no cost advantages, the profit margins are so fragile and narrow that merging will be the best option to survive in the market, (as seen in practice following the 2007-2008 crisis and before the 2020 Covid-crisis).

In the same manner, in many mainstream models, the state of equilibrium can be achieved without the involvement of government and financial sectors. For example, the Solow or AK models of economic growth lead the economy to a steady-state position without the presence of government and financial institutions. Another example is the efficient-market hypothesis (either in a weak, semi-strong or strong form) by which equilibrium can be achieved when the risk is quickly adjusted through the acts of rational agents, (see Friedman's theory about the efficiency of financial markets and the role of speculators in those markets).

To overcome this issue and to avoid using assumptions or models based on a particular ontology, in this study, we focus on common ground through which theoretical agreement can be accessible between different schools of thought. This common ground can be established through the accounting view of macroeconomics, wherein the whole economy is divided between various sectors and the main focus is on the financial transactions between them, without any attempt to reach equilibrium. Under this framework, we will be able to see the financial transactions between different sectors in the economy without any presupposition about their expected roles and/or their objectives.

There is a consensus among economists on the centrality of the services provided by the financial sector for the real part of the economy, where money with no intrinsic value (fiat money) represents and measures real values or can be substituted for real outputs. No other sectors (or sub-sectors) can be surrogates. The reason lies partly in the nature of these services; they not only facilitate transactions between various activities in the economy, but also promote them by introducing various products (instruments).

Money itself is the means and, above all, the final objective of every legal obligation or settlement. This is an indication of why economic units (including real entities such as individuals/households, and legal entities such as corporations/enterprises and governments) all seek more of it. Money gives power not only to satisfy the needs of the units, but also to enable them to meet their legal obligations and to decrease the risk of their engagement in economic activities in an uncertain world. Money is the means of settlement for almost all disputes between economic (and even social) units. So, the question of which sector of the economy has the power to issue and distribute money is a very basic and, at the same time, very critical question. Money can be defined informally, based on its functionalities in the economy as an extremely liquid financial asset, approved by the state or central bank as legal tender, which can be used to buy goods and services and to pay taxes, debts, fines, compensations or any form of the financial settlement. In general, it also serves as a unit of account, a medium of exchange, a store of value and a standard of deferred payment, but this definition does not provide much information about its changing roles in history, nor how different schools of thought have interpreted this history.

“Legal tender” is an important term as it shows the official approval of this instrument is a necessity for its use in the economy. According to Carlin & Soskice (2015: 153), Legal tender means that “it cannot legally be refused in settlement of [a] debt. The money created by

commercial banks in the form of deposits is not legal tender". The point of departure of mainstream and heterodox schools starts to widen from here. In the traditional mainstream view, the history of money starts from the barter system. According to this view, money (in its commodity and later in its metal form) was invented as a medium of exchange to facilitate trade and to avoid the "double coincidence of wants" (Jevons, 1875: 4) in the barter system in which one person must have the items demanded (wanted) by the other person. So, metal money (gold, silver) was a natural and efficient choice for trade and emerged as the result of the reasonable decision by rational traders to lubricate the wheels of trade, due to the difficulties raised by the barter system. (see Davis, 2010). This view of money as a commodity with an intrinsic value or purchasing power is described by the term Metallism.

This view is heavily criticised by heterodox scholars, based on the view that:

a) There is no solid historical evidence for this theory.
b) People did not have any authority to change the system of trade.
c) It does not show the exact mechanism of the acceptance of money in the whole society and the ability of the society to overcome the uncertainty associated with this natural and rational choice (see Wray, 2012; Lavoie and Seccareccia, 2016).

Heterodox scholars follow George F. Knapp's (1905 [Eng. 1924]) Chartalist view, in which money is the creation of the state and forced to be accepted by the state to settle debts in the nominated unit of account. According to this view, states/governments have never been passive observers of what mainstream scholars claim as an efficient/rational transformation of the barter system into the monetary system. If the mainstream theory were true, what would be the role of the ruling power/state/government in this transformation? How did it happen that this efficient monetary system fell into their hands? Mainstream scholars who follow the barter theory before the inception of money do not have an answer to these questions because the ruling power/state did not enter an already-organised monetary system to extend their dominance, but quite the opposite, they created the system from the beginning.

According to this line of thought, rulers/states/governments started to mint coins (gold or silver) with similar logic. Recorded since the early 14th century in Italy, private banks were able to start issuing their own paper money. The banks' paper was a "promise" (to pay/to redeem), that is, I have your deposit and "I Owe You" (IOU) the deposited money whenever you want. Knowing that the "state money" is a credit for its purchases (or expenditure) and a

form of IOU for the seller of the good, the state makes sure that the demand for its IOUs is continuous, by accepting them as payment for "taxes, fees, fines, tithes, and tribute", (See Tymoigne and Wray, 2013).

By spending on or trading the coins with goods, the ruler/state/government becomes a debtor. This debt will be "redeemed by taxation" (Innes, 1914: 168) when the ruler/state/government provides its production (rule of law, security, defence, or public goods). "If the state declares silver to be the material for payment instead of copper, the relative amount of existing debts remains unaltered", (Knapp, 1924: 13). This is in the state's authority to define the type of metal, the relative weights of alloys in the coin, and even the face value (standard of the coin or the paper money): "Two epochs are separated from one another by the moment in which the state declares that payments shall no longer be made by weighing out copper, but by weighing out silver" (Ibid)

In the heterodox view, the role of state institutions and the social relation between institutions and citizens are emphasised in the creation of money. According to this view, the origin of money is rooted in the expansion of power and inequality. Money develops as a "unit of account", before a "medium of exchange" and it signifies a social relationship initiated from debt obligations between state-people and people-people. Keynes (1971: 3), had a similar view of money as debt: "A money of account comes into existence along with debts... Money proper in the full sense of the term can only exist in relation to a money of account".

All post-Keynesians (including Sraffians, Circuitists, Kaleckians, Modern Monetary Theorists (MMT), etc.) believe that the supply of money is endogenous and demand-driven. They believe "the banking system is at the heart of not only the production process but also of the creation of money through the supply of bank loans; this is the essence of what is called the endogeneity of money- banks make production possible", (Rochon et al., 2016: 83). Based on this view, bank lending is the main component of the money supply, so the money supply is credit-led and demand-driven. In fact, "In a modern economy, cash is less than 3% of the money supply" (Carlin & Soskice (2015: 153). Therefore, a major part of the money in circulation is bank credit, which reflects debt. The connection between money, production and debt is one of the core connections in heterodox monetary theory. The idea is that "money is [a] debt which circulates freely", (Schmitt, 1975: 160, adopted from Rochon). According to this heterodox view, production starts with borrowing, therefore, "production is a process of debt formation", (Seccareccia, 1988: 51, adopted from Rochon).

One important point that is almost forgotten in mainstream analyses is that private financial institutions in the financial sector do not lend money to create jobs or facilitate transactions in the economy, but to make a profit. They have an overriding interest in expanding their businesses (like an entrepreneur in the real sector) in order to have a bigger share of capital. Therefore, it is naive to view financial institutions as existing just to support (and not also compete with) the real side of the economy. This competition can come in the form of, for example, seeking a larger share of a finite total income in an economy, or attracting the most talented individuals in the workforce. More aspects of this competition can be found in the work of Bell & Van Reenen (2010), Philippon & Reshef (2012), and Cournede et al. (2015). For this reason, differentiating between financial services (provided by the financial sector) and non-financial services (which are, indeed, part of the real sector) is a vital first step to emphasise the unique and essential role of the financial sector in the economy.

The second important point is the way that money circulates between sectors. In *A Treatise on Money* (1930: 217), Keynes differentiated between industrial and financial circulation to indicate the importance of the difference between the flow of money in the real part of the economy (as the wealth producer) and that in the financial part (which mostly speculates on existing wealth). This distinction has been largely overlooked even by his followers. According to Gertler (1988), Keynes' "direct disciples" focused more on the role of money (and not credit) in liquidity preference theory, and this is one of the reasons that the role of the financial sector disappeared again in the mainstream economic literature after Keynes.

There is another reason for the importance of the distinction between services provided by the financial sector and those by the real sector. In modern economies, real sector activities are heavily reliant on financial sector services. Even in a simple transaction between individual buyers and sellers, financial institutions, and their instruments, such as debit/credit cards and overdraft facilities, play a central and imperative role.

Many financial instruments have been created and supplied solely to enable financial institutions to have a bigger share of capital in the economy. Some heterodox economists use the term "financialisation" to indicate the size expansion and the dominance of financial institutions over other types of institutions or sectors. Toporowski (2012) believes that the rapid increase in the turnover of financial institutions should be seen endogenously with the changes in the real part of the economy. Stockhammer (2012), however, argues that financialisation is not just about the expansion of the activities of the financial institutions. He

believes that financialisation has changed non-financial actors' perceptions about themselves and their motives and has led to a shift in power, from labour to capital on the one hand, and from company to lenders/shareholders on the other. The main outcome of this shift is firms' increased concentration on profit growth through financial channels rather than traditional investment and marketing channels, to make lenders and shareholders more satisfied, while reinvestment of profit might not be justified when the rate of profit is falling (see Section 5.4.2), and expected profit shows slow growth.[18] This condition, i.e., seeking more profit through investing in financial markets rather than re-investing in production, — which is incorrectly categorised by Davanazati & Pacella (2013:7) as a puzzle related to the "expansion of unproductive consumption by capitalists", known as the profits-investments puzzle — shows how the functionality of money changes, from a factor of production to a factor of rent-seeking and speculation, in a financialised economy. This will be analysed in detail in Chapter 5 (in 5.4.1 to 5.4.3 and 5.6).

Behind all the various and even controversial interpretations, the term "financialisation" refers to the fact that in capitalism, an unparalleled upper-hand role has been given to money/credit and the money/credit issuer (money lender) in the process of production, distribution, and even redistribution. Without this, the real sector, specifically in a modern capitalist economy, cannot survive since its growth is vitally dependent on the flow of credit from lenders to borrowers. In this situation, wealth created in the productive sector is conducted and channelled, in the form of debt and interest repayment, towards the physically non-productive sector.[19]

The best evidence for this claim is provided by the bailout policies selected by many developed countries, most specifically by the United States, during and following the 2007-2008 economic and financial crisis. According to Keynes' tenet, the governmental role in keeping and increasing the level of effective demand in a time of crisis is fundamentally

[18] The same type of behaviour and motives can be found in the interrelation of financial institutions where investment banks try to benefit from small retail banks without any investment in the real market.

[19] In a best-case scenario we can assume that some of this wealth comes back into the system by reinvestment in various projects in the real sector, but in a very competitive market the marginal rate of profit from investing in such projects will be diminishing compared to that in financial markets. Therefore, it is logical to conclude that a considerable amount of this wealth would be used for speculation purposes, nationally and/or internationally, when there is no significant change in the levels of risk and expectations.

important, but what happened, in reality, was contrary to this doctrine. Governments preferred to rescue banks and financial institutions on the grounds that they were "too big to fail".

The root of this financial obesity lies in the very structure of capitalism, which has highlighted some aspects of the functionality of money more than others. In this structure, money is much more than a medium of exchange or unit of account*;* it is more a store of value by which the owners, depending on the economic phase, may get more profit from lending it or speculating with it than from re-investing it. This is in complete contrast with the theory —what mainstream economists claim as history — behind the emergence of money as a facilitator of the real part of the economy, as discussed above (see also Carlin & Soskice, 2015: 152; Mankiw 2016: 83).

In a purely financialised economy, where money gains more weight in financing and investment decisions and money lenders have ultimate power over the production, distribution and redistribution of income, more profit can be made through participating in financial markets than investing in real markets, assuming the same level of risk and uncertainty. This is the situation that Keynes (1936: 103) and Strange (1986: 1) called "casino capitalism" in which the "financial system is rapidly coming to resemble nothing as much as a vast casino". Modern capitalists are now financiers and not producers as they were in previous centuries.

A good example of the above claim is inter-bank lending. This is a type of usury activity that does not create any real wealth but provides financial gains for the usurer. The figures show that just prior to the financial crisis in 2007 this type of lending had "doubled in size since 2002 with gross amounts outstanding of about $10 trillion in the United States and comparable amounts in the euro area" (Heider et al., 2009: 7).

A simple investigation into the history of crises reveals that in almost any crisis the role of financial elements, such as money, credit, interest rate, debt, and value of financial assets, are more essential, dominant, and determinant compared to the role of real elements, such as production, investment, the efficiency of the labour force, etc. From Tulip Mania (1637), South Sea Bubble (1720), Mississippi Bubble (1720), to all panics in the 19th century (1819, 1825, 1837, …, 1896) and also all panics and crises in the 20th century, The Great Depression, The 2000s recession, Latin America's crisis, and finally the 2007-2008 crisis were due to financial imbalances (see Hudson 2015; Graeber, 2011 for more discussions about some of these events). This is contrary to the prevalent postulates of mainstream (orthodox) scholars, who used to believe (and some branches still believe) that money is a "veil" and real variables are not

affected by financial variables (at least in the long-term) given the dichotomy between the financial and real sides of the economy.

Marx was the first scholar to question the instability of capitalism, in his theory of surplus-value, by referring to the origins of capitalist profit in a political economy. The "paradox of monetary profit" is based on a simple theoretical question but it has remained one of the fundamental puzzles in the history of economics:

> The capitalist class remains consequently the sole point of departure of the circulation of money... The capitalist class as a whole cannot draw out of circulation what was not previously thrown into it (Marx, 1969: 204).

The impossibility of making a profit will be evident when we look at the way the income of each class (as a whole) is monetised/realised.

If we look at the economy as a system composed of sectors (and not classes as Marx projected in his view of the political economy) we find a similar story for bank profits in the financial sector, i.e. when banks lend a certain amount of money into the economy, given a fixed supply of money in circulation, how can they monetise their interest (profit)? We can even look at the paradox of profit on a global scale beyond individual political territories.

Bruun et al. (2009) and Smithin (2015) have claimed that these questions remained unanswered by Marx, Keynes, and other mainstream scholars; but we will find in Chapter 3 that these claims are not true. Marx did indeed provide a practical solution for the paradox, but his solution is in line with the traditional situation in which the capitalist, as both producer and owner of the surplus-value, is the financier of the production as well. Given the current/ modern separation of ownership and financial sponsorship, his solution is no longer viable.

This study will prove that the paradox as a theoretical puzzle does not have a theoretical and sustainable solution, except in a specific case when the government appears as the major wealth contributor between sectors through a very restrictive tax policy, which will be fully explained in Chapter 4. What are called "general" solutions are, in fact, just practical answers working as temporary and unsustainable remedies that cover up the inherent instability of capitalism and merely postpone crises. "Fresh money" or "new credit flow" enable the problem of monetising profit and interest rates to survive undetected for a while, until the debt crisis collapses the whole system. A theoretical and also sustainable solution must be able to prove that the same amount of money/credit that is brought into and circulates within the system, would be enough

to monetise profit at the end of the process, regardless of whether the system is defined by classes or sectors.

In light of the above considerations, this study will present a theoretical analysis of the role of the interest rate and financial institutions in financialisation, and also of the mechanism by which debt is intensified and accumulated in an economy, that is, the key factor that leads to the instability of the whole economic system. Using a modified form of the Social Accounting Matrix (SAM) framework, this theoretical argument will show that the "Paradox of Profit", despite some heterodox economists' claims to have solved it, is still an unsolved puzzle and the phenomenon it describes it can remain undetected when there is an incessant increase in the supply of money and credit.

By replacing Marx's original economic classes with economic sectors, this study will provide a new approach to the puzzle. The aim is to show that the financial transactions between various sectors provide surpluses for some sectors at the cost of making deficits (debt) for other sectors. This is a zero-sum game that is not sustainable.

In the light of this study, it can be conceived how, in a synergetic process, debt reproduces itself through credit expansion and credit reproduces itself through debt expansion. The main factor driving this synergetic process is the shortage of money in circulation as explained by the paradox of profit. This process will never stop unless uncertainty about the continuation of the process forces the creditors or the debtors to leave the process. It will be shown that the main economic factors behind this instability are the same factors as those behind the paradox of profit, that is, the interest rate and mark-up pricing.

This research will also shed light on the foundation of capitalism that deepens the role of capital in an economy compared to other factors of production. It also shows, in the process of moving from the "real exchange economy" to the "monetary production economy", how the functionality of money changes from being a medium of exchange and a means of payment to a store of value, or perhaps a better name is a "symbol of value".

1.4. A Map For this Research

The role of the interest rate before and after the inception and prevalence of money is the subject of the discussion in Chapter Two. Drawing on historical evidence, this chapter aims to show that the impact of the interest rate as a profit-seeking mechanism was problematic even before the prevalence of money/credit. The recorded and material history of the ancient world

is vital as it shows that the nature of the problem has not changed over millennia. One reason that all major religions in their core messages prohibit their followers from lending with interest could be attributed to their experience and knowledge of the unjustifiable adversities that the practice brought into ancient societies.

The role of money in a "monetary production economy" will also be analysed in this chapter, including a discussion of the similarities and differences between mercantilism and capitalism as two different manifestations of the "monetary production economy", which, in nature and objectives, is totally different from the "real exchange economy" as Keynes called it. The flaws in the mainstream interpretation of the history of money will be analysed and it will become evident why the role of money and credit has been overlooked in this major school of thought. There is also an analysis of the "transmission mechanism", a highly debated topic in the New-Keynesian school of thought, reflecting the fact that a considerable number of mainstream scholars have acknowledged the role of money and monetary policies in the real side of the economy, but are still far away from reaching a consensus among themselves and with the views of heterodox scholars.

The variety of concepts and terms introduced in Chapter 2 have already been discussed and explained by various scholars such as economists, anthropologists and historians, but to put them all together to show the role of the interest rate as the main component of all social and economic imbalances before and after the inception of money is a unique contribution of this chapter.

In Chapter 3, we talk about the paradox of profit and the way that this puzzle can lead us to understand the instability of the monetary production economy. We expand Marx's original modelling of the paradox to include various sectors (instead of classes) in the economy to trace the monetary flows between them. In this chapter, the analysis of the paradox solutions claimed by some circuitists and post-Keynesian economists is of particular importance, and we shall establish why their solutions are at odds with their assumptions as heterodox scholars. Showing the inconsistency of the solutions of circuitists and some post-Keynesians with regards to the paradox puzzle is the main contribution of this chapter. It will be shown that what they offer as solutions are not a *theoretical* solution — that shows the same amount of money in circulation can monetise profit — and that they have not gone beyond Marx's practical solution in which more money (capitalist's pocket or bank credit) is needed for the realisation of profits.

In Chapter 4, various models with diverse scenarios will be introduced to prove the existence/validity of the paradox of profit, and we shall set out what conditions can provide a theoretical answer to this paradox. The models will be built step-by-step and, in each step, the model will move closer to a real situation, to see how the paradox can manifest itself and can be analysed through the flow of transactions between the main sectors. The Social Accounting Matrix (SAM) is a well-known accounting matrix technique that was initially designed to represent all transactions related to national income. In this study, we use it in a unique way that has no counterpart in the existing literature. This is characterised by employing mathematical models (instead of using national accounting data) to capture the flow of funds between different sectors and to search for the shortage of money in circulation. This represents a methodological contribution of this study. At the end of this chapter, the final model represents the only theoretical solution for the paradox of monetary profit in which the government sector (and not the market forces) is the main distributor of the whole income between sectors. This is the major contribution of this chapter.

In Chapter 5, the concept of financialisation will be discussed through two very separate approaches in the heterodox literature. Both approaches will be critically analysed and at the end (Section 5.5) it will be explained how the existence of the paradox of profit can be seen from a different angle in connection with the Marxian theory of surplus-value, the tendency of the rate of profit to fall, and the theory of stagflation. It will be explained how a profit-seeking mechanism (such as the interest rate mechanism) can lead us to a theory of debt accumulation and through the credit-debt reproduction mechanism, how a monetary production economy enters the process of financialisation. The theoretical link between the paradox of monetary profit and financialisation, and introducing the mechanism by which this link has been working for centuries (i.e. the credit-debt reproduction mechanism), are the new and major theoretical contributions of the study as a whole. Therefore, this study in its final mission, shows how the gradual process of financialisation can be associated with the shortage of money in circulation in a monetary production economy.

In Chapter 6, we will provide a general summary of all previous chapters, plus concluding remarks and a brief review of the contributions of this study, along with possible future lines of research that this research has revealed.

1.5. Summary

In this chapter, the aim has been to give a general picture of the research topic, research questions and the motivation behind it. The chapter starts with the mainstream's failed attempt to identify the major economic problems in capitalism. Getting a false signal from a long period of relative stability in the leading developed economies after WWII, led many mainstream economists to shift their attention from investigating the roots of economic and financial crises, to topics such as controlling the volatility of business cycles and long-term growth. The economic and financial crisis of 2007-2008 showed that mainstream theories and models have been unable to understand, explain and predict the sources of the reappearance of instabilities in capitalism that leads to crises. Searching for the roots of the recurrence of crises led this research to dive deeper, find and conceptualise possible elements of persistent instabilities in capitalism with a pattern that can be traced back to mercantilism.

This is important because these two economic systems, with all their differences, can be categorised as the monetary production economies or, as Keynes simply refers to it, as "monetary economies". The definition of this term, based on Marx's interpretation of capitalist accumulation (M-C-M′), opens a new window to many hidden structures in the dynamics of capitalism. The story of how M becomes M′ and how this transformation, through the lens of the paradox of monetary profit, leads to financialisation is the main theme of this research.

Through the shortage of money in circulation, which is the flip side of the paradox of monetary profit, the term 'credit-debt reproduction mechanism' was introduced. This mechanism can explain the debt dynamic of any monetary production economy that is constructed on a usury-based and profit-seeking foundation. Using the credit-debt reproduction mechanism we can eventually understand the interrelation between the accumulation of debt (either nationally or internationally), the inability of the governments and monetary authorities to sustain tough rules and regulations in the financial market, the size expansion of the financial sector, the increase of the weight and importance of monetary capital in investment and financing decisions that cause the transformation of the capitalist system from an entrepreneurial productive system to a financialised and a rentier-speculative-type unproductive structure that allows more profit to be made through lending and speculating rather than producing.

The methodology used for this purpose is based on an accounting framework, the Social Accounting Matrix (SAM), in which the flow of funds between different sectors is traced. To track the shortage of money in circulation, different scenarios will be considered and, for

simplicity, we will start with simple models in which the government sector is not available. Then, by moving towards more realistic models, we will add the government sector. In each scenario, we have a sector introduced by one representative agent and the goal is to find out the shortage or surplus of money (total money-in minus total money-out) in each sector based on their transactions with other sectors.

In this chapter, we have introduced some of the key concepts that were initially introduced in the mainstream literature and then criticised by the heterodox literature. At the end of the chapter, a general picture of what should be expected in each chapter plus the contribution(s) associated to them have been discussed.

Chapter 2: Interest Rate & Money

(From the Barter Economy to the Monetary Production Economy)

2.1. Introduction

Through the centuries, money has taken various forms and shapes. To be accepted as a) a unit of account, b) a medium of exchange, c) a store of value, and d) a means for deferred payment, money, with or without an intrinsic value, must be a reliable item or accepted as a legal tender among those who participate in its circulation. With this definition based on its functionalities, in an economic system with a given amount of money, either commodity money or non-commodity money (either currency that is supported by precious metals or fiat currency that has no intrinsic value), any profit-seeking mechanism can create a shortage of money. This is a theoretical situation that is explained by the paradox of profit. Two profit-seeking mechanisms are the interest rate mechanism and the mark-up pricing mechanism, of which the former is the older. The history of the interest rate is even older than the history of money, going back to the ancient world when grains were lent for production or consumption purposes; they were not commodity money itself. Therefore, it would be a sensible query and a reasonable point of departure to investigate if we can trace any trouble or economic instability in ancient times resulting from the presence of the interest rate mechanism.

Several issues need to be addressed: what were the implications behind the existence of the interest rate? How was it justified? What was its functionality? Providing answers to these vital questions paves the way to understanding and analysing current issues regarding the stability of capitalist financial systems. There is a simple reason for this: the part of history that deals with the interest rate and money echoes the same issues over millennia.

In this chapter, the main objective is to show that before the prevalence of money, the interest rate was the main cause of debt and instability. Through this chapter, we will find that personal debt cancellation was vital and, at the same time, the normal recourse for governors and rulers in ancient times to prevent economic and social instability. We explore the idea of some scholars who believe that the main practical concern of two of the main religions was managing the dangers of debt, rather than those of sins.

The impact of the interest rate after the emergence and growing dominance of money is also scrutinised in this chapter, in which the orthodox view of the history of money will be challenged. It will be argued that their account of this history is the main source of ignorance about the role of money in their analyses. The role of money and the interest rate in a non-monetary production economy, or as Keynes called it a “real exchange economy”, and in a monetary production economy is discussed. It is demonstrated how functionalities of money

can differ in these two systems and why it is important to distinguish these functionalities for a better understanding of the term financialisation (discussed in detail in Chapters 5 and 6). First, we define the key terms used in this chapter.

According to Keynes (1933), the "monetary production economy" (or as he calls it "monetary economy") stands in contrast to the "real exchange economy". In the latter, money is not prevalent and is mostly used as a medium of exchange in trade (a good is being sold to buy another good in the chain of commodity-money-another commodity— C-M-C′— similar to the idea of a barter economy — C-C′— in which money is absent in the chain). In a monetary production economy, money is the aim and the final objective of the production process and is seen more as a store of value than a medium of exchange, (Wray, 2012). The aim of production of a good, in such a system, is not trading with another good (as we see in the real exchange economy). Rather, the whole production process is designed to get a monetary profit (money is used to produce a commodity which can be sold at a profit in the market —M-C-M′— in which M′ > M). The profit in this process does not necessarily need to be returned into further production or even into circulation, due to the existence of uncertainty or liquidity preference.

In this chapter, as with Chapter 1, the terms "usury" and "interest rate" are used interchangeably. That said, we shall see how usury activities were morally and legally justified, and replaced by the more neutral term "interest rate", due to the excessive demand for credit, in particular with the expansion of trade from the 13th century. We also examine the idea that mercantilism was the first monetary production economy that faced the shortage of money in circulation as evidence of the existence of the paradox of profit, (see Keynes, 1936: 208),

At the end of this chapter, we discuss how mainstream scholars bring interest rates and their impact on total demand and inflation into their monetary theory through the concept of transmission mechanisms, although this is still very far from the concept of money and credit in the heterodox literature. The monetary transmission mechanism refers to the study of how monetary policy may influence real variables such as production, investment, and employment through different channels. The number of channels is the subject of much discussion and each channel is heavily debated amongst New-Keynesians, reflecting the fact that a considerable number of mainstream scholars have acknowledged the role of money and monetary policies in the real side of the economy.

2.2. Interest Rate before the Prevalence of Money

Since ancient times, the term "usury" has been used to refer to lending at any interest of any kind. In the Old Testament, usury as "lending at interest and taking a profit" was in line with other diabolical acts such as rape, murder, robbery, and idolatry, (see Ezekiel, 18-19, James 4 from Bible Gateway). Across much of history, the term has been used to describe the charging of very high or above the approved legal rates of interest.

According to Britannica (2018), "in Old English Law, taking *any compensation whatsoever* was termed usury. The term has undergone several important changes in its definition and usage over the centuries. With the expansion of trade in the 13th century, however, the demand for credit increased, necessitating a modification in the definition of the term. Usury then was applied to exorbitant or unconscionable interest rates. In 1545 England fixed a legal maximum interest, and any amount in excess of the maximum was usury".

While in modern days, usury is defined as "the practice of charging an illegal rate of interest for the loan of money" (see Encyclopedia Britannica), it was denounced and prohibited by all main religions in the early days of their establishments due to its exploitive impact on people's lives. In this study, the term is used as defined in Chapter 1, hence it is interchangeable with "interest rate", regardless of being high or low.

A loan at interest has a longer history than money. Long before the existence of money, ancient societies set up codes of conduct for lenders and borrowers of various valuable materials or commodities (such as grains, seeds, etc.). There is much evidence that indicates ancient people were familiar with the concept of debt and understood repayment as a sacred obligation (Innes, 1913; Henry, 2004; Homer and Sylla, 2005). Rates of interest have differed widely from one society to another through time, but the interpretation of this rate should be undertaken with caution. In modern societies, "interest" refers to something extra and obligatory on the top of the principal debt even if you pay the whole debt, but in ancient tribal societies, when it existed it referred to the penalty for missing the repayment of the main debt and was understood as being for the benefit of the community.[20]

[20] The English word "interest" coming from the Medieval Latin *intereo* in the perfect active form *interesse*, meaning "disappeared" or "lost", which points to the notion of compensation for losing the repayment. (see Etymology Dictionary on www.etymonline.com/word/interest .

The latter interpretation of interest can be formed in an *egalitarian society* where every individual has a prime obligation, not to another individual but to the whole community. Henry (2004: 4) believes that such societies did exist around 4400 B.C. in Egypt and describes them as:

> A non-exchange, non-propertied society that follows the rule of hospitality—all had a right to subsistence that was collectively produced by its members on collectively held means of production. Such a society is non-political in that no authority could exist independent of the population as a whole. Privilege, connoting superior-inferior relations, was absent as privilege is antithetical to equality. As such organizations operated on the basis of consensus, it would be inconceivable that the population would bestow privilege on some to the detriment of the majority.

Moving forward in time, socio-economic inequality and separation from tribal identity start to appear when some members of tribal communities are able to acquire special privileges. According to Henry (2004: 5), this social and economic separation happened in Egypt around 4000 B.C., when some community members, "hydraulic engineers", developed skills for creating dykes, levees and canals and thus controlling the flow of the Nile as a source of irrigation for growing crops. He believes that this knowledge enabled them to manage unskilled workers in a vast area along the Nile River. By working for different communities, they were able to help each of them develop their own agricultural activities, in response to growing populations.

The transition from an egalitarian to a class-based society (where inequality between people is acknowledged[21]) happened before the manifestation of money and over centuries of accumulation of non-monetary surpluses, not only in Egypt but in many other ancient societies. Those with non-monetary surpluses (such as tools, lands, animals, food, seeds, and even ingots of copper or silver, see picture 2.1.) were able to lend (at interest) to others in need and this lending, in a class-based society, would be considered as a mutual contract between the borrower and the lender beyond the community consensus.

[21] The presence of large tombs with jewellery buried with the body alongside simple graves signifies an acknowledgment of the class society. For more information, see Midant-Reynes, 2000a.

Archaeological discoveries have revealed complex codes and regulations that were developed to protect the rights of both lenders and borrowers, and also that the number of contract breaches was very high at the time. Thus collateral (pledge) was considered as guarantee for the repayment of the loan, making it a riskless activity in terms of losing the value without any form of compensation.

Picture 2.1: Copper ingots from shipwrecks at Hishulay Carmel, Israel c.1300 BC

From: http://www.ancient-wisdom.co.uk/crossculturality.htm [access: 19/04/2015]

According to Homer and Sylla (2005: 27, 29), in ancient Sumer, around 3000 B.C.,

> [some of] the Code[s] required that all loan contracts be drawn up in the presence of an official and witnessed. Otherwise, the lender would lose all rights to repayment. A higher than legal rate collected by subterfuge also cancelled the debt. … To protect the creditor, pledges and sureties were permitted. Pledging of farmland was regulated in detail; the creditor could not take more at harvest time than the principal, if due, plus legal interest. Any property, real or personal, could be pledged—wife, concubine, children, slaves, land, houses, utensils, credits, the door.[22] … The debtor, unable to pay, might himself be reduced to slavery for three years. … The law protected such human pledges from mistreatment and they could not be sold.

None of the major religions were passive observers to the confrontations between debtor and creditor at that time. Hudson (2018: 190) believes that Judaism and Christianity we know today are different from their early days when they were more about social justice than individual

[22] "Owing to the scarcity of wood, doors were rare and were not considered part of a house but a separate commodity separately saleable and … and sometimes rately hypothecated for loans" (Ibid: 27).

(interior) morality. He adds that "the Ten Commandments pertain to the usury problem" referring to one that "prohibits Israelites from coveting members of other households - including their servants, property or family members pledged for debt".[23]

The debt must have been a significant social problem given the high-interest rates across the ancient world. The general rate of interest in Sumer (between 3000 until 1900 B.C.) was 33.3% on the grain and 20-25% on silver, in Babylonia (between 1900 until 539 B.C.) 20-33.3% on grains and 10-20% on silver, in Assyria (between 9th and 7th Centuries B.C.) 30-50% on grains and 20-40% on silver, and in the Persian empire (6th Century B.C.) 40% for both grains and silver.[24]

There is not much evidence to support the idea that there was an economic crisis in the form of a communal debt crisis in ancient times, but socio-economic class struggles were part of everyday life in ancient societies. The logic of these struggles is not difficult to understand. For example, in Sumer, grains borrowed at a 33.3% rate of interest meant that the debtor had to pay back 133.3% at the end of the agreed time (e.g. one year) and he must had to enough grains for his own benefit to avoid borrowing the following year.[25] Considering the natural yearly decline of land productivity, *ceteris paribus*, apart from random natural disasters and/or soil salinity after too much irrigation, the debt cannot be reimbursed,[26] and under such conditions, illegal methods might be used to prevent enslavement or loss of assets.

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[23] It was for the same reason that when Jesus entered the main temple of Jerusalem, he directly confronted the merchants and moneylenders in a combative way. Hudson (2018: 190) believes that this anti-establishment act "inspired the city leaders to plot his death". In an interview with Claire Connelly on the web channel "Renegade Inc." entitled "He died for our debts, not our sins", he states his belief that Jesus was a "socialist activist": "To understand the crucifixion of Jesus is to understand it was his punishment for his economic views … He was a threat to the creditors. … The Pharisees, Hillel (the founder of Rabbinical Judaism) and the creditors who backed them decided that Jesus' growing popularity was a threat to their authority and wealth. … They said, 'we have got to get rid of this guy and rewrite Judaism and make it about sex instead of a class war', which is really what the whole Old Testament is about." [available at https://renegadeinc.com/he-died-for-our-debts-not-our-sins/ access 29/12/2018]

[24] Data derived from Table 1, Homer and Sylla, (2005: 31)

[25] In a monetary economy, the situation is worse as the debtor cannot print money for the debt. If the debtor is a producer, he/she must increase the price of the product (if possible), if the debtor is a labourer he/she must increase the working hours, and if it is the government, tax must be increased, or monetary authorities must use the budget deficit.

[26] See Thompson (2004) for more references and discussion of the Mesopotamian decline.

The ancient codes and regulations, which have reached us through the work of archaeologists, reveal facts about the way that money gradually acquires its role as a means to settle some disputes, and they also reflect the type of society and economic life that ordinary people experienced at that time. The early codes, such as the code of Ur-Nammu (2050 B.C.), the Laws of Eshnunna (1930 B.C.), later the code of Lipit-Ishtar (1870 B.C.), the Code of Hammurabi (1754 B.C.), and even later the laws of Solon in Greece (around 600 B.C.) and the *Law of The Twelve Tables* (between 450-449 B.C.), all reflect similar problems in a class-based society where the rise and extension of inequality are inevitable. (see Hudson: 2018)

The economic struggle of ordinary people who had no access to productive resources, such as land, a river, etc., created an unequal society, in which, they had to pay rent for using the land and water that was then in private ownership. In many cases, rents and loans could not be paid or reimbursed. For example, in the time of Solon (around 600 B.C.)

> There was contention for a long time between the upper classes and the populace. Not only was the constitution at this time oligarchical in every respect, but the poorer classes, men, women, and children, were the serfs of the rich. … They cultivated the lands of the rich at the rent thus indicated. The whole country was in the hands of a few persons, and if the tenants failed to pay their rent, they were liable to be hauled into slavery, and their children with them. All loans were secured upon the debtor's person, a custom which prevailed until the time of Solon, who was the first to appear as the champion of the people (Kenyon, 1919).

2.3. Interest Rate after the Prevalence of Money

Before talking about the role of the interest rate in this section, a brief discussion about money is necessary as its presence and prevalence in everyday life have profoundly changed the view of all economic agents, including governments, about the meaning of value and prosperity.

2.3.1. A View on the History of Money

If we had to choose just one word or phrase to point to the distinguishing factor in the three eras of feudalism, mercantilism, and capitalism, money and its role in economic activities would be the best choice. And today, one of the core elements in the divergences between various schools of economic thought, mainly between the orthodox and the heterodox, is money and its inception into the pre-capitalist market. Wray (2012: 3) is thus correct to say that "the history of money is contentious".

The orthodox reading of the history of money is simple to understand, but it is flawed as it is based on the same repeated paradigm of having rational agents dealing in free markets trying to maximise their benefits or minimise their costs (Wray: 2012). Based on this reading, money, as a medium of exchange, must have been chosen by people, to replace the barter system to "eliminate the necessity of a happy coincidence of wants required for barter to take place. Thus, money springs forth to facilitate exchange by lubricating the market mechanism, which had previously relied upon barter: money is created to minimize transactions cost" (Ibid: 4).

This story could be true in a schematic view of economics, but not in the real world, where people did not have the freedom or trust to select a form of metal money as the means of payment. Money, in fact, did not arrive in the lives of ordinary people through their own choice until it was adopted, confirmed, and stamped by the ruling political and religious authorities of the time for any obligatory redemption. According to Knapp's "state theory of money" (1905 [Eng. 1924]); money has been used and forced to be accepted by the state to settle debts in the nominated unit of account. The state has never been a passive observer of what mainstream scholars claim as an efficient/rational transformation of the barter to the monetary system (see Groseclose, 1934; Henry, 2004; Semenova & Wray, 2015 for more historical details, and Wray, 2012).

Although money in the form of gold/silver coins had existed since the 6th Century BC (Goldsborough, 2004), it does not find a central role in general economic life in Europe before the flourishing of cities in the 13th Century, and not concretely before the industrial revolution in the 18th Century.

Many factors helped money to find its place at the centre of the economic system whose impact began after human settlements were established. The most important elements for our purposes are the following:

1) Expansion of trade and the need for standardisation of transactions and measurements
2) The complexity of socio-economic life and the need for homogeneity in compensation
3) Rise of unconstitutional monarchs (as a ruler or proto governor) and their need for consistent, sustainable taxation
4) Formation of new non-productive jobs (in terms of physical output) such as those of soldier, priest, musician, etc., and the need for standardisation of payments.

Considering the impact of these factors, metal money could be seen as a natural choice for the rulers of the time to address their needs/purchases by minting it as their debt (IOU) to producers

and service providers and for that reason, it is called by heterodox scholars "state money" (see Section 1.3, p 23-25 and Knapp, 1905). To make it acceptable the state ensures that its IOUs is generally demanded by accepting them as payment for "taxes, fines, fees, tithes, and tribute". (see Tymoigne and Wray, 2013: 6).

But we need to keep in mind that money was initially a commodity with an intrinsic value based on its weight and purity, used for exchange (but not for daily exchange, particularly in the countryside) and also for keeping the standard of measurement, with the same functionality as weighing stones. Two examples can support the above claim of money's initial status as a commodity. First, none of the earliest ancient coins had a denomination or face value, because people trusted the value of the coin by its weight and the alloy used in it. For example, the *Shekel* was a Babylonian unit of weight between 9 and 17 grams (depending on the era and the region), and it could be found in the form of gold or silver.[27] It was commodity money and not currency, as currencies either do not have any intrinsic value (such as fiat money) or their intrinsic values (based on the inclusion of precious metals) are subject to reduction (devaluation) over time. Second, the discovery of the touchstone as an assaying tool, and its extensive usage, allowed people to verify the purity of the precious metal/coin, and hence determine its value as a commodity.

Minting and stamping was the first step toward the standardisation of coin weights and values, which was a prerequisite for establishing a monetary system. The second step was attaching a face value to money, thus changing it to currency. Both steps were important as they provided ease and trust at the same time for any transaction, but the second step was more fundamental as reducing the use of precious metals allowed the minter to create more currency, which drives its value based on the given denomination.

2.3.2. Role of Money in a Non-Monetary Economy

To have a better picture of the role of money in the everyday life of ordinary people in pre-capitalist economies we need to come forward in history to the era of European feudalism (around the 9th to 15th Centuries, the Middle Ages) when we have more (but still limited) evidence and knowledge (for more information about this period see Cleary, 2016; Knox, 2016; Dean, 1996; Durant & Durant, 1967; and Groseclose, 1934, on which the following has drawn).

[27] According to the ATS Bible Dictionary, it was used to measure the weight of uncoined gold/silver, (see: http://www.studylight.org/dictionaries/ats/view.cgi?n=1896 [access 29/04/2015])

This is the period when the lives of ordinary people were very simple, with no technological advancement for a very long period of time. Agricultural goods were the main production, and all production relations were formed based on the ownership of land as the main factor of production and the main source of wealth.[28] Land could not be owned by serfs (peasants) as they were themselves part of the property of the aristocratic landlord, but they had the right to settle and cultivate the land under certain specific rules.

The majority of people had a low life expectancy with poor health and a low level of sanitation. There was no education or public training for almost all peasants. The technology of production was very labour-intensive and mostly limited to satisfying the needs of local communities (called manors). The communities were self-sufficient with a little systematic surplus for trade in local markets, and even if there was any surplus, undeveloped transportation methods together with bad road conditions prevented them from conducting distant trade. The local markets were also scattered and underdeveloped.

For ordinary people what could be done with money was limited. Money was valuable, but it could not be seen as wealth or even a stable asset (such as land) and so it was more a "medium of exchange" rather than a "store of value", and subject to fraud (mingling) and devaluation. This will be explained further in Section 2.2.3.

Money was mostly used to buy goods not produced locally (such as fabric, tools, jewellery, etc. which were usually made in big cities or traded from abroad) from peddlers. For the rich and powerful, and later for ordinary people, money was also used for buying indulgences.[29] Even rents and taxes to the Lord were mostly payment-in-kind. Some family members (mostly women) were able to make more money by running a very small business at home, literally a "cottage industry", typically by spinning and weaving wool or cotton with basic machines. Although money was valued it was not the main objective of production because the economic system was not monetised. It was a "neutral link between [the] transaction of real things and

[28] In that period, capital was important and capitalists had a high rank but not as much as landlords. Durant quotes a story from Taine (1931) about an event that happened before the French Revolution when the wealthy wife of a banker (Madame Roland) was invited to an aristocrat's house but when the time came to eat, she was "served in the servant's quarter" (1967: 1020).

[29] Indulgences were initially designed by some Catholic Churches in Central Europe for minor sins, as an exemption from punishment from God, but the sales practice extended over time "to include forgiveness for the sins of people who were already dead" (Jones, 2012).

real assets" (Keynes: 1933) and did not change the "motives or decisions" of economic agents. This is the role of money in what Keynes called a "real exchange economy" (Ibid).

As mentioned before, what we know about this important period is very limited and does not allow us to make a general statement about economic activities in the whole of Europe, but it is apparent that we are not dealing with a monetary production economy, "in which production begins with money on the expectation of ending with more money later" (Wray, 1999: 1),[30] or any type of accumulation regime where money plays a central role. But its role was gradually becoming more prominent. Knox (2016) has beautifully explained the trends in that era:

> [While] 'the economic depression of the Renaissance' is no longer a hot topic, there is general consensus that money became increasingly important from the 12th century onward and that this trend continued and accelerated during the 14th and 15th centuries. This broad generalization gains significance when we turn to specifics. We know, for example, that more and more rents and fees were converted from payment in kind to payment in cash, and that this happened in response to inflationary pressures. We know that the velocity of money increased and that this was due in part to developments in business methods, including banking and financial instruments such as the bill of exchange. We know that the minting of coins spread very broadly, with coinage rights held not just by monarchs but by dukes and counts and even towns. It may seem odd, to say that money was important. Surely money was always important, right? Not really. Only a tiny fraction of Europeans lived off an earned wage. Most lived off the produce of their land, directly or indirectly. That tiny fraction was growing, but more importantly, the fraction of [the] European population that supplemented their livelihood with cash income was growing. It's impossible to come up with reliable statistics, our sources don't permit that, but the indirect evidence is everywhere (Online lecture notes, Boise State University).

[30] This is exactly what Marx mentioned in his theory of "the circuit of money capital" that the circulation starts from money (M) paid by the capitalist to buy commodity (C), including raw materials and labour, and then in the second stage, the capitalist appears as a producer and their money goes through the process of production (P), which has a value in the form of "productive capital", and eventually in the third and final stage, a new commodity with a surplus value (C') is sold to attain more money (M'), i.e., we have: M-C … P… C'- M' (Marx, *Capital*, Chapter 1, Volume II: 15).

One of the characteristics of the pre-capitalist (non-monetary) economy was that the production system —for many reasons including lack of technology, lack of demand, etc.— was not designed for (nor capable of) generating excess production, which is the necessary prerequisite for trade.[31] Even over-production, in such systems, occurs by chance and not by any advanced planning and systematic work. In such economic systems, demand and supply levels cannot be far apart because money is neutral and only has an intermediary role. Using Marx's notation, the chain of exchange is C-M-C' (commodity-money-commodity), where money works only as the medium of exchange. This is something very close to a barter economy (C-C'), in which:

a) There is no systematic surplus or deficit in production, i.e. whatever is produced is demanded (equilibrium under Say's law).

b) Production happens to satisfy the needs of the producers or the community around them.

c) Selling and buying are not independent acts, as the sellers offer their products in exchange for something they need, i.e., the sellers are the buyers at the same time.

In this Ricardian view of the economy, "No man produces, but with a view to consume or sell, and he never sells, but with an intention to purchase some other commodity, which may be immediately useful to him, or which may contribute to further production. By producing, then, he necessarily becomes either the consumer of his own goods or the purchaser and [at the same time] consumer of the goods of some other person" (Ricardo, 1821, Chapter 21, Part 21.1).

This economic system is in contrast with a "monetary production economy", in which money represents the values of all aspects of the social and economic life of people, (see Knox, 2016; Durant & Durant, 1967) While in a non-monetary economy some works could be done without monetary payment (e.g. the manorial system), a monetary production system cannot operate

[31] The old empires such as those of Rome, China and Persia, cannot be considered as non-monetary systems. All these empires had a mixture of monetary and non-monetary systems. The economic system as a whole was not monetised for the ordinary people, i.e. money had not entered in all aspects of the social and economic life of people, but it was a vital part of merchants' activities. For those activities, there were an intense degree of monetisation. The taxation system was both cash and in kind, (see Christiansen, 2004). It is also important to know that credit accounts were first introduced in Asia. The remaining clay tablets show how trade was possible without a need for money transfer (see https://www.bbc.co.uk/news/business-39870485). During the Silk Road period "Two major currencies used along the Silk Road are the silver drachm of the Sasanian empire (Neo-Persian) and the gold solidus of the Byzantine empire (Eastern Rome)". (see http://www.silk-road.com/currency-along-the-silk-road/)

without money. The value of everything can be expressed by money, even staying unemployed or looking after a child by the parents, or the work of a wife in her house, is compensatable by money, if there is a need for settling a legal dispute. In a monetary production economy, money is the main objective of all economic agents. Thus, production starts with money (buying raw materials, labour force, and machinery) to get more money in the future, (M-C-M'; money-commodity-more money). In such a system, buying/consuming and selling/producing turn into separate and independent acts that are not necessarily equal. There is no guarantee of an equilibrium between supply and demand, and this is the main reason that in macroeconomics the term "inventory" (physical assets in-store) is described as "unplanned investment", caused by a mismatch between demand and supply. If a group of agents decide to hoard their money out of circulation for any reason, for example for an uncertain future, there will be no equilibrium, and the lack of equilibrium leads to over/under-production or over/under-consumption.

2.3.3. Interest Rate in a Monetary System

As we saw in the previous section, imposing an interest rate on commodities, in the era before the expansion of money, created economic and social tensions between lenders and borrowers. For this reason, the main religions seriously condemned moneylending at interest, prohibited their followers from this practice, and encouraged them to forgive the debt of their debtors in the same way as they expect God to forgive their sins. The lesson from the ancient world is clear:

> "the loan market was depicted as predatory, driving people into debt, and taking their land and thus threatening to destroy what today are called family values" (Hudson, 2018: 186)

This suggests that in the early period the social guidelines and obligations set out by the main religions were more central to their message than the spiritual aspect and that religious involvement in this issue was very reasonable and, in fact, to be expected. Hudson (Ibid: 226) observes that "in many languages, the words "debt", "trespass" and "sin" have interchangeable meanings … Christ's title of the Redeemer includes the idea of saving debtors from bondage".

Although the reasons behind this condemnation were more social and political than economic, there were serious economic drawbacks. Lending money at a fixed rate of interest without any participation in the economic activity of the borrower (and also regardless of the outcome of

the borrower's strategy) gave the lenders the upper hand. This allowed them to accumulate the monetary form of capital without participating in (or accepting) the risk of a loss. In prosperous times, this issue does not attract any attention but in difficult economic times, this type of practice creates tensions between lenders and borrowers. This is the reason that in ancient times, debt cancellation (also called "debt Jubilees" in the Judaic tradition) was the norm, repeated regularly to keep the balance of the society on the right track. According to Hudson (2018: ix), it was common practice for new rulers "upon taking the throne, in the aftermath of war, or upon the building or renovating a temple" to liberate people from their personal debt and its associated legal obligations with regards to their families, their lands and their servants. This goes back to 2500 B.C. in the ancient Near East in Sumer, then in Babylonia (around 1600 BC), and also in Assyria (around 1000 BC). He believes that "Judaism took the practice out of the hands of kings and placed it at the centre of Mosaic Law" (Ibid: ix). [32]

Apart from the social and political dimensions of practising usury (at any rate), two more important problems also follow logically: First, in a usury-based system, the value of money (as currency) is always decreasing. Even in no inflation situation, a sensible answer to the well-known question, "would you like to have £1000 today or next year?" is "£1000 today" regardless of being a patient or impatient consumer, because a difference between the two sums is created by the interest rate, which changes the present value of the money that will be received in the future.

Second, in a monetary production system, where money is the objective of production, assuming that the supply of money is fixed, under the usury-based system the circulation of money between lenders and borrowers will not be able to continue after a period of time. Even if we assume that the total amount of interest in a closed economy will eventually be returned to circulation by the lenders (provided that there is no money hoarding for an uncertain future) that injection of money, totally or partially, creates new debt. This means that all or part of the financier's profit returns to circulation as new debt, otherwise the financiers would not be able to carry on their profit-seeking activities for very long.

We have a similar issue (shortage of money in circulation) when firms aim to make profits and use mark-up pricing to repay their debt, whilst simultaneously, seeking to be less financially

[32] According to Judaism, the Jubilee (year of release) is one year after the end of seven periods of Sabbatical years, that is the 50th year.

dependent on external sources and to reduce the risk of being rejected. The mark-up strategy, like any other profit-seeking strategy, inevitably increasing the demand for money, which exacerbates the problem of circulation. This issue remains unsolved unless the supply of money and/or credit increases continuously; this is a further reason for the devaluation of money, which, in turn, increases the demand for more money.[33] In cases where the monetary system is backed by gold or silver, a country needs to increase the import of bullion (as happened in Spain and Portugal during the mercantilism era), otherwise, debasement is the only solution. In the case where a system run by fiat money, and not supported by gold or silver, debasement eventually happens as a result of printing more money or going into debt.[34]

As far as history can tell us, moneylending at a fixed or variable interest rate has always existed synchronously with the need for credit, either for consumption or for trade and investment. Long before emerging financial institutions in Europe, individual merchants were acting as money lenders, also called "pawnbrokers", and many of them were Jewish (see Johnson, 1988; Botticini, 1999). Although lending at interest was forbidden in Hebrew law, it was "regarded as a normal and respectable phenomenon" (Driver et al., 1952: 174) for non-Hebrews.

The history of Europe in the Middle Ages is full of violent confrontations between these pre-bank lenders and borrowers. For example, in 1189-1190 there was a massacre of the Jewish community in London and York (see Rubenstein, 1996). In 1290, they were expelled from England but before that "all their property was seized by the crown and all outstanding debts payable to Jews were transferred to the King's name" (Prestwich, 1997: 346).

In 1492, Spain expelled its Jewish population and confiscated their assets (see Liss, 1992). Many of them immigrated to Italy. They were not allowed to buy or own any land in many countries for centuries in Europe, but trade, moneylending, and merchant activities were among

[33] Using an analogy, imagine a situation where a person breathes inside a box that continuously loses its oxygen (devaluation). In this situation, the lungs work faster, demanding more oxygen. The lungs cannot cope unless a new source of oxygen is provided.

[34] These problems do not transpire when the loaned item is something different from money. Money can be printed but other assets cannot be reproduced. For example, imagine a landowner put his/her land (asset) in the market to get a fixed rent for a specific period of time. In a contract, the landowner appears as a lender and the land-user as a borrower, but the subject of the lending/borrowing is not money. Therefore, the rentier cannot ask for an extra piece of land as his/her profit at the end of the contract. It is impossible for non-monetary real assets to be reproduced. But money and certain other financial assets are reproducible. Thus, moneylending issues are completely different from other types of lending.

the few activities permitted to them. According to Johnson, "The Jews carried with them certain basic skills: the ability to compute exchange rates, to write a business letter and, perhaps even more important, the ability to get it delivered along their wide-spun family and religious networks. Despite its many inconvenient prohibitions, their religion was undoubtedly a help to them in their economic life" (Johnson, 1988: 171-2). This was the beginning of the banking industry, which started as early as 1472 in Siena, Italy. According to Pascali (2012: 1), "Cities that were hosting Jewish communities developed complex banking institutions for two reasons: First, the Jews were the only people in Italy who were allowed to lend for a profit and, second, the Franciscan reaction to Jewish usury led to the creation of charity lending institutions, the Monti di Pietà, that have survived until today and have become the basis of the Italian banking system."

With the increasing population along with the expansion of cities and the endless wars in Europe, the need for more money was a fundamental compulsion for both traders and governors or monarchs, (Knox: 2016) In many cases, debasement of the currency (which is an old version of quantitative easing) was the solution for governors. Rothbard (2008) reports 88.7% currency debasement in France over 400 years (between 1200 and 1600 AD) and 78.4% in Spain over 500 years (between the 7th Century and 13th Century). The speed of the debasement subsequently increased to 94.2% in the next 250 years alone when they decided to change the metal base from gold to silver.

Debasement was one of the governors' prime strategies to extend their spending, but it could not be practised frequently, and for the traders and the producers of the time the only solution was borrowing. The money supply was limited to the amount of gold and silver minted by governors or rulers, and so borrowing at interest, from other sources, was the only option to satisfy the ever-growing need for more money. It is no surprise then that the practice of usury, in general, came to be seen as no longer sinful or immoral and gradually turned into a legitimate activity in which the lenders take a risk and deserve compensation for accepting an opportunity cost. Petty (1687) and Bentham (1787) tried to justify and legitimise usury, in its general sense defined in Chapter 1, by liberating the term from its historical negative connotation. In his defence of usury, Bentham (1787, Vol 1: 102-103) describes money-lending as a business in which, the lenders sacrifice their present for a better future. This is the same idea taken by

mainstream scholars about the patient and impatient consumers in the current economic literature.[35]

Adam Smith did not see this as being due to the self-sacrifice or generosity of lenders, but rather as the opportunity for them to make more money, especially when dealing with governments (see Adam Smith 1776, book V, part III). Other justifications at the time are still maintained in academic textbooks, e.g. that the practice of lending is a risky business and the interest rate is the return or the price of taking that risk. But this is a modern academic justification of the practice of usury, which was considered a sacred contract between creditor and debtor in the ancient, medieval, and Roman Imperial periods. After effacing the sin from the practice and approving it as a legitimate business activity, many countries in Europe experienced the emergence of banks as the first financial institutions in modern terms between the 15th and 16th centuries.

2.4. Prevalence of the Monetary Production Economy (From Mercantilism to Capitalism)

The role of money in theoretical debates oscillates between two extreme points. At one end of the spectrum, supported by more radical mainstream scholars (such as Fisher: 1930; Friedman & Shwartz: 1963; Cochrane: 2013), money has a passive role in the real side of the economy, echoing its functionality as a "medium of exchange" and a "unit of account". At the other end of the spectrum, money has an active role in the real side of the economy (such as Keynes:1936; Wray: 2012; Lavoie & Seccareccia: 2016), echoing its functionality as a "store of value" and, in the economic and sociological context, it might be reasonable to say as a "symbol of value".[36]

2.4.1. Mercantilism and the Importance of Money

With the legalisation of money lending for profit — first, in a form that was "private or informal" (Kohn, 1999) and later in the form of banking activities — the economy of countries

[35] "Wherefore when a man giveth [gives] out his money upon condition that he may not demand it back until a certain time to come, whatsoever his own necessities shall be in the meantime, he certainly may take a compensation for this inconvenience which he admits against himself: And this allowance is that we commonly call Usury". (William Petty [1623-1687] quoted by Hull, 1899: 80). In the 19th and 20th centuries Adam Smith and Keynes used usury and interest rate interchangeably, though Keynes (1936) did not use it until the Chapter 23 of his book.

[36] The last term is coined by the author in this research to stress the functionality of money as an indicator of economic and social rank for its owner.

that hosted these activities, such as Italy, experienced rapid growth, specifically in trade. The usury-based financial system worked as a catalyst for the borrowers to expand their activities to repay their debt and additional interest. This means that the borrowers needed to have a sustained and protected means of income growth. Under such conditions, borrowers generally had two options to protect growth and fulfil their financial obligations: 1- entering into permanent and usually intense competition with other competitors using external finance 2- acquiring monopoly power to protect market share.

There is much evidence for both approaches in the late medieval period, either on a national or international scale. Toch (1986)[37] believes that the extent of borrowing and lending at that time was so widespread that, for example, "[t]here was not a single element of the population of the late medieval Bavarian countryside which did not take and extend credit". In France, Hoffman (1996: 71) claims that "[t]he local economy, in short, ran on credit. There were long-term loans — the perpetual annuities known as *rentes* — that might finance purchases of land. There were medium-term loans (*obligations*) as well, which … usually lasted several months or several years."

Theoretically, the expansion and dominance of the usury-based financial system can be considered as the main factor behind the shortage of money in circulation which, in turn, increased the demand and scarcity for money and/or credit simultaneously.[38] This ceaseless demand mechanism creates a situation in which money becomes more important and, at the same time, more expensive while losing its purchasing power due to the expansion of credit, whereas a similar mechanism for other factors of production, such as labour and land, does not exist.

The gradual growing prevalence of money during the 14th and 15th Centuries paved the way for a new economic doctrine, called "mercantilism", which motivated extensive, dominative, and predatory business behaviour. The impact of the new doctrine on trade was enormous. Maintaining a permanent accumulation of money (in the form of precious metals, such as gold and silver) and a positive balance of trade were the core strategies of mercantilists for enriching

[37] Taken from Kohn, 1999: 14.

[38] We shall be dealing with this later in Chapter 4, when the models are introduced, and in Chapter 5, when the connection between the paradox of monetary profit and financialisation is discussed. In Chapter 23 of his *General Theory,* Keynes discusses the scarcity of money in a usury-based monetary production economy under mercantilism.

a country. These could not be achieved without a powerful central government that supported trade in favour of domestic merchants/manufacturers, and a powerful full-time army to expand and as well as protect the interests of the state and its colonies against other competing nations. According to LaHaye (2008), "During the mercantilist period, military conflict between nation-states was both more frequent and more extensive than at any other time in history".

Government intervention in the economy was one of the fundamental policy implications of the mercantilist strategy with the following aims: first to support and protect domestic producers against foreign competitors in order to reach the "absolute advantageous";[39] second to provide the necessary political and military power for enhancing and expanding trade for domestic merchants/manufacturers; and third and most importantly, to regulate the economic system such that the inflow of precious metals (bullion) into the economy exceeds its outflow, either by direct importation of these metals (e.g. from the newly discovered continent of America) or through a positive and accumulative balance of trade with other nations.[40]

It took approximately two centuries until scholars found fallacies in this view. Adam Smith correctly analysed the view by distinguishing between two functions of money, one as an "instrument of commerce", or simply a medium of exchange, and the other as a "measure of the value". In Part IV of *The Wealth of Nations* (1776), he rejects the idea that "a rich country, in the same manner as a rich man, is supposed to be a country abounding in money". He then compares two different economic views about "the nature and causes of the wealth of nations":

> "For some time after the discovery of America, the first enquiry of the Spaniards, when they arrived upon any unknown coast, used to be, if there was any gold or silver to be found in the neighbourhood? By the information which they received, they judged whether it was worthwhile to make a settlement there, or if the country was worth the conquering. Plano Carpino, a monk sent ambassador from the king of France to one of the sons of the famous Gengis Khan, says that the Tartars used frequently to ask him, if there was plenty of sheep and oxen in the

[39] According to Ricardo (1817), this notion was rejected later by Adam Smith in favour of "free trade"; later Ricardo himself expanded it to include the concept of "comparative advantageous".(see Chapter 25 under the heading "*On Colonial Trade*").

[40] This policy is termed "fear of goods", which refers to the idea that it is better to export goods and bring the money into the country than to import goods and have money flow out.

> kingdom of France? Their enquiry had the same object with that of the Spaniards. They wanted to know if the country was rich enough to be worth the conquering. Among the Tartars, as among all other nations of shepherds, who are generally ignorant of the use of money, cattle are the instruments of commerce and the measures of value. Wealth, therefore, according to them, consisted in cattle, as according to the Spaniards it consisted in gold and silver. Of the two, the Tartar notion, perhaps, was the nearest to the truth".

Mercantilism, which appeared to offer the prospect of success and prosperity for Spain, almost destroyed Spanish trade in the middle of the 17th Century due to the excessive amount of precious metals in circulation that was not invested in production and trade but instead in speculation and rent-seeking activities (see Keynes, 1936; Braudel, 1984; Hudson, 2003; Phillips, 2006;). Using conventional orthodox macroeconomic theory (specifically expansionary monetary policy through increasing money supply that shifts LM and reduces the interest rate in an IS-LM framework), the idea behind their monetary policy can be seen as reasonable but only for a limited time and under certain conditions. Keynes (1936: 208), in a sympathetic way, tried to show that there were some "element[s] of scientific truth" in this doctrine.

As he discussed in *The General Theory*, there was some justification for the abundance of money at that time, when the economy had been growing quickly for some time, and further growth could "be interrupted, in conditions of *laissez-faire*, by the insufficiency of the inducements to new investment" (1936: 208). Thus, to prevent the rise of usury activities at a high rate of interest and, at the same time, to induce productive investment as opposed to speculation and ease the unemployment problem, the strategy of having a positive balance of trade and inflow of precious metals was vindicated. The accumulation of gold and silver was the necessary policy due to the shortage of money in circulation. Keynes brings much evidence to show that in the 17th century the scarcity of money was a real danger for production and trade, so the mercantilist scholars believed that "the remedy for usury may be plenty of money" because "Plenty of money decreaseth usury in price and rate" (Ibid: 212).

From Keynes's point of view, in a stable situation, a favourable balance of trade will be "extremely stimulating" if a monetary system is committed strictly to the supply of money backed by the stock of precious metals. But mercantilists ignored the impact of the abundance of money on price levels and eventually on the balance of payments. They were unable to

address two simple questions correctly: How much money is needed for sustainable growth in an economy? What proportion, in terms of volume and value, should be considered between financial and real activities in an economy? These intriguing questions could have led their scholars to discover the intrinsic instability of the monetary production economy based on usury. William Petty [1623-1687] was perhaps the first person in that period who tried to explain the problem with his pioneering view on money and its speed of circulation in relation to the population of England, But his points were overlooked by many succeeding economists (see Petty, quoted by Hull, 1899: 251) because in a usury-based monetary production economy, a fixed amount of money cannot circulate sustainably and there must be a constant supply of extra money to satisfy the ever-growing demand. (This will be discussed further in Chapters 3 and 5.)

In *Money, Credit and Commerce* (1923: 47), Alfred Marshall summarised the views of various scholars about the optimal (or sufficient) amount of money required for an economy to sustain itself. According to him, John Locke believed that "one-fiftieth of wages and one-fourth of the landowner's income and one-twentieth part of the broker's yearly returns in ready money will be enough to drive the trade of any country." Cantilon (1755), after a long and subtle study, concludes that the value needed is a ninth of the total produce of the country, or — what he takes to be the same thing — a third of the rent of the land. Adam Smith shows more of the scepticism of the modern age when he says: "it is impossible to determine the proportion", though "[…] it has been computed by different authors at a fifth, at a tenth, at a twentieth and at a thirtieth part of the whole value of the annual produce" (1776, Book II, Part III).

Although Smith did not determine a proportion for the optimal amount of money, he held a similar view to Petty's and Cantilon's by a different approach. In his opinion, "[t]he sole use of money is to circulate consumable goods. By means of it, provisions, materials, and finished work, are bought and sold, and distributed to their proper consumers" (Ibid.). The amount of money in circulation should be in relation to the real part of the economy and proportionate to the level of production, but if this level decreases, the extra amount of money (in the form of precious metals or bullion, which was acceptable worldwide) should be used to purchase foreign goods.[41]

[41] Keynes (1936; 193) also expressed a similar view on the proportionality between the quantity of money in circulation and national income.

2.4.2. Classical Capitalism and the Obscurity of the Role of Money

What classical economic scholars had in mind was a self-propelled economic system that can perform sustainably, with an optimal level of money in circulation that is associated with the activities in the real side of the economy. Adam Smith, in his book (1776, Book II, Part IV) that was written under the influence of the contemporary Physiocracy doctrine, stated that the engine of the economy for creating wealth was the productive (real) side of the economy (agriculture, manufacture or industry and, in the end, commerce), not the accumulation of money through having a positive balance of trade, as mercantilist scholars believed.[42] In the *Wealth of Nations* (1776), he criticises mercantilism's monetary view of the accumulation of capital in the form of money (bullion) and their confounding of this with the accumulation of wealth. He also explains how this accumulation reduces the marginal productivity of capital (albeit not using this terminology exactly) and eventually leads capital to be invested in unproductive, and in some cases risky, investments.

Troubled by the inconsistency in the monetary doctrine of mercantilism, and under the inspiration of the "natural order" and productivity view of Physiocracy, Adam Smith founded a new doctrine, which was later called the "classical" theory. Classical economics was the first systematic and comprehensive school of economic thought. Advocates had a universal model of the economy in their minds based on deterministic rules, similar in principle to those of physics at the time. If physicists were able to explain and predict the motions of sophisticated systems, such as the solar system, by the concept of gravity and mathematical models (and without bringing God permanently into their accounts), why not view economic systems in the same manner? Why is it necessary to bring government into account when the "invisible hand" brings order and prosperity to all players in the market and even in society?

The foundation of this theory, like all theories, was an ideological belief, known as "classical liberalism", that the benefit of a society would be better served if there were free competitive markets with no government intervention (see Patinkin: 1987). The entire monetary view of classical theory can be condensed into two issues. First is the concept of separating real variables from financial/monetary variables in the economy (the "classical dichotomy"). This

[42] According to the Physiocracy doctrine, the nation's wealth is created by land and its products alone. This idea was replaced very quickly by the classical doctrine when steam power changed the face of the economy in favour of industrial products. For this reason, and also because it emphasises labour as the major source of value, as is also held by classical scholars, this school of thought will not be considered separately.

distinguishes two values for any commodity: the real (intrinsic) value, which is stable over time and measured by the amount of labour used to acquire the commodity; and the nominal (money) value, which is measured by the amount of money spent to acquire it, and which is subject to change, depending on the amount of money in circulation. Second is the quantity theory of money, which is related to the former. The logical outcome of the classical dichotomy is a monetary theory that asserts that more money in circulation simply increases the price level (nominal prices).

The classical dichotomy and the quantity theory of money are the outcomes of two assumptions (definitions) about money. If money was a "store of value" and the reflection of individual and national wealth in the mercantilist view, in the classical view it was more a "unit of account" and a "medium of exchange". These assumptions (definitions) made their theoretical and practical frameworks totally different from Mercantilism.

The logical and direct conclusion of the classical arguments is the concept of the "neutrality of money*"*, which means that financial variables have no impact on real variables such as total production, the level of employment, the level of capital demanded for production, real wages or even on relative prices, at least in the long term. The quantity of money merely affects the general price level, but the real part of the economy will not be affected by the amount of money in circulation, (see Mankiw: 2016). Consequently, the size of the financial sector is not a matter of concern as it has no role in determining the system's behaviour. This conclusion has been common among other classical-based schools of thought, such as neoclassical liberalism and monetarism. It is seen more as a guide for policymakers in the sense that, in a situation of full employment of capital and labour (under the assumption of free and global competitive markets) real growth cannot happen just by focusing on monetary variables when the economy has reached its marginal technological capacity.

The financial system in classical theory, apart from being a facilitator of the real sector, does not have a central role, for the reason explained above, but this does not mean that classical economists overlooked the impact of financial activities (at the micro-level) on the real economy. Adam Smith himself was the main opponent of mercantilism's monetary view and also completely aware of the danger of some of the financial activities undertaken by banks. In *The Wealth of Nations*, he analogously refers to some of these activities as "fire", which "endanger the security of the whole society" and goes further to suggest that the government should intervene to restrain some financial activities, even if it violates "the natural liberty" of

individuals, in order to prevent the spread of fire into the whole society (Ibid, Book IV, Part III).[43]

This view is contrary to all the tenets of what was later called the classical and neoclassical liberalism doctrine. Followers of this doctrine, which totally ignored the role of money in the economy, believed (and still believe) in an unplanned economy with very limited government intervention (at least in theory) that regulates itself with a self-correcting mechanism toward a stable equilibrium without any systematic flaw.

2.4.3. Keynes' Heterodox View and Re-debating the Role of Money

Keynes was a prominent opponent of the classical postulates. He describes classical economists as geometers who try to tailor Euclidean principles to a "non-Euclidean world" (Keynes, 1936: 17). In *A Monetary Theory of Production* (1933; 408-9), he explicitly states that "money is not neutral" and has a specific impact on the "motives and decisions" of entrepreneurs. The reason that crises in the capitalist economy cannot be solved, Keynes argues, is the lack of knowledge about the "behaviour of money" in the transition between the short and the long period, which can be analysed in the "monetary theory" framework.

In a historical assessment of the beginnings of "modern capitalism" (*A Treatise On Money*, (1930)), he initially invites scholars to re-write economic history by considering the impact of money on the rise and fall of various civilisations "not because the monetary metals are more truly wealth than other things, but because by their effect on prices they supply the spur of profit", (1930, Vol.2, Chapter 30: 150). He cautiously refers to certain historical examples to show that mere "abstinence of individuals" does not necessarily increase the wealth of a nation (he believed that equality between saving and investment is not deterministic). Rather, easy access to inexpensive precious metals (like cheap credit today) causes the "outburst of economic progress" via increasing the price of goods produced by entrepreneurs way above their costs (including the cost of raw materials and the labour cost), a process that he calls "profit inflation".

By focusing on the data collected from three countries; — Spain, France, and England — he tries to prove that the most prosperous time for their Golden Age was the period when the price to cost ratio was above 100%. He points out, for example, that the economy of Spain went downhill when the ratio went below 100% for decades (i.e. "profit inflation" turned to "profit

[43] For more on the inconsistencies between Adam Smith's views and his Classical proponents, see West (1997).

deflation") because "the new purchasing power came straight into the hands of the aristocratic and ruling classes, and was soon used by them to bid up the cost of services" (Ibid: 156). According to his general conclusion, the rise and fall of economies correspond to periods of profit inflation and profit deflation. He asserts that the period of profit inflation is undoubtedly more fruitful for capital owners or "profiteers" than for the labour force or "wage-earners", and that "unequal distribution of wealth" is a certain characteristic of this period which must be "balanced by the direct taxation of the rich" (Ibid: 162).

Thirteen years before writing *The General Theory,* in the preface to *A Tract on Monetary Reform* (1923), he sets out his disbelief in the traditional view of money as the "standard of value". He asserts that the "standard of value" cannot be unstable itself. But, surprisingly, thirteen years later, when explaining the cause of the Great Depression he puts his finger on the lack of "effective demand", and yet does not recognise it as the direct outcome of the monetary economy with a disproportionate wealth distribution during profit inflation, inasmuch as cheap money leads both to inflation and high-profit investments, involving costs that are far beyond consumers' income.

Money, in his view, does not have "significant characteristics" when the scope of the study is about an "individual industry or firm"; thus, it is not a microeconomic issue. On the other hand, its attributes cannot be examined in a static framework where there is no place for disequilibrium. Keynes believed that money is a "subtle device" that makes a link between present expectations and future decisions (1936: 184-5) and that its instability brings risk as another and a very important component into the cost of production.

Keynes made many comments against the quantity theory of money. According to Minsky (1975: 2), "Keynes's attitude, prior to *The General Theory*, was that … quantity theory propositions were basically valid, but that the theory was vague and imprecise about the mechanisms and processes by which the long-run results were achieved, and that more had to be known about how the economy behaves in between positions of equilibrium — i.e., in the short run, defined as disequilibrium or transitory states — before the theory could be fully accepted".

Based on his criticisms of the traditional approach to the quantity theory of money, Keynes established an analytical framework, later termed the "transmission channels of monetary policy*"* (or simply*, "*transmission channels*"*), that rejects the classical dichotomy and explains the interest rate channel (as one of several) between the financial sector and real sector. Bordo

& Haubrich (2010) believe that prior to the interest rate channel analysed by Keynes, the *credit channel* had already been introduced by Laughlin (1912), Mitchell (1913) and Hansen (1927), but there is little explanation about the exact mechanism of the impact of this channel by these authors. On the other hand, Fisher (1933), argued that "over-investment", "over-speculation" and "over-confidence" do not do any harm until they mislead the borrower into "over-indebtedness".

In an attempt to critically analyse the classical dichotomy reflected in the Quantity Theory of Money, Keynes refers to the idleness of factors of production when there is a lack of effective demand. Based on Keynes' analysis (1936: 186), an increase in the quantity of money, in a simplified model without considering any "complication", does not change just the level of prices "so long as there is any unemployment ... [in fact] employment will increase in exact proportion to any increase in effective demand brought about by the increase in the quantity of money; whilst as soon as full employment is reached, it will thenceforward be the wage-unit and prices which will increase in exact proportion to the increase in effective demand".

He then explains the channel (although not using this terminology) through which effective demand changes. This is what we now know as the interest rate channel. In this channel, an increase in the quantity of money decreases the interest rate and this, in turn, increases the level of investment and employment in the real part of the economy. Keynes (1936: 187-8) believes that the total impact depends on three elements: 1- the desire of money holders to hold money according to their liquidity preferences; 2- the amount of change in the level of investment, which depends on the marginal efficiency of capital; and 3- the investment multiplier. At this point, he cleverly exposes his deep understanding of the system by linking these three elements to other elements — mainly industrial circulation against financial circulation (the latter represents speculative motives for holding money), expectations and confidence of investors about the future (including future prices and future returns), and income distribution.

2.4.4. Monetary Transmission Mechanisms

It is not very clear why the role of monetary factors (such as the stock of money and credit, and their behaviours) in Keynes' *General Theory* fall from key to secondary players when analysing business cycles. In such analyses, Keynes (1936) and many other economists turned their attention to real factors such as total output, total employment, and more specifically total investment. For about two decades after WWII, many economists developed and completed growth models based on general equilibrium and market completeness assumptions, where

instant adjustments occur in the absence of market frictions. Under such assumptions, financial institutions have no role apart from being a facilitator of agents in the market.

But the rise of inflation in the 1960s and the early 1970s led to the beginning of serious debates about the role of money, monetary policy, and financial institutions in the economy between Keynesians, who downplayed the supply side of the economy, and Monetarists, who followed Friedman in saying that "inflation is always and everywhere a monetary phenomenon", (1963; [1968: 39]). Freidman, and Schwartz (1963), and Friedman (1970) revived the idea that monetary factors had a role in business cycles, even crises. The term "transmission mechanism" appears in their work to explain how the "systematic cyclical behaviour" of the rate of change in money stocks in the hands of commercial banks changes the price of financial and consequently non-financial assets and causes "cyclical fluctuations" in various economic activities through balance sheet adjustments.

Traditionally, the term monetary transmission mechanism refers to the study of how monetary policies impact aggregate variables in the real part of the economy, such as production, employment, and even inflation. In a monetary economy, the transmission channel can be described as a mechanism whereby changes in variables in one sector (e.g. the financial sector) are transmitted to variables in another sector (here, the real sector). These changes can be brought about through policy (policy-induced change) or occur as a result of a shock either in the real or financial sector. Taylor (1995: 11) does not describe it as a channel but as "the processes through which monetary policy decisions are transmitted into changes in real GDP and inflation".

It was traditionally thought that the interest rate channel is the only mechanism at work in the transmission of monetary policy changes into the real sector, but after the seminal work of Mishkin (1978, 1996) and Bernanke (1983), we now know that monetary policies impact the economy through a variety of channels, including (amongst others) the exchange rate channel, credit channel, and wealth channel. There is no consensus on the number of channels, nor on the definition of these various channels.

The Basel Committee (2011) has identified three principal channels: the borrower balance sheet channel, the bank balance sheet channel, and the liquidity channel. Vousinas (2013) introduced the same channels without any reference to the source of their categorisation. Boivin, Kiley and Mishkin (2010), introduced two broad channels: the neoclassical channel based on the assumption of perfect financial markets, and the non-neoclassical channel based

on the assumption of imperfect financial markets. Arestis and Sawyer (2004, 2006), following the work of Kuttner and Mosser (2002), identify six channels: interest rate channel, monetarist channel (also known as asset price channel, which focuses on the impact of changes on firms' investments), two credit channels, the narrow credit channel (also called bank lending channel) and broad credit channel (also called balance sheet channel) (see Bernanke and Gertler, 1995; Hall, 2001), wealth effect channel (also called asset price channel, which focuses on the impact of changes on consumer's expenditures), and finally exchange rate channel (see Mishkin, 2001).

In theory, decisions on the official short-term policy interest rate, or "repo" (the rate at which the monetary authorities are willing to supply reserves to financial institutions)[44] affect nominal exchange rates and various nominal interest rates in the market, such as bank deposit rates, inter-bank and/or market lending rates, and mortgage rates. As the result of price rigidities in the economy these nominal changes, along with expectations about the future state of the economy and the confidence of economic agents, affect asset price levels, real exchange rates, and real interest rates. These rates, in turn, affect the behaviour of savers and borrowers (individuals or firms) and consequently economic activities and inflation (see Taylor, 1995 and Bank of England MPC, 2012). Figure 2.2 shows how the monetary transmission mechanism works through various channels. As Kuttner & Mosser (2002: 17) explain "these channels are not mutually exclusive: the economy's overall response to monetary policy will incorporate the impact of a variety of channels".

The interest rate channel operates through the impact of the change of the short-term official-nominal interest rate on various rates such as "base rate" (inter-banking lending rate), loan rate, and mortgage rate, and also on the alteration of the real interest rate and its effect on consumption, investment, nominal exchange rate, and eventually on the level of demand. This transmission mechanism is supported by a process of adjusting the quantity of money carried out by monetary authorities. Even if monetary authorities target or control the nominal interest rate directly, they need to provide the necessary monetary base to support their target rate.

But the impact of monetary policies on real variables is beyond that which can be explained through the interest rate channel alone. This leads us to the **credit channel**, linked to the theory

[44] The "short term policy interest rate" and the "repo rate" are not necessarily identical, but they are typically very similar, and close enough to adopt only one rate in any theoretical analysis (see Carlin & Soskice, 2015: 157).

of the "financial accelerator" (Bernanke and Gertler, 1995). This channel affects the components of aggregate demand through a change in the cost and availability of credit. The credit channel is conventionally divided into two: the bank lending channel (also called narrow credit channel) and the balance sheet channel (also known as the broad credit channel).

In the **balance sheet channel**, a change in the official rate of interest by monetary authorities changes "the values of the assets and the cash flows of potential borrowers and thus their creditworthiness, which in turn affects the "external finance premium" that borrowers face", (Bernanke, 2007). With a change in the financial position, the cost of borrowing will change and this, in turn, has a direct impact on consumption and investment expenditures. For example, an increase in the official interest rate lowers the value of existing assets, the cash flow of borrowers, and eventually their net worth, thus preventing them from using assets as valuable collateral for further external finance. The result is an increase in the borrower's external finance premium, which has a negative impact on their future investments. This in turn reduces asset prices further and puts firms in a cycle of a deteriorating balance sheet, reducing financing opportunities and investment.

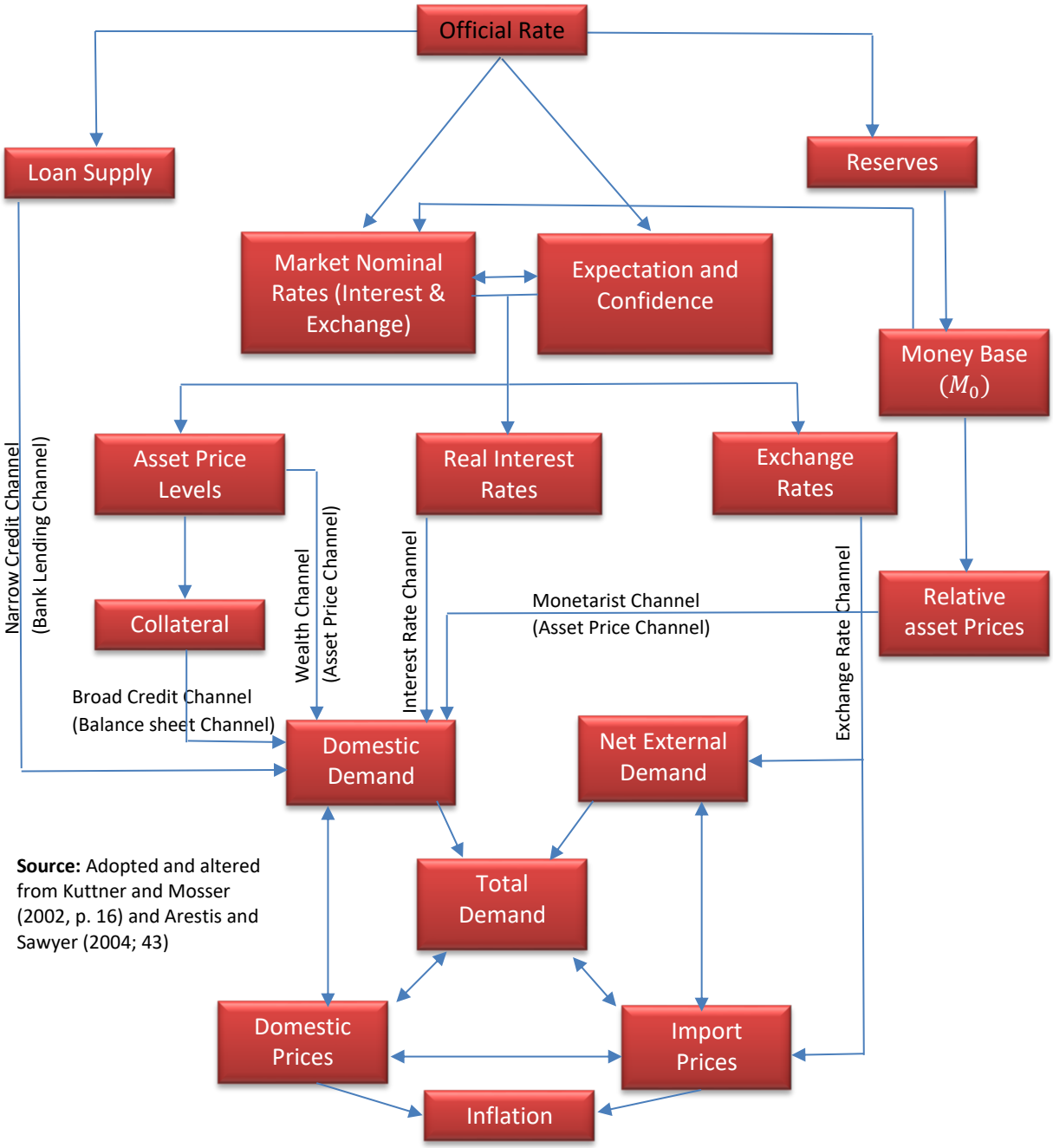
In the **bank lending channel**, the focus is mainly on banks as financial "depository institutions" and on how a change of monetary policy affects the volume or supply of loanable funds offered.[45] For example, a tightening in monetary policy increases banks' required reserves in the central bank and reduces the supply of loans to the household and firms. This has a direct impact on their consumption and investment expenditures (see Bernanke & Blinder, 1988).

In the **monetarist channel**, which is one form of the asset channel defined for firms, a change in the interest rate (either directly or through a change in the supply of money) affects the present value of shares and the ability of firms to invest in the future. For example, decreases in the interest rate (officially or through an expansionary monetary policy) increase the value of shares and consequently the market value of firms in the stock market compared with the replacement cost of capital (Tobin's q will be higher than one). In such circumstances, companies can easily increase their equity financing for their investment projects. The result is

[45] This is contrary to the heterodox view on the role of banks. In the mainstream view, lending is related to the level of loanable funds (see Mankiw: 2016), ignoring their ability to create credit as a digital number in agents' accounts. Some scholars call it "creation of money out of nothing" but it would be better to call it credit because credit expansion creates debt, whereas money expansion does not.

higher investment expenditure (See Meltzer (1995), Miskin, (1996) and (2004), Kuttner and Mosser (2002), Tahir (2012)).

Figure 2.2. Monetary Policy Transmission Channels



Another form of the asset channel that focuses on the impact of changes in the consumption expenditure of households is the **wealth channel**. In this channel, following Modigliani's life-cycle hypothesis of consumption, household wealth is affected by a change in the interest rate, and this, in turn, changes consumption expenditure.

The final channel is the **exchange rate channel**. As the exchange rate shows the relative price of domestic and foreign currencies, a change in the interest rates on either side may change the value of assets and also the relative price of goods and services. This has an impact on total demand and inflation through a change in the balance of payment. The importance of this channel, as Boivin et al. (2010: 15) describes, depends on "the sensitivity of the exchange rate to interest rate movements" and the degree of openness in the economy.

Based on the uncovered interest rate parity[46] condition, a positive movement in the interest rate differential (the difference between the domestic interest rate and foreign interest rate) would lead to a higher expected exchange rate in favour of domestic currency. This in turn reduces net export levels, which will have a negative impact on total demand; although some scholars have doubts about the effectiveness of this channel (see Gudmudsson (2007) and Arestis and Sawyer (2004)).

It should be noted that after the last economic and financial crisis many mainstream scholars lost their faith in monetary policies, believing the current money market analysis based on the LM framework does not work, (see Carlin & Suskice: 2015) One major reason for that is the absence of credit creation and its impact on the economy in mainstream analyses, (see Rochon & Rossi: 2016). The emergence and rapid expansion of new digital currencies such as Bitcoin, Ethereum, Ripple etc. and the lack of national and international control on them make it so vital to have a new approach and radical change to the structure of the monetary theory.

[46] Uncovered Interest Rate Parity states that the differential between domestic and foreign interest rates can be offset by the change in relative exchange rate to diminish any arbitrage opportunity.

2.5. Summary

This chapter has had several interrelated aims. First, there was an attempt to show the impact of the interest rate mechanism before and after the prevalence of money. It has been made evident that the speed of debt accumulation as a result of lending at interest was much higher than the speed of repayment in an agrarian society. But since the inception of money, the problem has not only been the speed of debt accumulation but also the shortage of money in circulation. This shortage is the core issue in the paradox of profit, which will be discussed in the next chapter. The confrontation between creditors and debtors and the adversities of practising usury in ancient times were addressed within the context of the prohibitions central to the main ancient religions, but the need for more money and credit opened the way for the legitimisation and justification of the practice against religious postulates (thus limiting the religious sphere of influence to the circle of spiritual life and individual morality).

The second aim of this chapter was to show how money found its way to the centre of economic activity and how theoretical debates formed around the role of money in a monetary production economy, in contrast to its role in a non-monetary production economy. The role of money in theoretical debates oscillates between two extreme points. At one end of the spectrum, money has a passive role in the real side of the economy, echoing its functionality as a "medium of exchange" and as a "unit of account", and at the other end of the spectrum, money has an active role in the real side of the economy, resounding its functionality as a "store of value".

We have also seen how the conventional mainstream account of the history of money as a facilitator of a barter economy contained flaws that led to a downgrade of the role of money, credit, and interest rate in analyses. This theoretical deficiency is more evident in analyses of economic and financial crises and the lack of explanation for the accumulation of debt. To avoid the mercantilist confusion in equating money as a "medium of exchange" with money as a "store of value", mainstream scholars went from one extreme to the other by rejecting the role of money as a "store of value" in the first place and limiting its role to the change of nominal values.

The third aim of this chapter was to demonstrate how Keynes paved the way for mainstream scholars to pay more attention to the role of the interest rate and money in the economy, but that their improvements in this field have not gone beyond postulating "transmission mechanisms". This is, in fact, a step forward, but far from the advances made in heterodox

literature with regards to money, credit and financialisation, which will be discussed in the last chapter.

As mentioned at the beginning of this summary, the existence of the interest rate not only intensifies debt accumulation but also creates a shortage of money in circulation. In the next chapter, we focus on the theoretical foundation that allows us to understand the relationship between the shortage of money in circulation and the paradox of monetary profit.

Chapter 3: Paradox of Monetary Profit

&

Shortage of Money in Circulation

3.1. Introduction

In Chapters 1 and 2 we talked about the difference between the real exchange economy and the monetary production economy. In the previous chapters, it was also discussed how, in a monetary production economy, lending at interest leads to the accumulation of debt through the credit-debt reproduction mechanism (see Chapter 1 for more details) and this, in turn, creates a permanent shortage of money in circulation, such that the demand for money will be always higher than the supply of money. In this chapter, this concept will be discussed in more depth.

We start with the concept of the paradox of monetary profit as a theoretical framework and the shortage of money in circulation as the manifestation of the paradox in action. The shortage of money cannot be seen easily in the real world because it is materialised through external sources of money coming from the expansion of credit, budget deficit, and trade surplus. The budget deficit and the trade surplus are unsustainable in the long term, but they are short-term practical solutions for an open economy in the presence of the government sector. When we move from an open economy to a closed economy — to trace the paradox and to observe the consistency of the system without a public sector — the expansion of credit will be the only practical way of dealing with the shortage of money in circulation, but it creates a debt cycle by which more credit expansion leads to more debt accumulation and more shortage of money in circulation, which, in turn, needs more credit for its redemption. This shows that the paradox of monetary profit is at the core of the accumulation process of the capitalist economy on a national and international scale[47], which eventually makes it more fragile and more exposed to economic and financial crises.

In this chapter, we go through the concept of the paradox of monetary profit and its relationship with the shortage of money in circulation. This is the main attempt to show that the shortage of money in circulation, as the manifestation of the paradox, is a real subject matter. After demonstrating the reality of the shortage of money in circulation in a credit-led monetary production economy, it will be easier to show the concept of the credit-debt reproduction mechanism as the only mechanism by which the shortage of money can be temporarily removed, but at the cost of more debt accumulation and financial sector expansion, which are the main features of financialisation.

[47] It should be noted that the concept of the "closed economy" is not an abstract concept as the world economy represents such system.

In Section 3.2, we will see how the circular flow model can be used to address the paradox in terms of the monetary flows between various socio-economic groups (Marx's classification) or between various sectors (contemporary classification). There is also a discussion about the main difference between a theoretical and a practical solution to the paradox. To explain briefly, a theoretical solution for the paradox is any solution in which the system can monetise (realise) all profits with a certain/fixed amount of money in circulation, whereas a practical solution is any form of a solution in which more money/credit must be injected into the circulation for the realisation of profit. Therefore, with this classification, a theoretical solution is equivalent to an endogenous and self-sustained solution while a practical solution would be considered as an exogenous and temporary solution which is also unsustainable.

In this section, we examine Sismondi's (1819) and Malthus' (1820, 1827) practical solutions for an open economy with the presence of government, as well as how Schumpeter (1934), who was looking for a theoretical solution, was unable to solve the paradox based on the market-value approach.

In Section 3.3, the focus is on the other aspects of the market value approach followed by Keynes, and on his failure to differentiate between economic and accounting views of profit which led him to abandon the puzzle without providing any solution. In this section, Marx's practical solution for the paradox will be critically analysed. It will be explained why it does not provide a sustainable theoretical solution, but also how his solution opens our eyes to the connection between the shortage of money in circulation and the paradox, and the way that an exogenous extra supply of credit covers the shortage at the cost of more debt accumulation.

Section 3.4 will show why the paradox of profit, as a theoretical puzzle, is at the centre of the theory of the monetary circuit and it will be explained why the circuitists' equilibrium approach is unable to offer a theoretical solution that works for the basic three-sector model in a closed economy with no government; and that all of the solutions provided by either circuitists (those who follow the theory of the monetary circuit or simply circuit theory) or post-Keynesians fail to provide a satisfactory theoretical solution. Each possible solution (which are set by the researcher in five categories) will be critically analysed in this section. Section 3.5 summarises the main findings from this chapter.

3.2. The paradox of Monetary Profit as a Theory of the Shortage of Money in Circulation

It is almost impossible to fully understand capitalism and its transformation from a competitive and productive to a financialised unproductive monopoly system without questioning the source of monetary profit in this system. According to Marx (1885 [1969], Vol. 2), one of the opponents of the pioneering monetary economist, Thomas Tooke (1774–1858), asked him about the source of money required for the realisation of profit through the circuit of money capital (M-C-M'), but he was unable to provide an answer. Marx claimed, "neither Tooke nor anyone else has answered it so far" (Ibid: 201). It is clear that the paradox of monetary profit and the circuit of money capital (M-C-M') were famous topics before Marx. According to Renaud (2000), Sismondi (1819) and Malthus (1820, 1827) were two "heterodox authors of the classical age" who referred to the paradox and provided some early practical solutions for it in an open economy including the public sector. But it was Marx who first disseminated (the problem of) how the paradox operated in a closed economy as part of his theory of surplus-value in the earliest German publication of *Das Kapital* in 1885.

The paradox refers to the impossibility of the realisation of monetary profit in the capitalist economy from a theoretical point of view. Even mainstream scholars cannot deny the existence of this puzzle. Many conventional macroeconomics textbooks had no intention to open this topic. Only a few of them, for example Mankiw (2016) and McDowell et al. (2009), discuss the topic in detail. Mankiw (2016: 57) shows that according to the neoclassical income distribution theory economic profit should be zero because the total value of production should be equal to the total value of distributed income. But he tries to justify the existence of profit by separating the "accounting profit" from the "economic profit" — thus using these categories out of their proper contexts as acknowledged by most economists — and linking the first one to the concept of ownership. Mc Dowell et al. (2009: 209-214) also connects the concept to the "invisible hand" and the "efficiency of the market" to show how, in a competitive market, the economic profit goes to zero. These conventional mainstream justifications overlooks the role of credit and financial institutions in the creation of debt and the profit puzzle in the first place[48].

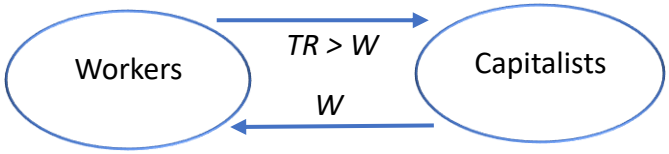
[48] Note that the focus of this research is how profit can be monetised, rather than the ownership of capital. If we define *accounting profit as revenue minus all expenses (explicit costs)*, and *economic profit as accounting profit minus opportunity costs (implicit costs)*, then with the latter, the expected profit from investing in other projects should be taking into account (even if the investment has not been made). In Mankiw (2016: 57), economic profit

Marx was the first scholar who questioned the instability of capitalism, in his theory of surplus-value, by referring to the origins of capitalist profit in a political economy. In a model of political economy in which total income is divided between two main classes, namely capitalists and workers, Marx (1885 [1969], Vol. 2) explains the "paradox of monetary profit" or simply the "paradox of profit" as follows:

> The capitalist class remains consequently the sole point of [the] departure of the circulation of money... The capitalist class as a whole cannot draw out of circulation what was not previously thrown into it. (Ibid: 204)

This means that the maximum amount of money that capitalists (as a class) can expect to get from workers (as another class), is the amount that they have already paid out to them in the form of a wage. So how is it possible to make total revenue (***TR***) higher than total wage (***W***), and thus make a profit? (see Figure 3.1). In other words, the capitalist class, at most, can get back ***W*** in the best possible scenario when workers spend all their wages without any savings. This is the initial version of the paradox of profit.

Figure 3.1: Monetary transactions between capitalists and workers



We can look at this version through the circular flow model (see Figure 3.2). If like Marx, we imagine the economy is made up of two major classes, namely labourers (who are employed and receive wages for their work) and capitalists (who are the employers and get benefit from the capital they own), then profit can only be made when the monetary value of production, which is equal to the value of the potential income for capitalists, is bigger than the monetary

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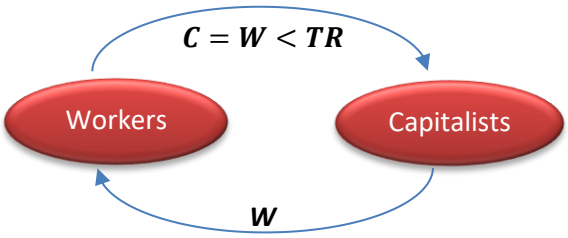
is equal to accounting profit minus the share of the capital owner from total income. He believes that the firm owners and the capital owners are the same, so they have already been paid by $MPK \times K$. He is correct if the capital structure of a company is 100% share-based and the company has no other financial obligations to the lenders. But, big companies or corporations have liabilities to the lenders as well as shareholders. This means that shareholders do not provide 100% of the money needed for investment projects, so there is an issue here with regards to the ownership of capital. Further, lenders have priority in capital repayment should the company go to administration.

value of the labour-power, paid in the form of wages (W) plus the monetary value of the purchased raw materials. To make a profit, total revenue should be greater than total cost.

Assume the simplest model in which production does not need any raw materials, and the initial money comes from the capitalist's own pocket (i.e. the financier and the producer are the same), and borrowing is zero. Then, if the total value of consumption is equal to the total value of the wage bill, and if both are equal to the total value of production, no profit can be made by the capitalist in this system. In this case, the circular flow of funds is complete, which means that a self-sustained circular flow of income necessitates a profitless economy.

To make a potential profit, the capitalist must consider a mark-up pricing mechanism in order to increase the total value of production over the total value of the wage bill (plus the other costs typically, but not in our simple model as we assumed they are zero).[49] Now, the question is how will this profit be monetised when the total distributed income is lower than that going to be collected? If labourers (as a class) spend all their wages on consumption ($C = W$), the monetary value of total consumption expenditure (C) will be lower than the monetary value of total production, if it is sold in the market at a pre-determined price. Figure 3.2 shows this circular flow.

Figure 3.2: Circular flow of income between capitalists and workers



W= monetary value of the work of the labour force (from capitalist's view) = wage
C= monetary value of total consumption expenditure

[49] There is a philosophical point here that is beyond the scope of this debate. The old classical scholars, most notably Adam Smith and Karl Marx, believed that commodities produced by the labour force have intrinsic value before being brought to the market. This intrinsic value should be calculated based on the amount of labour-hours spent on the production of those commodities. But capitalists pay less than what labourers produce in terms of value, as they know the value in advance. This is the reason why they refer to "deduction" from the original value of the produced goods when talking about making a profit. For example, Adam Smith (Vol. I, Ch. VIII) explains that rent and profit are two shares that the landlord has in the value of goods produced by the labourer. By contrast, in modern economic doctrine, there is no fixed intrinsic value for goods, and these values are determined in the market through supply and demand. Marx also talks about the "surplus value", which shows he believes in the base value.

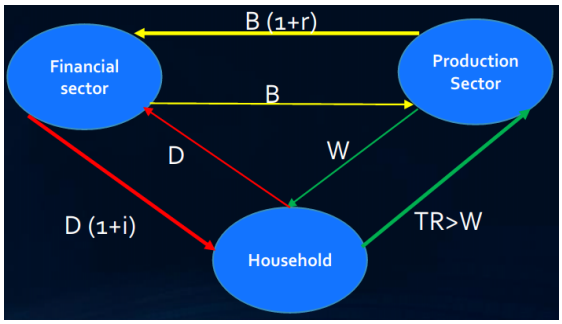
Marx believed in the “labour theory of value” which holds that the value of commodities is determined by the total amount of “socially necessary” work required for production. According to Marx, profit in the form of “surplus value” is created by labourers in the process of production even before the produced commodities enter into the market, but the workers' wages are less than the market value of what they have produced. Therefore, if we assume labourers spend all their wages on consumption, the total value of production will be bigger than the total value of consumption.

To have a complete circular flow of money (i.e. a balance between money-in and money-out flowing between the capitalists and workers), one possible way is the situation in which the capitalists put their own extra money into circulation to buy the rest of the remaining products from each other for their own consumption and/or to make a new investment. This means they need to chase their profits by spending more from their pockets, which does not look very incentivising for an investor. This solution, which is, in fact, Marx’s practical solution, will be analysed in more detail later.

If we move away from classes and replace them with sectors, as we do in modern macroeconomic modelling, the question becomes: can we still trace the paradox with a different type of modelling? The answer is positive. If we look at the economy as a system composed of different sectors (and not ‘classes’ as Marx projected in his view) and find the net flow of funds between each sector (the method that has been adopted and extended in this study), we have a similar story for bank profits in the financial sector. This means, in a purely credit-led economic system, when banks lend a certain amount of money — assuming no saving and a fixed supply of credit in circulation — they cannot get their profit (rate of interest) back because producers or households are unable to print more money and repay the interest.

Figure 3.3 illustrates a simple flow of financial transactions between different sectors of an economy, consisting of household, production, and financial sectors in a closed economy with no government.

Figure 3.3: The Flow of Monetary Funds between Sectors in Economy



W =Wage Bill
TR= Total Revenue of producers
B = Amount of Borrowing
r = Interest Rate for Borrowing
i = Interest Rate for Deposits
D =Total Deposits

Based on this illustration, the production sector borrows $\boldsymbol{B}$ from the financial sector to pay the wage bill $\boldsymbol{W}$; so, $\boldsymbol{W = B}$.[50]

Figure 3.3 thus captures essentially the same problem as Figure 3.2, but now with three sectors rather than two classes. The production sector aims to make a profit from selling the produced commodities to households, so they are looking for total revenue ($\boldsymbol{TR}$) which is above their costs (in this case assumed to be equal to the wage bill) but the household sector (in aggregate) has been paid $\boldsymbol{W}$ and cannot pay anything beyond that. There is a similar situation between the financial sector and the production sector. The financial sector has paid out a loan equal to $\boldsymbol{B}$ but they expect to receive $\boldsymbol{B\ (1 + r)}$, say, after a year. Since the production sector cannot print money, they cannot pay interest on top of their loan. Thus, the paradox of monetary profit manifests itself in the form of a shortage of money in circulation. While the paradox is itself a theoretical conundrum, the shortage of money in circulation is a practical challenge for the whole system.

Theoretically, for a given supply of monetary funds in a whole economic system, if the outflow of funds from one sector is bigger than its inflow coming from other sectors, we will face a shortage of money to monetise the profit of all profit-seeking sectors. But, in reality, some sectors (specifically the financial sector) get a net financial gain from other sectors (namely household, production, or even government sectors). So, how is this possible? What is the source of this financial gain?

[50] This is a logical assumption as the payments to the factors of production, such as labour, should happen before the production comes to the point of sale. The money creates a purchasing power or a potential demand for the products (this is, perhaps, one interpretation of Say's law). So, the production must start with money created by the financial sector in the form of credit (even without receiving any deposit).

In the following section, we go through some of the historical views and solutions offered by the main scholars of the 19th and the start of the 20th century who faced the paradox and tried to find an answer for it independently. Among these scholars, the focus is on Sismondi, Malthus, Marx, Schumpeter, and Keynes. In Section 3.4., we examine the views and solutions of contemporary scholars from specific heterodox schools of thought, mainly post-Keynesians and circuitists, whose main theory has a specific connection with the paradox of monetary profit.

3.3. Historical Views and Solutions to the Paradox of Monetary Profit

As mentioned earlier, Sismondi (1819) and Malthus (1820, 1827) found the answer to the paradox in an open economy with the presence of government. According to Renaud (2000: 290-292), Sismondi and Malthus believed that "insufficiency of demand" is one of the persistent features of capitalist economies because of the disparity between the value of total expenditure and that of total production (or total income) due to the existence of profit. They were of the view that an external source of income, either through the "state deficit" and/or through the "foreign trade surplus", is needed for the realisation of profit.

In the absence of credit, these two external sources of income introduce a practical solution for the realisation of profit. But these solutions (for an open economy) along with Marx's practical solution (for a closed economy that will be discussed in detail in the next section) suffer from two interconnected problems: first, the lack of a theoretical answer to a theoretical question, and second, the lack of long-term sustainability in their practical solutions.

About the first issue, we need to be clear about the meaning of the "theoretical" versus "practical" solution for the paradox. A theoretical solution, which is also a self-sustaining one, must be able to prove that the same amount of money/credit, brought initially into circulation would be enough to monetise profit at the end of the process, regardless of whether the system is defined by classes or sectors. Therefore, any extra money/credit that comes into circulation for the monetisation/ realisation of profit does not provide a theoretical solution, but rather a practical or pragmatic one.

Concerning the second issue, if an economic system is always desperate for an external source of money to monetise profit and keep businesses alive, the sustainability of such a system will be repeatedly accompanied by crises. A government cannot afford a continuous and

unconstrained budget deficit to compensate for the shortage of money in circulation, and it is also unsustainable, as well as confrontational, to have a trade policy based on mercantilist strategies (i.e., having a continuous trade surplus based on a zero-sum mindset). Therefore, our journey to find a theoretical and self-sustaining solution for this theoretical puzzle will continue. It is vital to assess if any suggested solution can provide an endogenous solution for a closed economy without any exogenous injection.

One of the scholars who tried to understand the position of profit in the circular flow of income theoretically was Joseph Schumpeter. Schumpeter (1934:189) identified profit and interest rates as two sources of inconsistency in the circular flow of income: "within the circular flow ... it is impossible with a given money sum to obtain a greater money sum". He believed that there were only two economic systems (or as he called them "organisations") in which a complete circular flow can be found without inconsistency: "an isolated manorial estate" and "an isolated communist society", (Ibid: 138). In the first system, most factors of production including land, labour, and capital, belong to the Lord; in the second system, the central government sets every aspect of production and distribution, and factors of production belong to the public. Making a profit in these two systems is inconceivable as all the components of the system (units) are working together and there is no competition between them. In such a system, "the world of prices does not exist and only that of values remains", (Ibid: 139). With this normative approach, he believed that in an ideal economic system production must be profitless as "the prices of all products, under free competition, [must] be equal to the prices of the services of labour and nature embodied in them". At this point, however, he acknowledges that "[the fact that] the economic system in its most perfect condition should operate without profit is a paradox" (Ibid: 30).

He did not attempt to solve the puzzle further but concluded his analysis by saying: "As value is a symptom of our poverty, [the presence of] profit is a symptom of imperfection" (Ibid: 31). Schumpeter was not the only person who could not solve the paradox of profit through the concept of value in the circular flow of income. We shall see that Keynes was also trapped by this concept, and since he was not able to provide a solution he preferred to focus on other issues that will be discussed later in this section.

Some scholars believe that even Marx did not provide any solution for the paradox. For example, Bruun and Heyn-Johnsen (2009) claim that neither Marx, as the disseminator of the paradox, nor Keynes, who was dealing with the aggregate income determination in his *General*

Theory, solved this paradox. Smithin (2015) has also claimed that the puzzle remained unanswered by Marx. But these claims are not accurate. In Volume 2 of *Capital*, Marx presented a practical (but not theoretical, see the introduction of this chapter) solution based on the idea that the capitalists will be the final owners of the surplus values by putting their own money or bank credit into circulation for their own consumption. This will be discussed in more detail later in connection with the critical analysis of Keynes's view. Marx and Keynes were, of course, not the only people who thought about the paradox. Apart from Sismondi, Malthus, Marx, Schumpeter, and Keynes, several other scholars, such as Rosa Luxemburg and Knut Wicksell, confronted the issue too but they were unable to provide any self-sustaining theoretical solution (see Renaud, 2000; Nell, 2002). Luxemburg (1913), for instance, believed that in a closed economy, the realisation of profit is impossible as the demand for goods is insufficient, so, the capitalist system tries to realise a monetary profit through having access to the markets of non-capitalist economies, using their cheap labour and resources and, at the same time, creating markets for its products.

To understand the theoretical aspects of the paradox in a closed economy, we specifically focus on Keynes's approach and Marx's practical solution as they both look at the issue in terms of value but their approaches to the determination of value led them to totally different outcomes.

Keynes did not use the phrase "paradox of profit" in any of his work, but according to Bruun and Heyn-Johnsen (2009: 5), he used, instead, the term "quasi rent" that he borrowed from Marshall. He was aware of the profit realisation issue from a theoretical point of view right before completion of his *General Theory* but, in a letter to Roy F. Harrod (in 1935), he explains that he eventually decided to "delete the whole of the chapter dealing with quasi-rent". (*C.W.* xiii: 538)

For Keynes, the concept of value was the central problem. He focused his attention more on the inconsistency between the values of the two sides of the economy. On the real side, assuming a closed economy without the public sector, and in only one period, the total value of production ($\boldsymbol{Y}$) should be equal to the total value of consumption ($\boldsymbol{C}$) and the total value of what is not consumed and remains as an inventory ($\boldsymbol{I}$ = indirect investment), i.e. $\boldsymbol{Y = C + I}$. In this identity, $\boldsymbol{I}$ does not represent a new investment as the time horizon is just one period, however small, that is, we want to know how profit can be monetised in this single period.

On the financial side, the total generated income (theoretically this should be $\boldsymbol{Y}$ again) must be distributed between labour, in the form of wage ($\boldsymbol{W}$), and capital, in the form of profit ($\boldsymbol{\Pi}$), i.e.

$\boldsymbol{Y = W + \Pi}$. Therefore, if workers spend all their wages on consumption ($\boldsymbol{W = C}$), the profit of the capital owner (here assumed to be the producer too) cannot be monetised and remains in the form of unsold commodities, that is $\boldsymbol{\Pi = I}$.

If we increase our time horizon to two periods, then the profit from the first period can be monetised when the capital owners (also producers here) decide to make new investments in the second period, from which labourers can get the second-period wages that in turn enable them to buy unsold products from the first period. This is in line with Marx's view (1885, [1969]) on the need for additional spending by the capitalists from their own pockets and Kalecki's (1935: 297) view that "capitalists … determine themselves their profits by their consumption and their investments". According to Kalecki's (1942) profit equation in a closed economy, the whole consumption is divided between workers' consumption ($\boldsymbol{C_W}$) and capitalists' consumption ($\boldsymbol{C_C}$). Therefore, the profit of the capitalists will change to $\boldsymbol{\Pi = C_C + I}$, but in this case, $\boldsymbol{I}$ represents a new investment that happens at the end of the first period or the beginning of the second in order to chase the profit of the first period.

The decision to make a new investment in the second period on any scale depends entirely on the investors' expectations about the level of demand in that period (or even future periods if we extend the horizon), and if the financiers are separate from the producers, the cost of borrowing must be added to the equation. Therefore, the capitalists are not able to make any profit within the same period from the initial money in circulation.

Keynes was aware of this fact. On the other hand, the determination of total income in a given time interval, was very essential for Keynes as he believed that "effective demand is simply the aggregate income (or proceeds) which entrepreneurs expect to receive" (*CW*, vii, Book II, Chapter 6: 55).[51] This implies that Keynes knew that the total profit must already be calculated in order to determine total income, and this was not possible due to the realisation of profit in different periods. So, the determination of the aggregate income in circulation was paradoxical for Keynes and could not be determined in one period:

> There is a constant leakage going on in the circulation of income (quite apart from saving) unless entrepreneurs are making it good by

[51] In Chapter 10 of Keynes' *CW*, Vol. xii, (p. 444) he defines the effective demand as "the sum of the short-term expectations of gross investment and consumption". This is similar to Kalecki's profit equation.

> new investment equal to what they have deducted from the gross price to cover user cost (Ibid, xiv: 417).

The theoretical problem of monetising profit for the determination of aggregate income and the issue of dealing with the concept of "value", (real or expected) created terminological difficulties for Keynes. In the period after the publication of *Treatise on Money* in 1930, he considered using a variety of terms, such as "normal or equilibrium profit", "actual profit", and "expected profit". The confusion over the proper term to choose might be due to the difference between the accounting approach and the economics approach towards the definition of profit. In the first approach, profit must already be realised to be taken into account, while in the economics approach, both realised and expected profits are considered as "profit", (see Bruun et al., 2009 for the difference between these two approaches about income). In the end, these terminological issues led Keynes to leave this paradox unsolved and to focus instead on the relationship between saving and investment:

> I am afraid that this use of terms has caused considerable confusion, … For this reason, and also because I no longer require my former terms to express my ideas accurately, I have decided to discard them - with much regret for the confusion which they have caused (*GT*, Chapter 6: 44).

Marx's approach was totally different. He was more preoccupied with providing a timeless analysis of profit formation and profit accumulation in the history of capitalism. Thus, for Marx, the concept of the monetisation of profit (and not aggregate income determination) was the central problem. Unlike Keynes, he had a very clear understanding of the term "value" and "surplus-value". Neither of these were determined in the market through supply and demand. The latter was a pre-determined profit that emerged with the work of labourers in the production process but was again not related to the price of the product. He put forward his own practical solution for the paradox based on his realisation that this theoretical conundrum could not be solved using only the initial amount of money (or as he calls it "advanced money") in circulation. In Volume 2 of *Capital*, Marx explains:

> How can they [capitalists] continually draw £600 out of circulation, when they continually throw only £500 into it? Nothing comes out of nothing. … Indeed, paradoxical as it may appear at first sight, it is the capitalist class itself that throws the money into circulation which

> serves for the realisation of the surplus-value incorporated in the commodities. But, nota bene, it does not throw it into circulation as advanced money, hence not as capital. It spends it as a means of purchase for its individual consumption. The money is not, therefore, advanced by the capitalist class, although it is the point of departure of its circulation (Vol. 2: 204).

This means that profit, in the form of surplus-value embedded in commodities, will be realised when capitalists put fresh/new money into circulation for their own consumption. The source of this money could be either their own pockets or bank credit (see Vol. 2, Ch. 17: 195 and Ch. 20: 256). This does not mean that the capitalist pays for his/her own produced goods. It does not make sense to buy from yourself to make a profit. To understand the meaning of "purchasing for its individual consumption" let us imagine there are two capitalists ***A*** and ***B*** in the whole economy. Capitalist ***A***, produces consumption goods, and capitalist ***B*** produces capital goods. By bringing their fresh money "into circulation as a medium of circulation for their consumption" (Ch. 17: 212), they buy the products of each other and both capitalists are able to monetise their profits, both individually and as a whole class. This idea is neatly summed up by Joan Robinson (1966: 341): "workers spend what they get; capitalists get what they spend"[52] [quoted in Sawyer (2008: 3)].

Although this is very innovative, there are three issues with this solution. First, it is not clear what amount of fresh money must be put into circulation by every individual capitalist in order to monetise their profit as a whole class. Marx talks about the number of times that money turns over in circulation. This means he believed in the multiplier effect of money in circulation, but then he does not make clear why the initial amount of "advance money" in circulation cannot suffice for the realisation of profit, or what would be the impact of this money turnover on profit either if all capitalists were to bring the same amount or portion of their fresh money into circulation, or if a group of capitalists who can reuse the same tools and capital goods do not spend any further:[53]

[52] This is also similar to what Sismondi said [quoted by Marx in *Capital*, Vol.1: 409]: "The worker required the means of subsistence to live, the boss required labour to make a profit".

[53] In a usury-based monetary production economy, if the only source of the initial money in circulation is credit, the circulation will be finished (reach the end of its life) as soon as the money goes back to its original source. The greater the velocity of money, the shorter the life of the initial credit, and the less value it can create in the

> We disregard here the fact that the sum of £400 may suffice, when turned over ten times, to circulate means of production valued at £4,000 and labour-power valued at £1,000, and that the other £100 may likewise suffice for the circulation of £1,000 worth of surplus-value. The ratio of the sum of money to the value of commodities circulated by it is immaterial here. (Ibid, Ch.17: 204)

In this case, if all capitalists put their own fresh money into circulation for their consumption, there will be extra money in circulation that has no impact on the realisation of profit. Following this view, we are not able to find any explanation for the existence of unsold products (inventories) in the real world because if profit, as Marx says, is embedded in the form of surplus-value inside all goods, with the realisation of all profits, no goods (consumption or capital) should remain unsold.

Second, in a model based on various sectors, capitalist expenditure on consumption-goods is already considered as part of household consumption, whereas in Marx's class-based model, the consumption of the capitalists is not evident unless an extra assumption is added as well as a distinction between expenditure on consumption-goods and expenditure on capital goods. A theoretical solution should not be dependent on the choice of the model. Marx's model, based on the economic cleavage between capitalists and workers, which illustrates the division of classes and income distribution, is more applicable to a political economy in which the normative aspects of a system are highlighted, compared to the positive aspects.

Third, Marx's solution is understandable if the capitalist is both the producer and the financier at the same time. In such a system, capitalists must spend more to provide the monetary funds required for the realisation of their profits because they are the only source of additional funds. But in a pure credit-led economy, where the producer and financier are in separate sectors (Figure 3.3), applying this practical solution means that the capitalists have to accept a debt-profit cycle in which they must borrow more and accept a further debt obligation in order to extract the initial profit. This can be justified if all capitalists increase their time horizon and chase the profit of the first period by remaining optimistic, keeping their incentives, and continuing investment for the second period of production.

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whole system. Fresh money from the creditor creates a new circle with new debt and it does not have the circulation impact when the same money is passing between debtors/money users.

Despite these issues, there is still an important lesson that should be learned from Marx's solution. Marx introduces a novel practical solution that has been disregarded even by some post-Keynesian and circuitist scholars, who claim to have found a theoretical solution for the paradox (see Renaud, 2000; Nell, 2002; Parguez, 2004; Messori and Zazzaro, 2005; Rochon, 2005; Keen, 2010 & 2011; Zezza, 2012). They should acknowledge that the paradox does not have a theoretical solution in a fixed period and without an extra source of money/credit in circulation. The solution that extends the time horizon over one period and injects extra money/credit to monetise profit is a practical solution.

From Marx's point of view, the money needed for the realisation of profit cannot be endogenously generated from what was initially put into circulation but comes exogenously from the capitalists' own pockets or from bank credit. This is important specifically when we are dealing with a pure credit economy. In a pure credit-led economy, the source of money in circulation is credit issued by the financial sector. According to Seccareccia (1988: 51, quoted in Rochon, 2005: 128), even "production is a process of debt creation". Therefore, the source of monetary profit for all profit-seeking sectors in such an economy must be fresh/new credit, and this credit must be brought exogenously into circulation by the financiers, without whom the shortage of money in circulation would be exposed.

This shortage is not easy to be traced in the real world because credit expansion covers it temporarily at the price of more debt and, eventually, more shortage of money in the future. The mechanism is simple, as discussed briefly in Chapter 2: credit makes a debt obligation above the initial level of the credit. This means, more money is required by the debtor to redeem the whole debt and this shortage of money creates, in turn, a new demand for more credit, which must be provided again by the creditor.

For example, at the micro-level, if you use your credit card and buy £1000 worth of a commodity, at 20% APR, you need to pay back the extra £200 in interest over a year. For a company in the production sector that borrows £1,000,000 as an unsecured loan, with an average rate of interest of 10% APR, the company's extra demand for money to cover the cost of interest would be £100,000 over a year. These residual demands for money would be substantial if we knew that at 10% APR, it would take about seven years and three months to double the money that was lent. For the whole economy, this indicates that the shortage of money in circulation will be 100% in just about seven years. If you increase the APR from 10% to 15%, the 100% shortage of money created through lending will happen in just 5 years.

This accumulation process works well in favour of the capitalists, who once were the producers with their own firms, making monetary profit through self-financing investment, production, and trade. But as, in a monetary production economy, money gradually gets more weight and value, self-financing of new investments, especially when there is an expansion that requires a new and expensive technological innovation, would not be an option as either too risky or unfeasible. This eventually leads to the separation of financiers and producers for mature corporations and the formation of a new generation of capitalists who make their profits through lending and playing with other forms of financial instruments. This is a simple (albeit incomplete) explanation of the transformation of productive capitalism to rent-seeking and casino-type capitalism. This will be discussed in more detail in the final chapter, on financialisation.

3.4. Circuitist and Post-Keynesian Theoretical Solutions

In the last four decades, the attempts to find an answer to the question of the origin of profit in the capitalist economy have been shared mainly between the scholars of two closely connected branches of the heterodox school, the circuitists and post-Keynesians. They have a great deal in common and very limited differences, which can make them hard to separate (see Rochon, 1999; Sessareccia, 1996 for details of the differences).

For the circuitists, who follow the theory of the monetary circuit, it is natural to come across the paradox of monetary profit. This confrontation happens at the very beginning of their discussion about money. In circuit theory, money is defined as debt that is created by banks through the lending process, and this debt obligation is "destroyed" (or removed) when the debt is repaid, at which point the circuit is complete. They accept that the origin of money as legal tender has nothing to do with any advancement in bartering practices (the story that is accepted and approved by mainstream scholars) but rather, as the Chartalist theory of state money posits, it is rooted in state approval to serve as the means of tax or debt repayments and is legally forced through the tax system for its benefits in synchronisation and calculation. They also argue that the supply of money is led by credit and the amount of credit is determined by the demand for money (see Seccareccia, 1996; Zazzaro, 2002; Rochon, 2005; Keen, 2011). Therefore, money is an endogenous variable as its supply depends on the volume of demand and this, in turn, is validated and approved by the banks, that is, not all demands are fulfilled. This is in total contrast to the neoclassical theory of money, in which a major part of the money

in circulation is high-powered money and its supply is exogenous and determined by the monetary authorities.

In a pure credit-led economy, as the circuitists picture it, the created money in circulation will eventually go back to its origin but the existence of interest rates does not allow the circuit to be closed. Thus, the question about the existence and realisation of any form of monetary profit, either in the real or the financial sector, is at the heart of this theory and one of the most important challenges for its scholars as it forces them to throw away the very notion of "equilibrium" (see Messori and Zazzaro, 2005; Zezza, 2012). So, it is not wrong to say that the paradox of monetary profit is the central puzzle of monetary circuit theory.

In the circuitist framework, equilibrium happens when two things with equal values are exchanged. This cannot happen in the capitalist system unless the profit is zero, that is, labourers/workers must be paid an amount that has the same value as what they have produced, and bankers must receive the same amount of money they have lent without interest. This problem in circuit theory was discussed initially by the Italian pioneer Graziani (2003: 30-31) who believed that "even in the most favorable case, the firms can only repay in money the principal of their debt and are anyhow unable to pay interest. … the only thing they can do is to sell part of their product to the banks, which is tantamount to saying that interest can only be paid in kind".

But for many followers of Graziani and the circuit theory of money, this defeat is not acceptable and it is important for them to show that their theory can solve the paradox, so, "it is necessary to show how the system can work without reliance on outside assistance" (Nell, 2002: 520) either from the government (through the budget deficit) or from trade (trade surplus).

Seccareccia (1996) and Rochon (2005) have provided good summaries of several approaches taken by the circuitists to provide a theoretical and endogenous solution for the paradox, but they also believe that most of the suggested solutions are not convincing and, in some cases, not realistic. Although each solution tries to shed light on a specific aspect of the financial relationship between various sectors in capitalist economies, none of them can provide a theoretical solution without injecting additional sources of money into circulation. This means that they fail to move beyond what we have come to know as Marx's practical solution. The reason for this failure is clear: as mentioned before, the concepts of equilibrium and self-sustainability of the monetary flows are the main characteristics of any version of the circuit theory of money. The existence of profit in the whole system conflicts with these two concepts

as the circuit cannot be closed, and it is for this reason that Schumpeter (1934) interprets the existence of profit as the "symptom of imperfection" and a "source of inconsistency".

Among circuitists, Seccareccia (1996) identifies four main approaches and Rochon (2005) discusses five. In this study, however, five approaches (including the post-Keynesian theory) are identified with some modifications in how they are categorised. For example, the work of Zazzaro (2002) and Messori and Zazzaro (2004) has been described as a micro-based explanation by Rochon, so they are excluded as one of the main approaches in his 2005 paper, but because their explanations are connected both to Minsky's (1977) "Ponzi" financial regime and to Schumpeter's (1934) view on the "process of creative destruction", they deserve to be considered as an independent approach. In this study, this approach will be examined first and then the others will be separately explained and analysed. Each approach has been given an appropriate name to make its key characteristics more easily recognisable.

3.4.1. Micro-Bankruptcy Theory

The core idea of this theory is based on zero-sum profit in the sense that not all firms are able to continue and maintain their activities in the market. There are some winners and some losers. Zazzaro (2002) links this theory to the "creative destruction theory" explained by Schumpeter and the "financial instability hypothesis" of Minsky.

In Schumpeter's creative destruction theory, the capitalist economy is seen as a creative dynamic system, with no prospect of reaching equilibrium, that changes continuously by destroying the old, fragile structures/organisations in order to release resources for the resilient structures/organisations. Conversely, according to Minsky's financial instability hypothesis, during periods of economic prosperity both borrowers and lenders, due to an intense level of competition, have a tendency to accept more risk even though it is reasonably clear to the lenders that some of the borrowers are taking risk far beyond their managerial and financial capacities. It is very unlikely that these borrowers to generate enough cash flow to meet their financial obligations, and so they are desperate to borrow continuously in order to keep their businesses going. This Ponzi financial relationship (Ponzi regime) will eventually lead to the failure of some firms and banks.

Thus, based on the micro-bankruptcy theory, the monetary realisation of profit is possible but since it "is linked to the failure and market exit of a certain number of firms, in the economy there is a stock of money that no longer represents a debt of the corporate sector to the banking

system but is a debt within the banking system (which may include the central bank)" (Messori et al., 2005: 30). As a result, the extra monetary funds of the bankrupted companies and banks will be in circulation in order to monetise the profit of others. This was initially highlighted by Graziani (2003: 32) when he said: "profits earned by one firm may simply be the mirror image of inefficiencies and consequent losses incurred by other firms".

While this theory reflects some facts in the real world nonetheless, as Rochon (2005) says, it fails to explain the mechanism by which the realisation of profit happens in the economy as a whole. What is more, it is also not clear what proportion of bankruptcies should happen in order to provide adequate profit to sustain the remaining companies and banks.

3.4.2. Multiple Circuit Theory

This theory (with minor variations) is explained and jointly held by both circuitists and post-Keynesians. Circuitists — such as Mackinnon and Smithin (1993), Smithin (1997), Messori (1988), and Dupont and Reus (1989) — believe that production is a dynamic and sequential process in which firms demand multiple credit transactions in a specific period of time. These credits could be allocated for the wage bill or for investing (purchasing capital goods) in the second phase of production. Therefore, the whole period "can be broken into distinct [sub-]periods, each with a definite beginning and end. Within each period, inputs are used up, incomes are paid, and outputs produced" (Nell, 2002: 522). Consequently, several overlapping circuits start at different time intervals and each one brings more money into circulation allowing producers to use these additional funds to monetise their profits.

On the other hand, post-Keynesians, such as Chapman and Keen (2006), Anderson (2009) and Keen (2010) believe that in a single period within the framework of the circuit theory, solving the paradox has no meaning other than accepting a "zero-sum game" in which some firms will be able to realise their profit while others must accept a loss. Alternatively, these scholars propose using mathematical tools, such as differential equations, to calculate for a multi-period and a continuous analysis that covers more than one period.

One of the main problems with this theory is that the fundamental question about how to achieve the realisation of profit based on initial money given in advance and without any extra injection within one period still remains unanswered. In simple terms, as Rochon says (2005), this theory is unable to show how M becomes M' without injecting more money into circulation. Therefore, the theory does not provide a theoretical solution but only a practical

solution since a new source of credit (a new circulation) is needed to realise the profit of the previous circuit. This sequential form of financing must continue endlessly and extend beyond any given single period as the profit of the last circuit has to be chased by the extra funds coming from the next circuit. This means that the profit of the first period will be monetised when workers can buy unsold inventories (unrealised profit), produced in the initial period, by means of the new investment and the new wages they acquire in the next period.

Chasing profit through new investment (in a new circuit) is what happens in reality. Banks lend again (new investment, new circuit) to ensure their borrowers are able to repay the interest (profit) of their first circuit. This was also discussed in the previous chapter through the lens of the credit-debt reproduction mechanism. Firms also invest again and pay the wage bill for the second phase of production, enabling the wage earners to buy the remaining unsold goods (inventories that contain the surplus value). This is a simple accounting identity that is echoed in Kalecki's (1942; 259) simple profit equation in a closed economy in which the profit of capitalists (as a whole class) is the sum of their own consumptions and investments, with a causal relationship from investment to profit. But as mentioned before, the necessity of creating this new investment (new circuit) is enough for us to claim that the multiple circuit theory cannot provide a theoretical solution for a single period scenario.

3.4.3. External Fund Theory

In Section 3.2 we examined the views of Sismondi (1819) and Malthus (1820, 1827) on the insufficiency of demand in the capitalist economy due to the existence of profit. Their practical solution was the use of external sources of income for the realisation of profit. This external source could be found either through the state budget deficit or through the trade surplus in an open economy.[54] The extended form of Kalecki's (1942) profit equation is the contemporary version of what Sismondi and Malthus had previously emphasised.[55]

[54] The budget deficit spending has strong support from the Modern Monetary Theory (MMT) scholars but they are silent about the shortage of money in circulation and it seems they are reluctant to construct a demand theory of money that might justify the budget deficit spending policy.

[55] According to this profit equation, assuming workers are able to save part of their income, aggregate profit will be the sum of the capitalist's consumption (C_c), capitalist's investment (I_c), the government's budget deficit ($G - T$), trade surplus (NX), minus the savings of the workers (S_w). It can be represented mathematically as $\Pi = C_c + I_c + (G - T) + NX - S_w$. While budget deficit and trade surplus have a positive impact on aggregate profit, workers' saving has a negative impact on it.

The circuit version of the external fund theory, which is based on a simple three-sector model (namely households, production, and financial sectors, with the budget deficit and trade surplus excluded) is explained by Graziani (1994) and Dupont & Reus (1989, quoted from Seccareccia, 1996), but their solution cannot be confined to a one period situation as it conflicts with the Kalecki's profit equation. According to this solution, external money comes from the savings of the household sector when they carry their inactive savings from one period to another in order to buy either consumption goods or the firms' financial assets.

This solution is not a theoretical solution, and it is also against the basic assumption of circuit theory about the endogeneity of money. The basic form of finance in the simplest circuit model is credit. So, in sharp contrast to mainstream theories, in a credit-led economy, it is bank credits that make deposits and not the other way round. Any form of saving in the circuit model means that there is a leakage in the circulation and the producers are not even able to get back what they have already paid to their workers. Therefore, Say's law, in which supply creates its own demand, cannot be valid in the presence of money hoarding.

The decision of households to save some of their earnings makes the problem of profit realisation worse as the chance of having an aggregate profit in the whole system is lower than in a situation where there is no saving. Even if the total saving in period one is transferred into the second period and spent totally on consumption-goods, the issue of profit realisation in the first period remains unanswered.

Another version of this theory has been put forward by Nell (1986). Assuming there are two different sub-sectors in the production sector (consumption-goods sector, and capital-goods sector), profit can be monetised by means of the extra monetary fund that comes through "a parallel credit circuit, existing outside of the banking system proper, for the purpose of regulating inter-firm transactions within the investment goods sector" (quoted from Seccareccia, 1996: 407). In addition to the problems already mentioned for the first version of this theory, there is no reason to believe that this form of financial transaction happens in reality, and as Seccareccia (1996: 407) explains there is no justification for such financial relationships when financial institutions usually monitor the potential opportunities for profitable lending.

3.4.4. Sectoral Profit Transfer Theory

The main idea of this theory, like the previous one, is based on the division of the production sector into two sub-sectors, namely the consumption-goods sector and the capital/investment-goods sector. Renaud (2000) provides two solutions within this framework using what he calls a "post-Keynesian sequential financing model". According to Rochon (2005), the core idea behind the first solution goes back to the work of Moore (1988) and for the second solution, to Davidson (1972), whilst Renaud (2000) independently[56] have brought them together as endogenous solutions.

His first solution is based on a scenario in which the total wage bill of the whole production sector (consumption- and capital- goods sectors) is financed in advance. The wage of the workers in the capital-goods sector provides the extra money required for the realisation of the profit of the consumption-goods sector. The profit of this sector will not remain idle because the second phase of production, within the same period of the first circuit, requires new investment, which is purchases from the capital-goods production sector. Therefore, the accumulated profit in one sub-sector (here, the consumption-goods sector) will be transferred to another sub-sector to realise the profit of the second sub-sector (here, the capital-goods sector).

While this solution looks logically satisfactory, it suffers from a lack of proper financial analysis. Two criticisms that Renaud (2000: 298) addresses in his paper relate to the asymmetric treating of businesses in different sub-sectors and the practicality of transactions for the businesses working in the capital-goods sector. In order to understand his model in the language of the current research, we set out his model in the following way. Assume that there are two sectors:S_1 produces consumption goods, S_2 produces capital goods. According to his solution to the first issue he identifies, the wages of the workers in the two sectors ($\boldsymbol{W_1}$ and $\boldsymbol{W_2}$ respectively), are financed in advance by a bank. Let us follow his solution and assume that the total wages ($\boldsymbol{W_1 + W_2}$) are spent on the consumption-goods produced by sector $\boldsymbol{S_1}$. The financial obligation of sector $\boldsymbol{S_1}$ at the end of the period is the total amount of $\boldsymbol{W_1}$ (principal) plus a small part of $\boldsymbol{W_2}$ (as interest) which should be reimbursed to the bank. Therefore, the profit of sector $\boldsymbol{S_1}$ will be less than $\boldsymbol{W_2}$ $(\mathbf{i.e.}\, \boldsymbol{\Pi_1 < W_2})$ and if this profit is transferred to the second sector $\boldsymbol{S_2}$, by purchasing capital-goods from this sector, it does not

[56] In the bibliography part of his paper there is no reference to the work of Moore and Davidson.

even cover the initial amount of credit allocated to this sector ($\boldsymbol{W_2}$), let alone realising profit in this sector.

To address this, Lavoie (1987: 80, quoted from Seccareccia 1996) suggests increasing the number of firms in the capital-goods sector, although according to Seccarecia (1996: 406) this approach had already been examined by Lowe (1976), who showed that some firms in the capital-goods sector "cannot fully validate their output in money terms". For this reason, Seccareccia (1996: 406) claims that it is possible to consider the "profit in the investment goods sector … as pure book values whose physical amount has no monetary counterpart in circulation". This was echoed by Graziani (2003: 30-31) when he talks about "profit in kind" in some of the solutions provided by the circuitists.

Acknowledging the issue in the first solution, Renaud (2000: 299) proposes a solution to the second issue he identifies, based on a scenario that the "initial financing includes not only wages but all fixed capital expenditure". This solution seems to have the support of many circuitists, such as Seccareccia (2003), Parguez (2004), Rochon (2005).[57] According to Rochon (2005: 135), two different circuits can be identified without any overlapping: "a production circuit and an investment circuit". While the production circuit should be closed within a specific period, the investment circuit can stay open due to its nature as a long-term financial obligation. Therefore, there will be enough monetary funds available for a self-sustaining realisation of profit in two sectors without any need for extra money coming from the government or trade.

The main problem with this solution is that it simply deflects the initial question of how an initial amount of money in circulation (M) can be changed into a higher level (M') in a specific period without putting extra money into circulation. This solution throws M' into circulation from the beginning, and so unsurprisingly, there will be no shortage of money for the realisation of profit. Therefore, if there must be extra money for the realisation of profit, as Marx suggested in his practical solution, there will be no difference between throwing this extra money in at

[57] Rochon (2005) tries to distinguish Renaud's (2000) second solution from a very similar version in which the term "capital goods expenditure" is replaced by "investment expenditure". There is no reason to believe they are different as the gross investment is the total expenditure on capital goods for replacement and for net investment. He identifies Renaud's second solution as one based on an advance borrowing of wages and profit but based on Renaud's Kaleckian approach, wherein the profit of the capitalists is equal to their investments with causality direction from investment into profit. So, Rochon's distinction between the two solutions is not valid.

the beginning of the circulation or at the end, and also it makes no difference if the source of money is the capitalist's own pocket (saving, previous profit, etc.) or the credit which is created by banks.[58]

For the above reason, it would be reasonable to conclude that the equilibrium-based approach is unable to solve the mystery of the realisation of profit in an endogenous and self-sustained manner within a closed economy, as it cannot explain how M becomes M′ in a closed circulation in one period. In short, equilibrium cannot be attained in this context. This is the reason why Schumpeter (1934) called profit a "symptom of imperfection", because when money can reproduce itself through the interest rate mechanism the circular flow cannot be closed, in other words, "within the circular flow ... it is impossible with a given money sum to obtain a greater money sum" (Ibid: 189).

3.4.5. Accounting Consistent Theory

Some post-Keynesian scholars have tried to avoid the circuitist approaches on the grounds that they are all inconsistent, far from reality, and not endogenous. Keen (2011: 2-4) believes that "circuit theory — though starting from valid premises is wrong. … The failure to date of circuitists to produce a coherent model of endogenous money could have implied that the Chartalist position was correct, in that a tax-levying state was indeed an essential component of a functional model of money…. [in their approaches] capitalists, it seems, end up with neither good nor money. Money profits in aggregate is zero".[59]

Keen (2010) claims that the reason that circuitists have not been able to provide a satisfactory solution for the paradox of monetary profit is the common confusion among most economists in distinguishing between the stock and the flow of money. According to Keen (2010: 10), in the circuitist mind, "the stock of money has been confused with the flow of economic activity that money can finance over time". In his view, the "stock of money" is the initial money that has been lent and injected into circulation and the "flow" is the turnover of money in the financial period for which the loan is granted.

These issues have led some post-Keynesians to combine some of the core ideas of the monetary circuit theory with their own specific accounting approach in order to trace all payments and

[58] See Marx's *Capital* (Vol. 2, Ch. 17: 195 and Ch. 20: 256).

[59] It is interesting to note that Keen (2010) claims that the paradox of profit is solved although the government sector was not included in his model.

transactions consistently between the various sectors. Chapman and Keen (2006), Keen (2010), and Zezza (2012) follow this approach as they believe that the paradox can be solved endogenously using a specific accounting methodology designed by Godley and Cripps (1983) in order to establish a reconciliation between the theory of monetary circuit and the endogenous realisation of profit. Zezza (2012: 5) believes that a theoretical solution of the paradox for a scenario within one period is possible for even the simplest circuit model (without the government sector involved) by using the stock-flow-consistent (SFC) methodology as it provides an accounting tool that shows there is no "black hole" in the economy.

He claims that the problems with the basic circuit model are "accounting inconsistency" and "logical inconsistency" as it overlooks the simple fact that the profit from all sectors (in a closed economy) returns to circulation through the purchase of goods and financial assets during the circuit period, which is longer than the production period (as Rochon (2005) has said). This means that the profit received by banks cannot be disappeared from view in a closed economy and can be easily traced through a stock-flow-consistent model that is designed for all transactions in the whole period. This profit eventually comes back into circulation as a new source of demand for goods or financial assets. So, Zezza's solution to the profit puzzle is created "by treating interest payments consistently" (Ibid: 6), and not as a lump-sum of money to be paid at the end of the circuit. Here we can discard Zezza's (2004:11) solution in which he claims that the paradox can be easily solved if the initial loan not only covers the wage bill but also the amount of interest that needs to be repaid.

Similar reasoning can be found in Chapman and Keen (2006) and Keen (2010) as they try to show that monetary profits can be obtained if we look at the economic system as a dynamic interaction between various sectors with a continuous analysis over time. In such a system, which can be described by a set of differential equations, money flow is not just one-directional but rather money flows to one sector (or sub-sector) of the system as profit and flows back to another sector (sub-sector) of the system as demand. Therefore, the circuitist view, in which money is destroyed after repaying a debt, is wrong. The main idea of Chapman and Keen (2006) and Keen (2010) is that the turnover of the borrowed money in continuous circulation (or as they call it a "perpetuating circuit") can surpass the initial size of the loan because part of the same money can be used for re-lending. Keen (2010) claims that money has a multiplier effect depending on its velocity in circulation. For example, "only $100 million worth of notes … [in circulation can generate] workers' wages of $151 million per annum … 1.5 times the size of the value of the notes in the economy" (Ibid: 10).

While everything looks consistent in this approach, it suffers from a logical flaw in relation to their assumption that the profit (if we believe it can be made endogenously following their approach) in a closed economy will go back into the system. This is contrary to Keynes's theory of liquidity preferences. In a monetary production economy, (in contrast to mainstream theory in which money is a medium of exchange) money is the objective of production: we use it to make more of it in the future either in production (M-C-M') or in speculation (M-M'). Thus, money is not just a medium of exchange, but the store of value too, and also the main source of the flexibility of capital owners to move towards any profitable opportunities that turn up. On the other hand, hoarding money for facing a predictable or even fundamental (unpredictable) uncertainty is an integral and central postulate of the Keynesian theory of money[60].

There is a further issue here. While it is true that there is no black hole in an economic system when profit makers return (spend) all their money on goods and financial assets, yet how will they be able to re-lend the money to make a profit in the second phase? And if they do not purchase any good or financial asset and use all their profits for the purpose of re-lending, how are we able to define this as the same money in circulation? The money used for re-lending is not the same money circulated between households and production sectors. The first represents a new credit (a new debt) but the second does not create any obligation. The direction of circulation from banks to other sectors changes money into a form of credit which is a debt obligation. This point concerns the multiplier effect of money. A single unit of currency in circulation can create total exchange values greater than the nominated value of the currency but it cannot create more currency and fill up the shortage of money simply through the process of circulation. In other words, M cannot become $M^{'}=M+\Delta M$ just through faster transactions. We must accept that the shortage of money in circulation is a real phenomenon that does happen

[60] Keynes's theory of "fundamental uncertainty" is the core part of his general theory. New-Keynesians reduced that and linked uncertainty to the concept of risk that can be measured by probability. Keynes reached this specific concept of uncertainty after a long-term attempt to predict the trend of share prices in the financial market. Fundamental uncertainty is separate from risk. You can measure risk and associate a probability to it if you know the sample space (or possibility space in which all possible outcomes are known). In a situation with fundamental uncertainty, there is no sample space as we do not know all possible outcomes. So, in such a situation probability theory cannot help us. In the theory of liquidity preferences, people hoard money for such uncertainty. It is therefore unclear whether Keynes's followers who ignore this important lesson of his theory of demand for money can claim that they are Keynesians in terms of their analyses).

due to any profit-seeking activity in a monetary production economy. This will be discussed fully in the next chapter using a range of models and scenarios.

3.5. Summary

In a monetary production economy, the ultimate goal is to make more money at the end of an activity compared to what was initially spent on it. This could be either a production activity (M-C-M') or a financial speculative activity (M-M'). The key to understanding the dynamics of capitalism and its accumulation process is to know how M changes to M'. This is the main theme of the paradox of monetary profit that has been one of the important economic issues since the 19th century which has been largely discarded by mainstream scholars who believe profit is a monetary phenomenon that should not be at the centre of attention. In their fantasy model of capitalism, reflected in the textbooks, there will be no long-term profit in a free competitive market. This topic has also been overlooked by some non-mainstream economists, such as Keynes who, despite his initial attempts to make sense of it, ignored the inherent instability of capitalism that it exposed and focused all his attention to making a more realistic model of the economy (compared to the classical models) that works better for people and policymakers in terms of investment, employment, etc. In contrast to Marx, Keynes was a "glass-half-full" person who supported and believed in capitalism, just not the way it was reflected in the classical models. There were also some scholars like Schumpeter who interpreted the presence of profit as a sign of imperfection in capitalism but without becoming very involved in discovering the source of profit.

In this chapter, it was made very clear that the existence of the paradox of monetary profit, although a theoretical question, presents a practical challenge for the whole monetary production economy, and that is the shortage of money in circulation. It was also made clear that this shortage manifests the accuracy of the paradox of monetary profit in action.

A series of solutions proposed within the literature were critically analysed in this chapter, including the practical solutions of Sismondi and Malthus that were based on the presumption of dealing with an open economic system. While it is theoretically important to find an endogenous solution in a closed economy, it is not very difficult to determine the unsustainability of their solutions. This is due to the fact that public deficit spending cannot continue ceaselessly without any constraint, and that trade surplus, based on a zero-sum mindset, is not sustainable in the long-term because, apart from the worldwide deficiency of demand, it creates socio-political issues such as massive migrations due to worldwide

imbalances in income/wealth distribution. This is because the whole world is a closed economy.

Marx's solution was the first practical and well-elaborated solution for a closed economy but it was shown that the realisation of profit in his solution does not happen endogenously or automatically and within one period. Capitalists have to chase their profits by spending more either from their own pockets or from bank credit. This extra expenditure in Kalecki's profit formula is divided between the capitalist consumption expenditure and his/her investment expenditure. Paying for investment expenditure has no point unless the capitalist is somehow encouraged to produce more for the second period. This means that the profit of one period can be realised through extra investment in the second period.

It should be noted that all other solutions, either from circuitists or post-Keynesians, do not go beyond what Marx explained. In all solutions, there is a trace of extra exogenous monetary funds in one period (one circuit) or the profit can be realised in a multi-period system of production. Post-Keynesian solutions are also another version of Marx's solution as they believe that the profit does not leave a closed system but comes back into the system as new demand. And yet they almost forget that if all monetary profit goes back into circulation this means there is no liquidity preference and money does not have any hoarding value. This is contrary to the postulates of the monetary production economy in which the final goal is to make more money, and it is also contrary to the monetary theory of Keynes, which is founded on the concept of demand for money under conditions of uncertainty. The existence of liquidity preference based on the idea of "fundamental uncertainty", that leads agents to hoard money even in less risky periods, rules out the possibility of taking this assumption that all profits go back to circulation as new demands (as emphasised within analyses of the monetary circuit). Even if this assumption holds and all profits go back into circulation, the source of new lending for the lenders in the next period is not clear.

Ultimately, chasing the initial profit by spending more either from one's own pocket or taking on new debt happens in the real world at the micro-level due to the competition between the productive capitalists. This is the same practical solution that indicates more money is needed for the realisation of profit. But for the whole productive capitalist class, at the macro-level, this is disincentivising because to get the expected profit not only more money must be injected into circulation by banks, but capitalists also need to increase their monopoly power in the market or invest more (in technology, including production, packaging, online sale,

advertisement, etc.) to maintain the competitiveness of their products. This brings the rate of profit to investment down and increases the unsustainability of working in the production sector and it eventually leads the productive capitalists to move from M-C-M' to M-M'. This means moving from making profit through production to extracting profit from financial activities. This is the trend in all capitalist economies at different stages of the financialisation process. This is the main focus of the final chapter where the link between the paradox of monetary profit with the financialisation process will be explained in more detail. But before analysing that link, we need to show that in a profit-seeking monetary production economy, the shortage of money in circulation is a real and inevitable issue. In the next chapter, various models will be constructed to show this fact, which has been forgotten for decades.

Chapter 4: Modelling the Paradox of Monetary Profit

4.1. Introduction

In this chapter, theoretical models will be constructed in order to show that the paradox of monetary profit does exist and remains theoretically unsolved, despite the claims of some post-Keynesians to the contrary. To be precise, there is no theoretical solution for the paradox in any of the models except in the one where the government sector has an active and direct involvement in the distribution of profit between the sectors. This model will be discussed at the end of the chapter.

In the other models, there is no theoretical solution, but this does not mean that there is no practical, short-term remedy for the paradox in the real world. Profit, in the real world, can be made by financial and non-financial institutions. This means the source from which the profit is monetised cannot be the existing fund in the model because of the shortage of money in circulation. An extra monetary fund needs to be injected into the model by the credit provider (banks, in these models) to allow the system to keep running and making a profit for the profit-seeking sectors (bank and production sector) at the cost of debt accumulation for other sectors (households and government) due to the existing monetary balance (with a zero-sum) between various sectors [61]. This means the profit-seeking sectors can make a profit as long as the other sectors can bear the accumulation of debt. This situation is not sustainable, and it is only a matter of time until one of the non-profit-seeking sectors (especially the household sector) cannot tolerate the level of debt and come out of circulation.[62]

The search for the extra funding source will lead us to other issues in the dynamics of capitalism, such as financialisation, which will be discussed in the next chapter. The phrase

[61] The initial assumptions of the models are presented in Section 4.2 below. We focus on the flow of transactions between four main sectors: household, firm (production), bank (financial), and government. We do not have government in the first two models, but it will be added in Section 4.2.3. If the only money in circulation is the initial bank loan (see the second scenario of model 4.2.1 and also model 4.2.2), the debt accumulation will also happen in the production sector, unless more credit is injected into the system.

[62] This is exactly what happened in 2007 in the US sub-prime housing market. The crisis started not in the financial sector but in the household sector when the soaring price of oil caused a sharp increase in the rate of inflation causing many families who were living just within the margin of their disposable income to be unable to afford the extra costs, miss their mortgage payments, and lose their houses. When a large proportion of the houses were returned to the mortgage providers as collateral for their mortgages, the house prices start to decline and that encouraged more households to cancel their mortgage contracts as they were able to find cheaper deals with better payment conditions.

practical remedy is chosen intentionally to indicate that there is no final decisive cure.[63] The main practical remedy which has been used for centuries since the development of the monetary production economy, is the expansion of credit by the financial sector. This extra injection of credit money into circulation temporarily puts the paradox of profit out of sight and resolves the issue of the shortage of money in the short term, while it initiates the process of financialisation. But the problem of debt eventually comes to the surface due to its nature as a progressive and continuous process.

The theoretical models developed below have a simple job to do and that is to show there is a shortage of money in circulation created by the interest rate and mark-up pricing mechanisms, provided that there is no extra injection of money into circulation. Therefore, they do not include the details of the sequential process mentioned previously. They are designed to trace the monetary flows between sectors. In these models, the main objective is to learn if profit can be monetised in each profit-seeking sector using the same initial amount of money in circulation in a specific period without any intertemporal analysis. In the following theoretical models, it is not important to find the owner of the profit, but to observe if the monetary profit can be realised without injection of more money/credit. The models are static and, like all models, constructed based on many simplifying assumptions and different levels of abstraction. As each model gets closer to the real world the related calculations and mathematical proofs become more complex. To grasp the later complexities, the models should be followed from the beginning.

4.2. Theoretical Models

The procedure for constructing and analysing these models is as follows:

First step: Identify the main sectors in the economy and the monetary flow of all transactions between them in aggregate form.

Second step: Make simplifying assumptions in order to reduce the complexity of calculation.

[63] Unless the government acts as the main profit distributer between sectors or the system can be designed in a way that all who were involved in the formation of profit can benefit from that redistribution at the end of the period (or at the beginning of the new period). This means, if an electricity supply company gets profit, the profit should be shared between financiers, producers, consumers, researchers in that field, landowners, technology providers etc. and this should be automatically calculated and transferred into their accounts. This is a sustainable solution.

Third step: Use mathematical symbols to find the mathematical expressions of the monetary flows.

Fourth step: Put the mathematical expressions of the monetary flows in a specially designed Social Accounting Matrix (SAM) that traces the balance sheet of each sector through separate monetary inflows and outflows.

Fifth step: Identify and trace the shortage and surplus of monetary funds in each sector and check for the total balance of monetary funds in the whole economy.

4.2.1. The Simplest Model (Three Sectors, Closed Economy)

The following simple static model which is made with a high level of abstraction shows how the interest rate and pricing mechanism create a shortage of money in circulation in an economy.

Assumptions of the model:

1- There is a closed economy with no government. The only sectors in the economy are household, production (firm) and financial (bank).

2- There is only one bank, one firm, and $\boldsymbol{n}$ individual households (No. of workers = No. of the population, and this factor of production is not scarce).

3- The bank has no staff. It is a robot bank. It lends money whenever it is needed and gets the repayments at no extra cost.

4- Wages are equal for all the population and are fixed for a year. Managers' wages can be considered as a multiple of individual wage, so, $\boldsymbol{n}$ covers that multiple. (In the long-term, wage could be considered as a function of the number of the labour force, but in a year, there is no change in the number of the labour force).

5- Total wage is spent on consumption and there is no saving.

6- The interest rate is fixed for one year at $\boldsymbol{r}$.

7- The time horizon is one year, so there are only two money transactions: between the household sector and the firm on one side, and between the firm and bank on the other.

8- Household and firm sectors have no prior money in their accounts and the total amount of money in the economy is credit money at size $\boldsymbol{B}$, lent to the firm by the bank at the beginning of the year and all financial obligations should be paid at the end of the year.

9- Following a simple version of the production function, in which capital is given at no extra cost or the production does not need any costly capital, the production process is a function of the labour force: $\boldsymbol{Q = f(n)}$ and all the borrowed money will be spent on the labour force (i.e. $\boldsymbol{B}$ is equal to the total wage bill).

10- There is no extra cost apart from the labour force and the cost of borrowing.

Under these assumptions:

Total amount of loan = $\boldsymbol{B}$ **(which is borrowed to pay wages)**

Total no. of workforce = $\boldsymbol{n}$

Wage = $\boldsymbol{w = \frac{B}{n} \rightarrow B = nw}$

Interest rate= $\boldsymbol{r}$

Total Payment to the bank after a year = Total cost (TC) = $\boldsymbol{B(1+r) = nw(1+r)}$

The price of the product per unit is based on a mark-up price $\boldsymbol{\theta}$ over the average cost, i.e.

$$\boldsymbol{p = (1+\theta)[Avg.\ Cost] = (1+\theta)\left[\frac{nw(1+r)}{Q}\right]}$$

Once again, it should be noted that only the labour cost is considered here. We can logically assume that the production of almost all goods requires the employment of some level of capital assets (tools, types of machinery, etc.) and technology. For big corporations, the cost of reaching the highest level of technology, to remain in the market, is even more vital than the other costs. So, this simple pricing mechanism could be extended to cover the expected cost of technological achievements, but at this stage, the focus is on a simple model.

Now we can define two scenarios:

A. The firm can sell all the products, (impossible scenario). This means that the number of the labour force (or households) buys more than one unit of the product because the

condition $\boldsymbol{Q > n}$ is vital here, otherwise, the condition $\boldsymbol{Q = n}$ leads to a price higher than wage, according to the pricing mechanism.

Based on the above scenario, we have:

Total revenue of the firm = $\boldsymbol{TR = p \times Q = (1+\theta)[nw(1+r)]}$

And the total profit (net monetary surplus) is:

$$\boldsymbol{\pi = TR - TC = \theta[nw(1+r)]}$$

The monetary flow of all transactions in each sectorial account after one year is illustrated in Table 4.1, a simplified Social Accounting Matrix (SAM). This Social Accounting Matrix (SAM) arranges the financial transactions (inflow and outflow) between various accounts (institutions, sectors, etc.) in the form of a matrix. In the following table, each row displays the monetary inflow received by the sector, coming from other sectors, while each column shows the monetary outflow from the sector, received by other sectors. For example, the production sector (here called "Firm") pay $\boldsymbol{nw = B}$ to the household sector and $\boldsymbol{nwr = Br}$ to the financial sector (here called "bank"), but this sector receives $\boldsymbol{(1+\theta)[nw(1+r)]}$ from the household sector.

At the end of each row/ column, there is a summation of inflows/ outflows received/ paid out by that sector. For example, the household sector, in total, receives the wage bill ($\boldsymbol{B = nw}$) from the firm, The net monetary surplus or, more technically, Net Acquisition of Financial Assets (NAFA; see also Table 1.1) in monetary form can be calculated through total receivable minus total payable.[64]

Table 4.1: The monetary flow of all transaction between sectors (Scenario A)

Sector	Firm	Household	Bank	Total Receivable
Firm		$\boldsymbol{(1+\theta)[nw(1+r)]}$		$\boldsymbol{(1+\theta)[nw(1+r)]}$
Household	$\boldsymbol{nw\ (=B)}$			$\boldsymbol{nw}$
Bank	$\boldsymbol{nwr(=Br)}$			$\boldsymbol{nwr}$
Total Payable	$\boldsymbol{nw(1+r) = B(1+r)}$	$\boldsymbol{(1+\theta)[nw(1+r)]}$		

[64] This has the same structure as the SFC methodology that Keen (2010) and Zezza (2012) have used in their claims to have solved the paradox of profit.

To put these transactions between sectors in the form of a circular flow of monetary funds, we can look at Figure 4.1.

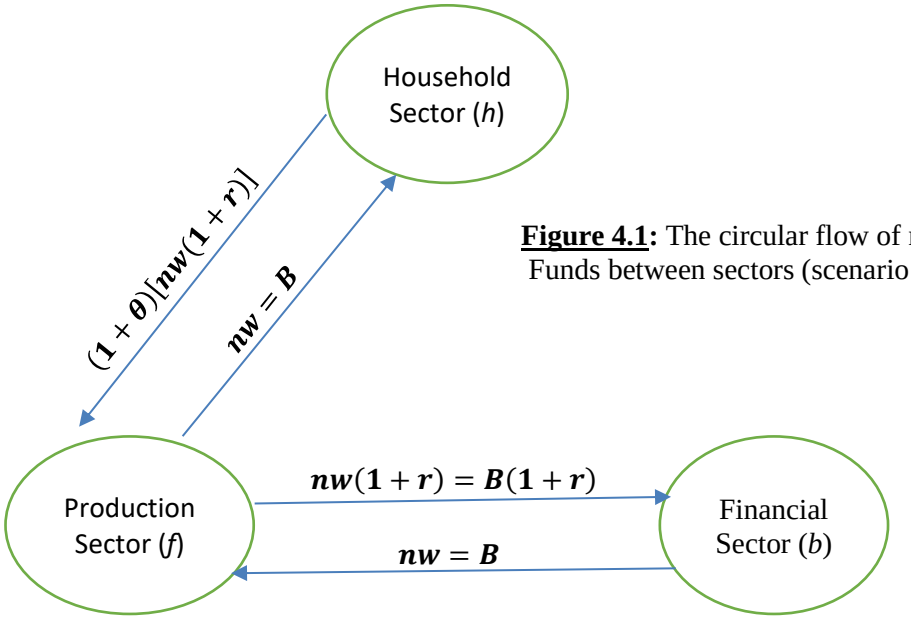


Figure 4.1: The circular flow of monetary Funds between sectors (scenario A)

Now it is time to find the NAFA in its monetary form for each sector. The flow of monetary funds is sustainable if each sector benefits from the transactions, or at least if there is no loss for any of them. But the paradox of profit does exist when some sectors have positive NAFA while others experience a negative NAFA. To determine the NAFA, each account must be checked separately.

- **Household account (simplest model, scenario A):**

The household sector's balance sheet reveals that the "net working capital" (the difference between short-term assets and short-term liabilities, or in this case the difference between money inflow and money outflow) is negative in this scenario, which means there is a monetary deficit in this account:

$$NAFA_h = \boldsymbol{nw - pQ = nw - (1+\theta)[nw(1+r)]}$$

$$\boldsymbol{= -nw[\theta(1+r) + r]}$$

$$\boldsymbol{= -\theta[nw(1+r)] - nwr}$$

- **Firm account (simplest model, scenario A):**

The "net working capital" of the production (real) sector's balance sheet will be positive in this scenario, which shows there is a monetary surplus in this account:

$$NAFA_f = \boldsymbol{TR} - \boldsymbol{TC} = (\mathbf{1} + \boldsymbol{\theta})[\boldsymbol{nw}(\mathbf{1} + \boldsymbol{r})] - \boldsymbol{nw}(\mathbf{1} + \boldsymbol{r})$$

$$= \boldsymbol{\theta}[\boldsymbol{nw}(\mathbf{1} + \boldsymbol{r})]$$

- **<u>Bank account (simplest model, scenario A):</u>**

And finally, the "net working capital" of the financial sector will be necessarily positive as it receives its interest rate regardless of the level of production or the amount of sale:

$$NAFA_b = \boldsymbol{TR} - \boldsymbol{TC} = \boldsymbol{nwr} - \mathbf{0}$$

$$= \boldsymbol{nwr}$$

The household sector loss is equal to the summation of the benefits of the two other sectors. Obviously, the summation of all accounts at the end of the year is zero as a surplus in one account means a deficit in another (or other) account(s).

$$\sum of\ all\ accounts = -\boldsymbol{\theta}[\boldsymbol{nw}(\mathbf{1} + \boldsymbol{r})] - \boldsymbol{nwr} + \boldsymbol{\theta}[\boldsymbol{nw}(\mathbf{1} + \boldsymbol{r})] + \boldsymbol{nwr} = \mathbf{0}$$

The monetary value created by the circulation of the borrowed money $\boldsymbol{B}$ is positive for the production (real) sector (via the price mechanism) and for the financial sector (via the interest rate mechanism), but the household sector does not benefit from these transactions as they have to provide the amount of surplus created in the two other sectors (through the price mechanism).

To have zero balance for the household sector's account we need to abolish both interest rate and mark-up pricing rate at the same time, i.e.: $\boldsymbol{r} = \mathbf{0}$ and $\boldsymbol{\theta} = \mathbf{0}$. The reason that $\boldsymbol{r}$ and $\boldsymbol{\theta}$ are not zero is that money is not just the means of payment but also the store of value. By marking-up and getting the interest rate, producers and financiers try to reduce or even abolish the risk of losing the monetary value of the owned assets, including money. But the labour force does not have such a power to eliminate the risk of losing the monetary value of his/her workforce.

The loss of the household sector is very clear in this scenario. For any average productivity of labour greater than or equal to one, the inequality,

$$\boldsymbol{pQ} > \boldsymbol{nw}$$

is always true as the total value of wages is less than the total value of the entrepreneur's income. This hypothetical scenario leads us to a situation in which the household account will be in need of money. If there is a fixed amount of money/credit in circulation this situation cannot happen in the first place. As soon as the household account reaches zero, the sector cannot go further, as there is no more money/credit available. But if hypothetically we assume that households can go further, through an extra line of credit (such as a digital credit, which is not necessarily backed by real money but convinces sellers that people have credit to buy further goods and services), the household account goes below zero while the other sectors get a positive balance. Therefore, the source of profit for the other sectors is the extra line of credit for households. It is an important point to remember that this positive or negative balance in all sectors' accounts occurs in reality if there is a new source of money/credit in the system. Otherwise, for a given amount of money/credit in circulation, the negative sign indicates the shortage of money for those accounts.

B. Every individual labourer buys just one unit of product and the firm is unable to sell all of the products.

In this scenario, the demand for the product is $\boldsymbol{n}$ (which must be less than $\boldsymbol{Q}$), the simplified SAM can be illustrated in Table 4.2, and the circular flow of monetary funds in Figure 4.2:

Table 4.2: The monetary flow of all transaction between sectors (Scenario B)

Sector	Firm	Household	Bank	Total Receivable
Firm		$\boldsymbol{n(1+\theta)\left[\frac{nw(1+r)}{Q}\right]}$		$\boldsymbol{n(1+\theta)\left[\frac{nw(1+r)}{Q}\right]}$
Household	$\boldsymbol{nw\ (=B)}$			$\boldsymbol{nw}$
Bank	$\boldsymbol{nwr}$			$\boldsymbol{nwr}$
Total Payable	$\boldsymbol{nw(1+r)}$	$\boldsymbol{n(1+\theta)\left[\frac{nw(1+r)}{Q}\right]}$		

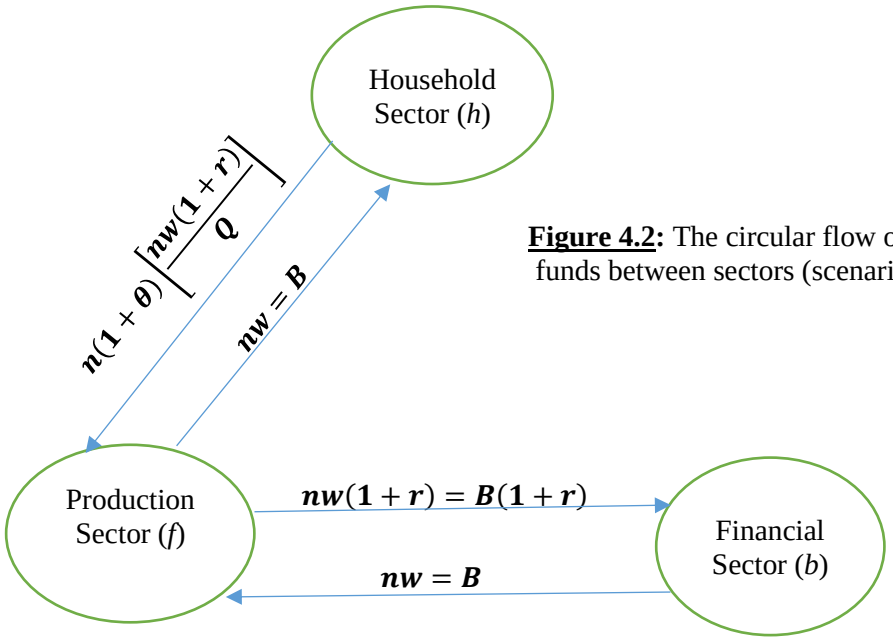


Figure 4.2: The circular flow of monetary funds between sectors (scenario B)

- **Household account (simplest model, Scenario B):**

The monetary value of surplus/deficit remaining in this account after one year is:

$$NAFA_h = \boldsymbol{nw - np = nw - n(1+\theta)\left[\frac{nw(1+r)}{Q}\right]}$$

$$\boldsymbol{= nw\left[1 - \frac{n(1+\theta)(1+r)}{Q}\right]}$$

Since the average productivity of labour is equal to $\boldsymbol{k}$ (i.e. $\frac{\boldsymbol{Q}}{\boldsymbol{n}} = \boldsymbol{k}$), the necessary condition of having a surplus in this account will be:

$$\boldsymbol{\frac{(1+\theta)(1+r)}{\frac{Q}{n}} < 1}$$

By re-arranging the above inequality, the maximum level of the mark-up pricing rate $\boldsymbol{\theta}$ should be:

$$\boldsymbol{\theta < \frac{k}{1+r} - 1}$$

- **Firm account (simplest model, Scenario B):**

$$NAFA_f = \boldsymbol{TR - TC = np - nw(1+r)}$$

$$\boldsymbol{= n(1+\theta)\left[\frac{nw(1+r)}{Q}\right] - [nw(1+r)]}$$

$$= [\boldsymbol{nw(1+r)}]\left(\frac{\boldsymbol{n(1+\theta)}}{\boldsymbol{Q}} - \boldsymbol{1}\right)$$

The profitability of the firm depends positively on the number of workers/buyers ($\boldsymbol{n}$) and the level of mark-up rate ($\boldsymbol{\theta}$), and negatively on the level of output. Obviously, the firm will make a surplus in the form of profit if:

$$\frac{\boldsymbol{n(1+\theta)}}{\boldsymbol{Q}} - \boldsymbol{1} > \boldsymbol{0}$$

Or

$$\frac{\boldsymbol{Q}}{\boldsymbol{n}} < \boldsymbol{1+\theta}$$

Considering $\frac{\boldsymbol{Q}}{\boldsymbol{n}} = \boldsymbol{k}$ and by re-arranging the variables, there will be a lower limit of $\boldsymbol{\theta}$:

$$\boldsymbol{\theta > k - 1}$$

This means:

1- For low levels of $\boldsymbol{\theta}$, the average productivity of labour must not be very high; i.e., the firm must accept the scale of production which is matched with the demand in the market, so the rate of capacity utilisation should be low ($\boldsymbol{Q \approx n}$ or $\frac{\boldsymbol{Q}}{\boldsymbol{n}} = \boldsymbol{k \approx 1}$).

2- The profitability condition of the firm in this scenario is in contradiction with having a surplus in the household account because it leads us to a paradox. This means both sectors cannot have a positive surplus at the same time, as we must have:

$$\boldsymbol{k - 1 < \theta < \frac{k}{1+r} - 1}$$

This is impossible as $\boldsymbol{k > \frac{k}{1+r}}$ for any positive value of $\boldsymbol{r}$.

- **<u>Bank account (simplest model, Scenario B)</u>:**

As always, the interest rate mechanism provides a deterministic surplus for the bank:

$$\text{Bank's surplus} = \boldsymbol{nwr}$$

Again, the summation of all accounts is zero, but for a high level of production, the firm account will be negative and will remain in debt for the next year.

For example, if:

$Q = 10{,}000$

$w = 100$

$n = 1000$

$B = 100{,}000$

$r = 10\%$

$\theta = 0.01$

The firm account at the end of the year (based on the second scenario) will be:

$$[\boldsymbol{nw(1+r)}]\left(\frac{\boldsymbol{n(1+\theta)}}{\boldsymbol{Q}} - \mathbf{1}\right) = [\mathbf{1000 \times 100(1+0.1)}] \times \left(\frac{\mathbf{1000(1+0.01)}}{\mathbf{10,000}} - \mathbf{1}\right)$$

$$= \mathbf{-98,890}$$

In the long run, depending on the degree of monopoly, firms can change the prices or the number of the labour force but not the wages as they have less control over these.

4.2.2. The Fundamental Model without Government & with Capital Structure Choice for the Firm (Three Sectors, Closed Economy plus Relaxing some of the Assumptions in the Simplest Form)

The robot bank does not need to buy any goods from the production sector, so there is no re-injection of money into circulation. The profit will be accumulated without being returned into the system and this brings us to the "paradox of profit". But following Godley (1996), we cannot imagine the existence of a "black hole" in a closed economy. Therefore, the profit of the lender (financier) eventually comes back to the system in the form of paying the wage bill to its own employees and of the demand for goods or financial assets, such as equities issued by the firm to finance its investment projects. Therefore, the assumption of having a robot bank is the first to be relaxed.

As the system is closed by assumption, the total amount of the lender's profit must come back to the cycle. This means we need a substitute assumption that the lender has no motivation to accumulate or keep any fraction of its profit in the form of cash out of the monetary circuit (no liquidity preference or no preference for hoarding money). We will check later the possibility of having a monetary surplus in all three accounts without seeing any deficit in at least one of them. Some of the assumptions that have changed are as follows:

1- There is only one bank, one firm, and $\boldsymbol{n}$ individual households (No. of workers in the firm = $\boldsymbol{n_1}$, No. of workers in the bank = $\boldsymbol{n_2}$, so, $\boldsymbol{n_1 + n_2 = n}$).

2- The bank has no motivation to hoard money and returns all profit (if any) back to the system through demand for capital goods and financial assets.

3- Wages are equal for all workers in all sectors ($\boldsymbol{w}$). The wage of the managers is a multiple of the wage of the workers.

4- The bank pays the wage of its employees ($\boldsymbol{n_2 w}$) by a separate line of credit created by banks, which is extra money to spend on the firm's products.

5- Total wage is not spent on consumption, and individuals save $\boldsymbol{\alpha}$% of their wages in the form of bank deposits.

6- The interest rate on the bank deposit is $\boldsymbol{i}$%, the bank lends at $\boldsymbol{r}$% ($\boldsymbol{r > i}$) and they are fixed for a year.

7- Household and firm sectors have no advanced money in their accounts (zero initial saving) and the household's deposit is made after the wage is paid. (Note that this is equivalent to a "no Ponzi game" in mainstream models).

8- The cost of production is the wage bill ($\boldsymbol{n_1 w}$) and the firm decides to borrow $\boldsymbol{\lambda}$% of that cost through borrowing (so, $\boldsymbol{n_1 w = B}$) and $(\boldsymbol{1 - \lambda})$% through selling equities, that pays $\boldsymbol{\beta}$% interest to the equity holder, with no change in the price of equity (no asset inflation).[65]

The total number of employees, bank with $\boldsymbol{n_2}$ employees and firm with $\boldsymbol{n_1}$ employees, where $\boldsymbol{n_1 + n_2 = n}$, represents all the population in the system. As mentioned before, for simplicity, we also assume that the bank employees get the same wage $\boldsymbol{w}$ as the other

[65] There are two sources of payoffs for the shareholders: a) dividend b) capital gain or loss. If P_0, P_1 are the current and expected price of a share (say, after a year), respectively, and Div_1 is the expected dividend at the end of the year, then the expected rate of return r at the ned of the year is calculated as $r = \frac{Div_1 + (P_1 - P_0)}{P_0}$. If the change of share price is small in a year (or zero in our case, which is the case in normal times without any specific shock), then $Div_1 \approx P_0.r$. Therefore, dividend and interest rate are functionally the same. There is no difference between a capital owner and a shareholder in the sense that both receive a return for holding their financial assets.

employees in the system.[66] The source of funds for the wage bill of the bank employees is a credit created by the bank itself, as the bank employees' wages should be paid prior to receiving income (the interest rate) from the firm (production sector) or to receiving deposits from households. Therefore, the total amount of money and credit in circulation will be $(\boldsymbol{n_1} + \boldsymbol{n_2})\boldsymbol{w} = \boldsymbol{nw}$. This extra source of money guarantees that the total revenue of the firm is above the total cost (wage bill) i.e., bigger than $\boldsymbol{n_1 w}$ but, as will be shown later, the goal of having a simultaneous surplus (or even simultaneous zero-balance sheets) in all sectors cannot be achieved. This means, in the theoretical model, the paradox of monetary profit is valid as there is a shortage of money in circulation, at least for one sector, and the system cannot be run theoretically without injecting a new source of funds into the sector with the shortage.

The second assumption that needs to be changed is about saving. It can be realistically assumed that individuals save $\boldsymbol{\alpha}$% of their wages in the form of bank deposit to receive $\boldsymbol{i}$% interest or, alternatively, they can buy financial assets (shares) issued by the firm in return for $\boldsymbol{\beta}$% interest. At this stage, for simplicity, we assume that the equity market is closed for individuals, so the bank is the only investor in the equity market using the customers' deposits.

This leads us to the next assumption that the firm chooses the strategy of combining borrowing and selling financial assets (at zero cost) to cover the cost of production, which is still the wage bill $(\boldsymbol{n_1 w})$. So, our firm finances its production cost through $\boldsymbol{\lambda}$% borrowing and $(\boldsymbol{1 - \lambda})$% through selling equities, which reflect the capital structure of the firm.

Selling equities in the market cannot be considered as the income of the firm but it is a liability for its shareholders. With a time horizon of one year, all liabilities of the firm should be paid to the shareholders at the end of the year, including the share price and the associated dividend. Thus, the total cost of production (in a normal condition, when there is no socio-political shock and no risk involved in the process of production and sale) would be as follows:

$$\boldsymbol{TC = n_1 w + \lambda n_1 wr + (1 - \lambda) n_1 w(1 + \beta)}$$

$$\boldsymbol{= n_1 w(1 + \lambda r) + (1 - \lambda) n_1 w(1 + \beta)}$$

Considering, $\boldsymbol{n_1 w = B}$ we can re-write the total cost as:

[66] Considering different wage levels for the bank employees does not change our analysis as we can adjust the number of bank employees accordingly to cover the difference.

$$\boldsymbol{TC = B[(1 + \lambda r) + (1 - \lambda)(1 + \beta)]}$$

With a time horizon of more than a year and given that wide fluctuations are not expected in the equity market, shareholders are not likely to get their money back. Thus, the total cost is limited to one-year liabilities without any need to pay the price of the share, i.e.:

$$\boldsymbol{TC = n_1 w(1 + \lambda r) + (1 - \lambda) n_1 w \beta}$$

But total price of the shares remains as the liability of the firm to shareholders. As the analysis is confined to one year and we are not applying any intertemporal analysis, the previous formula for the total cost can be used, so, using the same mark-up strategy, a new price of the product will be:

$$\boldsymbol{p = (1 + \theta)\left[\frac{n_1 w(1 + \lambda r) + (1 - \lambda) n_1 w(1 + \beta)}{Q}\right]}$$

Under such assumptions, the monetary value of surplus or deficit in each sector's account can be calculated. Table 4.3 shows the flow of transactions between sectors. Figure 4.3 also illustrates the circular flow of monetary funds between sectors. It is easy to check that the summation of total receivables after deduction of the total payables, for all accounts, is zero again. Once again, to find the shortage of money in circulation, the monetary form of NAFA must be found separately. Recall also that this model, like the simplest model in 4.2.1, is a static model and it is not seeking equilibrium or steady state.

- **<u>Household account (Fundamental Model with no Government):</u>**

The household sector receives wages, $\boldsymbol{(n_1 + n_2)w = nw}$, plus interest on their deposits in the bank, $\boldsymbol{\alpha nw \times i = \alpha i \times nw}$, so the difference between what they earn and what they spend can be calculated as:

$$\boldsymbol{(nw + \alpha i \times nw) - np}$$

$$\boldsymbol{= nw(1 + \alpha i) - n \times (1 + \theta)\left[\frac{n_1 w(1 + \lambda r) + (1 - \lambda) n_1 w(1 + \beta)}{Q}\right]}$$

$$\boldsymbol{= nw\left((1 + \alpha i) - (1 + \theta)\left[\frac{(1+\lambda r)+(1-\lambda)(1+\beta)}{\frac{Q}{n_1}}\right]\right)}$$

$$\boldsymbol{= nw\left((1 + \alpha i) - (1 + \theta)\left[\frac{(1+\lambda r)+(1-\lambda)(1+\beta)}{k}\right]\right)}$$

Having a surplus in this account requires that:

$$(\mathbf{1}+\boldsymbol{\alpha i}) > (\mathbf{1}+\boldsymbol{\theta})\left[\frac{(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})(\mathbf{1}+\boldsymbol{\beta})}{\boldsymbol{k}}\right]$$

By re-arranging the above inequality, a lower limit for $\boldsymbol{\theta}$, can be found which guarantees a surplus in the household account:

$$\boldsymbol{\theta} < \frac{\boldsymbol{k}(\mathbf{1}+\boldsymbol{\alpha i})}{(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})(\mathbf{1}+\boldsymbol{\beta})} - \mathbf{1}$$

Table 4.3: The monetary flow of all transaction between sectors (Fundamental Model with no Government)

Sector	Firm	Household	Bank	Total Receivable
Firm		$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right]$		$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right]$
Household	$n_1 w\ (=B)$		$n_2 w + \alpha n w \times i$	$B + n_2 w + \alpha n w \times i = nw(1+\alpha i)$
Bank	$\lambda B r + (1-\lambda)B(1+\beta)$			$\lambda B r + (1-\lambda)B(1+\beta)$
Total Payable	$B + \lambda B r + (1-\lambda)B(1+\beta)$	$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right]$	$n_2 w + \alpha n w \times i$	

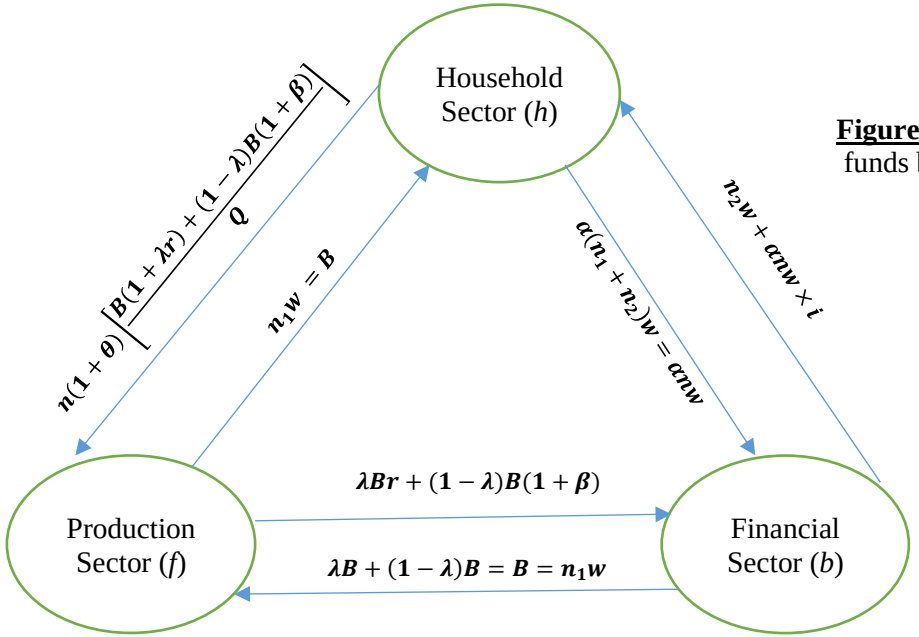


Figure 4.3: The circular flow of monetary funds between sectors (Fundamental Model)

The interesting point about this inequality is the inverse relationship between the mark-up price rate $\boldsymbol{\theta}$, the interest rate ($\boldsymbol{r}$), and the return rate ($\boldsymbol{\beta}$), which reflects the competition between real and financial sectors in channelling money towards themselves. Higher levels of $\boldsymbol{r}$ and $\boldsymbol{\beta}$ make financial markets more attractive for households and this leads to both a reduction of demand for goods in the real sector and also the expansion of demand for financial goods. This eventually forces firms to reduce their mark-up price rates $\boldsymbol{\theta}$ in order to re-direct the money towards themselves. But, by the same analysis, increasing the rate of interest on household deposits ($\boldsymbol{i}$) gives more motivation and price-making power to firms to increase $\boldsymbol{\theta}$.

- **Firm account (Fundamental Model with no Government):**

As before, the difference between total income and total cost makes the surplus/deficit for the firm i.e.:

$$\boldsymbol{TR - TC = (n_1 + n_2)p - [n_1 w(1 + \lambda r) + (1 - \lambda) n_1 w(1 + \beta)]}$$

$$\boldsymbol{= n(1 + \theta)\left[\frac{n_1 w(1+\lambda r)+(1-\lambda) n_1 w(1+\beta)}{Q}\right] - [n_1 w(1 + \lambda r) + (1 - \lambda) n_1 w(1 + \beta)]}$$

$$\boldsymbol{= [n_1 w(1 + \lambda r) + (1 - \lambda) n_1 w(1 + \beta)]\left[\frac{n(1+\theta)}{Q} - 1\right]}$$

The profitability condition for the firm looks the same as before:

$$\boldsymbol{\frac{n(1 + \theta)}{Q} - 1 > 0}$$

But by dividing the top and bottom of the fraction in the left-hand side of the inequality by $\boldsymbol{n_1}$ we obtain:

$$\boldsymbol{\frac{\frac{n}{n_1}(1 + \theta)}{\frac{Q}{n_1}} - 1 > 0}$$

Now, considering $\frac{Q}{n_1} = k$ (as the average productivity of labour in the real sector), the upper limit for θ would be:

$$\theta > \frac{kn_1}{n} - 1$$

Relaxing some of the previous assumptions has led us to a model that is more reliable, so let us focus on this inequality a little more. The profitability of the firm, as before, does not depend on the level of interest rate r or even the rate of return on equities β, but it tells us that the mark-up rate should be above a threshold level, which is determined by the level of production Q and the level of population n, because:

$$kn_1 = Q$$

This can be re-written as:

$$\theta > \frac{Q}{n} - 1$$

This means for the firm to be profitable the mark-up price rate θ should be bigger than the average productivity of labour in the whole system (in terms of real output and not financial product) minus one. So, the threshold for the mark-up rate goes up by increasing the level of production (Q), as a result of advancing technology or improving the productivity of labour and goes down by increasing the population.

- **Is it possible to have surplus in both accounts?**

Considering both surplus and profitability conditions for the household and firm sectors, we will reach:

$$\frac{kn_1}{n} - 1 < \theta < \frac{k(1+\alpha i)}{(1+\lambda r)+(1-\lambda)(1+\beta)} - 1$$

It is evident that the lower limit of the mark-up rate θ depends solely on the variables defined in the labour market, such as the average productivity of the labour force working in the real

sector ($\boldsymbol{k}$) and the percentage share of this labour force in the total labour force $\left(\frac{\boldsymbol{n_1}}{\boldsymbol{n}}\right)$. But the upper limit of $\boldsymbol{\theta}$ depends not only on $\boldsymbol{k}$ but also on other variables defined in the financial market. The above inequality also reflects the competitive nature of the two real and financial markets in attracting money/credit, as $\boldsymbol{\theta}$ has an inverse relation with $\boldsymbol{r}$ and $\boldsymbol{\beta}$. This means that when money is more valued in financial markets (by growing the level of $\boldsymbol{r}$ and $\boldsymbol{\beta}$), producers in the real market must logically decrease the mark-up $\boldsymbol{\theta}$ in order to get a portion of that money back into the real market.

We can look at the inequalities from a different angle by dividing all inequalities by $\boldsymbol{k}$ and

re-writing it as:

$$\frac{\boldsymbol{n_1}}{\boldsymbol{n}} < \frac{\boldsymbol{\theta + 1}}{\boldsymbol{k}} < \frac{\boldsymbol{(1 + \alpha i)}}{\boldsymbol{(1 + \lambda r) + (1 - \lambda)(1 + \beta)}}$$

This means that, in order to have a positive monetary value in the household and the producer accounts simultaneously, the percentage of the labour force working in the real sector as a share of the total labour force (working in the real and financial sector) must be less than a ratio (as an upper limit) that can be defined as the share of interest (money rent) seeking by the household sector in relation to the share of interest (money rent) seeking by the financial sector:

For example, if $\boldsymbol{\alpha = 20\%}$, $\boldsymbol{i = 3\%}$, $\boldsymbol{r = 10\%}$, $\boldsymbol{\beta = 5\%}$ and the firm decides to finance $\boldsymbol{50\%}$ of its investment through bank resources ($\boldsymbol{\lambda = 0.5}$) then not only:

$$\frac{\boldsymbol{n_1}}{\boldsymbol{n}} < \boldsymbol{63.87\%}$$

But also, with $\boldsymbol{\theta = 4}$ and $\boldsymbol{k = 10}$, we should have:

$$\frac{\boldsymbol{n_1}}{\boldsymbol{n}} < \boldsymbol{50\%}$$

Thus, it is possible to have a positive monetary surplus in both household and firm accounts but under the new more realistic assumptions, apart from money inflow, our bank faces money outflow (liabilities) in its balance sheet. It is time to check if the bank's balance sheet demonstrates a positive surplus.

- **Bank account (Fundamental Model with no Government):**

In the same way as for the other accounts, the amount of surplus/deficit in this account could be calculated through the difference between the total receivable and total payable, i.e.:

$$\boldsymbol{\lambda n_1 wr + (1-\lambda) n_1 w(1+\beta) - n_2 w - \alpha i \times nw}$$

The profitability requirement for this account is:

$$\boldsymbol{\lambda n_1 wr + (1-\lambda) n_1 w(1+\beta) > n_2 w + \alpha i \times nw}$$

By dividing both sides by $\boldsymbol{w}$ and considering the fact that $\boldsymbol{n_2 = n - n_1}$, the above inequality can be written as:

$$\boldsymbol{n_1(\lambda r + (1-\lambda)(1+\beta) + 1) > n(1+\alpha i)}$$

Or:

$$\boldsymbol{\frac{n_1}{n} > \frac{(1+\alpha i)}{(\lambda r + (1-\lambda)(1+\beta) + 1)}}$$

Now the percentage of the labour force working in the real sector as a share of the total labour force (i.e. $\boldsymbol{\frac{n_1}{n}}$) has a lower limit, as a profitability condition for the bank account. It seems this scenario make all sectors profitable simultaneously if $\boldsymbol{\frac{n_1}{n}}$ remains between its lower and upper limits, i.e.:

$$\boldsymbol{\frac{(1+\alpha i)}{(\lambda r + (1-\lambda)(1+\beta) + 1)} < \frac{n_1}{n} < \frac{(1+\alpha i)}{(1+\lambda r) + (1-\lambda)(1+\beta)}}$$

But, as can be seen, both limits, in fact, are the same.[67] Looking at this puzzle mathematically, the only logical solution would be the equality sign between them, i.e.:

$$\boldsymbol{\frac{n_1}{n} = \frac{(1+\alpha i)}{(1+\lambda r) + (1-\lambda)(1+\beta)} = \frac{(1+\alpha i)}{(\lambda r + (1-\lambda)(1+\beta) + 1)}}$$

[67] It is sufficient to open the brackets in the denominator of the right-hand expression to reach the left-hand denominator.

But, under such circumstances, there will be no definition for the mark-up price $\boldsymbol{\theta}$ in the inequality that leads to profitability for both household and firm sectors. This means that $\boldsymbol{\theta}$ cannot be between $\frac{\boldsymbol{n_1}}{\boldsymbol{n}}$ and $\frac{(\mathbf{1}+\boldsymbol{\alpha i})}{(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})(\mathbf{1}+\boldsymbol{\beta})}$ as there is no space between them.

This result emphasises yet again that it is not possible to have a surplus in all three sectors at the same time. The above inequality reveals a contradictory position between the real sector and the financial sector. For a profit-seeking financial sector, the profit occurs if the share of interest received by the household sector (here, labour force) is less than the share of profit (interest plus dividend) received by the financial sector. But for a profit-seeking real sector (including the labour force and firms), profit occurs when the share of interest received by the household sector is bigger than the share of profit received by the financial sector.

If we believe that the financial sector should be a facilitator of the real economy and not a competitor with it, this contradictory situation does indirectly emphasise the role of effective demand in the profitability of the real sector.

4.2.3. The Extended Model with Government

Now it is time to take a major step and include government in our model. By introducing the government sector, and keeping the same assumptions of 4.2.2, the model will be closer to the real world, but everything comes at a price and in this case, more assumptions, longer equations, and more sophisticated calculations are needed. To include this new sector, we need to answer some important questions. For example, what is the role of government and what are its objectives in the intervention? How does this institution fulfil its responsibilities, and what is the nature of the relationship between the government sector and other sectors?

Based on Friedman's view (1955), any government in what he calls a "free private enterprise exchange economy" has the following responsibilities:

i. "Preserve the rules of the game by enforcing contracts, preventing coercion, and keeping markets free" (5).
ii. Prevent a "natural monopoly", which is the sign of "market imperfection" and stops "effective competition".
iii. Soothe and compensate for the impact of negative externalities or, as he calls them, "neighbourhood effects" in the market.

iv. Protect individuals (especially children and the disabled) and their rights if there is any conflict between freedom and responsibility.

The inclusion also of other responsibilities of this new sector, such as producing and investing in those public goods and services that create high positive externalities, makes the government sector very important in the flow of funds circuit. The ways that governments intervene in the economy through their fiscal policies drive us to consider various scenarios. But first, we need to factor in more assumptions.

First, we assume that the government sector has no authority to print money, so this sector uses the same money/credit in circulation. This means that the government in our model will have two sources of income: taxation and borrowing through the issuance of treasury bills (TB). All other sectors can buy these treasury bills (TB) at a fixed price for one year. The rate of return of the bills are the same for all sectors ($\boldsymbol{r_{TB}}$) and their trades occur at no extra cost.

Second, we assume that the government sector follows the zero-balance budget policy, and therefore there will be no deficit or surplus for this sector. It is also assumed that the number of employees in this sector is $\boldsymbol{n_3}$ and they receive the same wage ($\boldsymbol{w}$).

Several different scenarios can be considered in a model with the presence of the government sector.

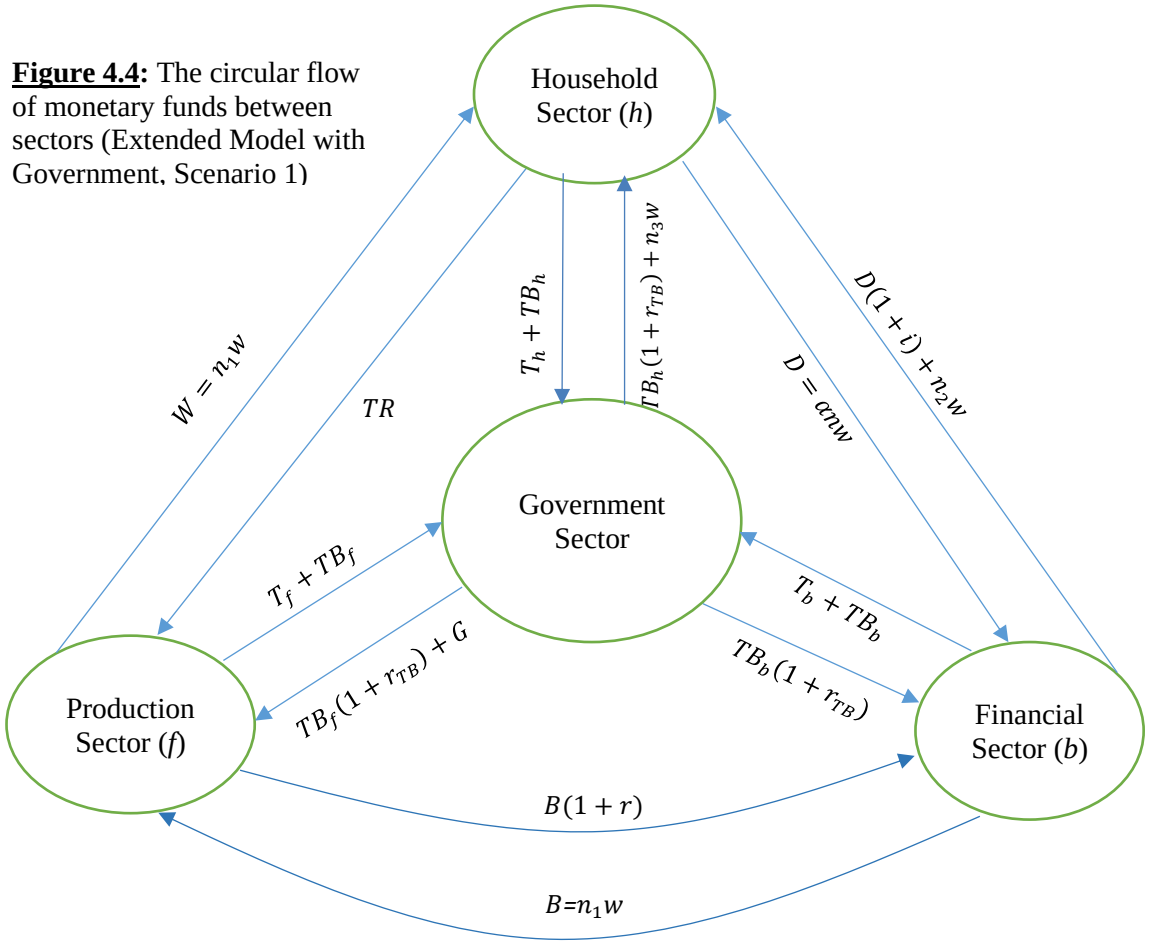
4.2.3.1. Scenario 1 (Lump-Sum Tax):

In the first scenario, the government gets a lump-sum tax from each sector. The monetary flow between all sectors is set out in Table 4.4 and its circular flow is illustrated in Figure 4.4:

Table 4.4: The monetary flow of all transaction between sectors (Extended Model with Government, Scenario 1)

Sector	Firm	Household	Bank	Government	Total Receivable
Firm		$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)+T_f}{Q}\right]$		$r_{TB}\cdot TB_f + G$	$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)+T_f}{Q}\right] + r_{TB}\cdot TB_f + G$
Household	$n_1 w\ (=B)$		$n_2 w + \alpha n w \times i$	$n_3 w + r_{TB}\cdot TB_h$	$n_1 w + n_2 w + \alpha n w \times i + n_3 w + r_{TB}\cdot TB_h = nw(1+\alpha i) + r_{TB}\cdot TB_h$
Bank	$\lambda Br + (1-\lambda)B(1+\beta)$			$r_{TB}\cdot TB_b$	$\lambda Br + (1-\lambda)B(1+\beta) + r_{TB}\cdot TB_b$
Government	T_f	T_h	T_b		$T_f + T_h + T_b$
Total Payable	$B + \lambda Br + (1-\lambda)B(1+\beta) + T_f$ = $B(1+\lambda r) + (1-\lambda)B(1+\beta) + T_f$	$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)+T_f}{Q}\right] + T_h$	$n_2 w + \alpha n w \times i + T_b$	$r_{TB}\cdot TB_f + n_3 w + r_{TB}\cdot TB_h + r_{TB}\cdot TB_b + G$ = $n_3 w + r_{TB}(TB_f + TB_h + TB_b) + G$	

Figure 4.4: The circular flow of monetary funds between sectors (Extended Model with Government, Scenario 1)



$W = Nominal\ Wage$
$TR = Total\ revenue\ of\ production\ sector$
$T_i = Total\ tax\ from\ sector\ i$
$r_{TB} = Interest\ rate\ of\ Treasury\ Bills\ (TB)$
$TB_i = The\ value\ of\ the\ treasury\ bills\ bought\ by\ sector\ i$
$r_{TB} \cdot TB_i = Sector\ i's\ Financial\ gain\ from\ buying\ TB$
$r = Interest\ rate\ on\ loans$
$B = Total\ amount\ of\ loan$
$i = Interest\ rate\ on\ deposits$
$D = Total\ deposit\ of\ household\ sector$
$n_1 = Total\ No.\ of\ workers\ in\ production\ sector$
$n_2 = Total\ No.\ of\ workers\ in\ financial\ sector$
$n_3 = Total\ No.\ of\ workers\ in\ government\ sector$
$\alpha = Percentage\ of\ the\ total\ household\ income\ deposited\ in\ the\ financial\ sector$
$G = Government\ expenditure\ on\ goods$

The NAFA i.e., net monetary gain for each sector can be calculated as follows:

- **Firm account (Extended Model with Government, Scenario 1):**

In this account, the total receivable can be subdivided into the total revenue from selling goods and services, the interest returns on the Treasury bill, and finally the government expenditure on goods and services. The total payable is what firms pay to all other sectors, now also including the government sector. Therefore, the NAFA of the production sector ($NAFA_f$) is:

$$\boldsymbol{NAFA_f = n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)+T_f}{Q}\right] + r_{TB}\cdot TB_f + G}$$
$$\boldsymbol{-\left[B(1+\lambda r)+(1-\lambda)B(1+\beta)+T_f\right]}$$

By factorising the last bracket, the above expression can be re-written as:

$$\boldsymbol{NAFA_f = \left[B(1+\lambda r)+(1-\lambda)B(1+\beta)+T_f\right]\left[\frac{n(1+\theta)}{Q}-1\right] + r_{TB}\cdot TB_f + G}$$

Considering the fact that government expenditure and the financial gain from buying treasury bills are always positive (i.e., $\boldsymbol{G>0}$ & $\boldsymbol{r_{TB}\cdot TB_f>0}$) and make a profit threshold, the production sector can gain profit above this threshold if:

$$\boldsymbol{\frac{n(1+\theta)}{Q}-1>0}$$

As before, the above inequality gives a lower limit for $\boldsymbol{\theta}$:

$$\boldsymbol{\theta>\frac{Q}{n}-1}$$

This is similar to what we had previously.

- **Household account (Extended Model with Government, Scenario 1):**

The NAFA for this sector can be calculated as usual through the difference between total receivable and total payable. The condition under which a gain (surplus) can be obtained in this sector provides an upper limit for $\boldsymbol{\theta}$:

$$\boldsymbol{NAFA_h = nw(1+\alpha i)+r_{TB}\cdot TB_h-\left\{n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)+T_f}{Q}\right]+T_h\right\}}$$

By dividing the ratio expression inside the bracket by $\boldsymbol{n_1}$, knowing that $\boldsymbol{B = n_1.w}$, we can factorise $\boldsymbol{nw}$ to reach to the following expression:

$$\boldsymbol{NAFA_h = nw\left\{(1+\alpha i) - (1+\theta)\left[\frac{(1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}}{\frac{Q}{n_1}}\right]\right\} + r_{TB}\cdot TB_h - T_h}$$

The profitability condition requires:

$$\boldsymbol{NAFA_h > 0}$$

Re-arranging the terms with respect to $\boldsymbol{\theta}$ enable us to find an upper limit for this variable:

$$\boldsymbol{\theta < \frac{(1+\alpha i)k}{(1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}} + \frac{(r_{TB}\cdot TB_h - T_h)k}{\left((1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}\right)\cdot nw} - 1}$$

Where $\boldsymbol{k = \frac{Q}{n_1}}$.

It is possible to have financial gain for both production and household sectors if $\boldsymbol{\theta}$ remains between its lower and upper limit, i.e.:

$$\boldsymbol{\frac{Q}{n} - 1 < \theta < \frac{(1+\alpha i)k}{(1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}} + \frac{(r_{TB}\cdot TB_h - T_h)k}{\left((1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}\right)\cdot nw} - 1}$$

By substituting $\boldsymbol{Q = k.n_1}$ on the left-hand side of the inequality and trying to isolate $\boldsymbol{\frac{n_1}{n}}$ on that side, we will find a maximum threshold for the percentage share of workers in the real sector in the total workforce, i.e.:

$$\boldsymbol{\frac{n_1}{n} < \frac{1+\theta}{k} < \frac{(1+\alpha i)}{(1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}} + \frac{(r_{TB}\cdot TB_h - T_h)}{\left((1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}\right)\cdot nw}}$$

Now it is time to calculate the NAFA of the financial sector.

- **<u>Bank account (Extended Model with Government, Scenario 1):</u>**

Using the monetary flows table, the NAFA of this sector can be calculated as follows:

$$\boldsymbol{NAFA_b = \lambda B r + (1-\lambda)B(1+\beta) + r_{TB}\cdot TB_b - [n_2 w + \alpha nw \times i + T_b]}$$

The profitability condition for this sector requires:

$$\boldsymbol{\lambda Br + (1-\lambda)B(1+\beta) + r_{TB}\cdot TB_b > [n_2 w + \alpha nw \times i + T_b]}$$

Considering $\boldsymbol{B = n_1 \cdot w}$ and $\boldsymbol{n_2 = n - n_1 - n_3}$ **,** we have:

$$\boldsymbol{\lambda n_1 wr + (1-\lambda)n_1 w(1+\beta) + r_{TB}\cdot TB_b > [(n - n_1 - n_3)w + \alpha nw \times i + T_b]}$$

Or:

$$\boldsymbol{n_1 w[\lambda r + (1-\lambda)(1+\beta) + 1] > nw(1+\alpha i) + (T_b - r_{TB}\cdot TB_b - n_3 w)}$$

By re-arranging the expressions, a lower limit for $\frac{\boldsymbol{n_1}}{\boldsymbol{n}}$ can be obtained as follows:

$$\boldsymbol{\frac{n_1}{n} > \frac{(1+\alpha i)}{[(1+\lambda r) + (1-\lambda)(1+\beta)]} + \frac{(T_b - r_{TB}\cdot TB_b - n_3 w)}{nw[(1+\lambda r) + (1-\lambda)(1+\beta)]}}$$

Comparing this lower limit inequality with the upper limit inequality obtained in the previous part we might reach a condition of having financial surplus in all sectors (apart from the government sector, which is working based on the zero-balance budget by assumption):

$$\boldsymbol{\frac{(1+\alpha i)}{[(1+\lambda r) + (1-\lambda)(1+\beta)]} + \frac{(T_b - r_{TB}\cdot TB_b - n_3 w)}{nw[(1+\lambda r) + (1-\lambda)(1+\beta)]} < \frac{n_1}{n}}$$
$$\boldsymbol{< \frac{(1+\alpha i)}{\left[(1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}\right]} + \frac{(r_{TB}\cdot TB_h - T_h)}{nw\left[(1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}\right]}}$$

It is not easy to identify a contradictory situation in the above inequalities, but it can be done through a step-by-step process.

It is easy to find that the first fraction on both sides does not follow the direction of inequalities, in fact, we have the opposite direction i.e.:

$$\boldsymbol{\frac{(1+\alpha i)}{[(1+\lambda r) + (1-\lambda)(1+\beta)]} > \frac{(1+\alpha i)}{\left[(1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}\right]}}$$

But the main difficulty is to show that the second fraction on both sides exposes the same direction issue. In fact, if $\boldsymbol{\delta}$ depicts the difference between the second fractions. i.e.:

$$\boldsymbol{\delta = \frac{(T_b - r_{TB} \cdot TB_b - n_3 w)}{nw[(1+\lambda r) + (1-\lambda)(1+\beta)]} - \frac{(r_{TB} \cdot TB_h - T_h)}{nw\left[(1+\lambda r) + (1-\lambda)(1+\beta) + \frac{T_f}{n_1 w}\right]}}$$

Three situations can be expected:

- **i.** $\boldsymbol{\delta > 0}$; This is obviously inconsistent with the direction of the original inequalities, which allows having a surplus for all three sectors.
- **ii.** $\boldsymbol{\delta = 0}$; This is also inconsistent with the direction of the original inequalities.
- **iii.** $\boldsymbol{\delta < 0}$; This is consistent, but the next aim is to show that this situation is impossible.

To prove that $\boldsymbol{\delta < 0}$ is impossible, the calculation can be simplified by assuming:

$$\boldsymbol{z = (1+\lambda r) + (1-\lambda)(1+\beta)}$$

so:

$$\boldsymbol{\delta = \frac{(T_b - r_{TB} \cdot TB_b - n_3 w)}{nw \cdot z} - \frac{(r_{TB} \cdot TB_h - T_h)}{nw\left[z + \frac{T_f}{n_1 w}\right]}}$$

Or:

$$\boldsymbol{\delta = \frac{\left[z + \frac{T_f}{n_1 w}\right].(T_b - r_{TB} \cdot TB_b - n_3 w) - z \cdot (r_{TB} \cdot TB_h - T_h)}{nw \cdot z\left[z + \frac{T_f}{n_1 w}\right]}}$$

By re-arranging the terms, we have:

$$\boldsymbol{\delta = \frac{z.(T_b + T_h - r_{TB} \cdot TB_b - r_{TB} \cdot TB_h - n_3 w) + \frac{T_f}{n_1 w}(T_b - r_{TB} \cdot TB_b - n_3 w)}{nw \cdot z\left[z + \frac{T_f}{n_1 w}\right]}}$$

Here the denominator is always positive and the sign of $\boldsymbol{\delta}$ depends on the sign of numerator.

In this model, we assumed that the government follows the zero-balanced budget policy. This means inflow into the government account should be equal to its outflow:

$$\boldsymbol{T_f + T_h + T_b = n_3 w + r_{TB}(TB_f + TB_h + TB_b) + G}$$

Using the above equality, it can be found that:

$$\boldsymbol{T_b + T_h - r_{TB} \cdot TB_b - r_{TB} \cdot TB_h - n_3 w = G + r_{TB} \cdot TB_f - T_f > 0}$$

For the government expenditure ($\boldsymbol{G}$), even without $\boldsymbol{r_{TB} \cdot TB_f}$ is bigger than the tax imposed on firms ($\boldsymbol{T_f}$). On the other hand, the second expression on the numerator of $\boldsymbol{\delta}$ is negative as $\boldsymbol{n_3 w}$ alone is bigger than the tax imposed on banks ($\boldsymbol{T_b}$). Therefore, the sign of $\boldsymbol{\delta}$ depends on the magnitude of coefficients $\boldsymbol{z}$ and $\frac{\boldsymbol{T_f}}{\boldsymbol{n_1 w}}$. Knowing the fact that all $\boldsymbol{\lambda}$, $\boldsymbol{r}$ and $\boldsymbol{\beta} \in [\mathbf{0}, \mathbf{1}]$, it can be easily proved that $\boldsymbol{z} = (\mathbf{1} + \boldsymbol{\lambda r}) + (\mathbf{1} - \boldsymbol{\lambda})(\mathbf{1} + \boldsymbol{\beta}) \in [\mathbf{1}, \mathbf{2})$, but at the same time, the tax on firms ($\boldsymbol{T_f}$) cannot be above their borrowing $\boldsymbol{B = n_1 w}$, so $\frac{\boldsymbol{T_f}}{\boldsymbol{n_1 w}} < \mathbf{1}$. Therefore, the sign of $\boldsymbol{\delta}$ will follow the sign of the first expression in its numerator and it is positive, which is an impossible case.[68]

Thus, it should be emphasised yet again that it is not possible to have a surplus in all sectors at the end of the period.

4.2.3.2. Scenario 2 (Tax on the net profit):

In this scenario, government imposes a tax on the unit of net profit (net gain) of each sector. This scenario is peculiar for a static model because this type of tax can be calculated at the end of the period. This means that, apart from funds derived from selling treasury bills, the tax-share of the government revenue will be monetised at the end of the year and is not accessible in the timeframe of the static model. But this problem could be eliminated if we assume that the government enters into the current period with the same amount of money collected from the previous period and that the same amount of tax will be transferred to the next period.

Therefore, the government sector does not need to borrow in order to fulfil its obligations. This extra source of money (apart from the loan $\boldsymbol{B}$ created and lent by the bank to the production sector) allows a monetary surplus to be created before tax collection. So, the source of the surplus is the collected tax from the previous period.

If $\boldsymbol{\tau_h, \tau_f}$ and $\boldsymbol{\tau_b}$ represent the tax rate for household, production, and financial sectors respectively, we can see that the result is completely different from what has been concluded so far in the previous models and scenarios.

The reason for this is the role of government as a major institution with distributive power over national income. Such a role is not defined for other sectors, but if governments consciously

[68] Government expenditure ($\boldsymbol{G}$) includes, but always goes beyond, the wage bill of government employees ($\boldsymbol{n_3 w}$). It is therefore impossible to have a negative sign for $\boldsymbol{\delta}$, QED.

act based on this role, the surplus generated in each sector can be distributed proportionately without accumulation of debt or surplus for a specific sector(s).

Under this scenario, the NAFA of each sector (after removing the lump-sum tax) is simply multiplied by$(\mathbf{1}-\boldsymbol{\tau_i})$, where $\boldsymbol{i}$ represents each sector:

$$\boldsymbol{NAFA_f}\cdot(\mathbf{1}-\boldsymbol{\tau_f})=\left\{[\boldsymbol{B}(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})\boldsymbol{B}(\mathbf{1}+\boldsymbol{\beta})]\left[\frac{\boldsymbol{n}(\mathbf{1}+\boldsymbol{\theta})}{\boldsymbol{Q}}-\mathbf{1}\right]+\boldsymbol{r_{TB}}\cdot\boldsymbol{TB_f}+\boldsymbol{G}\right\}\cdot(\mathbf{1}-\boldsymbol{\tau_f})$$

$$\boldsymbol{NAFA_h}\cdot(\mathbf{1}-\boldsymbol{\tau_h})=\left[\boldsymbol{nw}\left((\mathbf{1}+\boldsymbol{\alpha i})-(\mathbf{1}+\boldsymbol{\theta})\left[\frac{(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})(\mathbf{1}+\boldsymbol{\beta})}{\frac{\boldsymbol{Q}}{\boldsymbol{n_1}}}\right]\right)+\boldsymbol{r_{TB}}\cdot\boldsymbol{TB_h}\right]\cdot(\mathbf{1}-\boldsymbol{\tau_h})$$

$$\boldsymbol{NAFA_b}\cdot(\mathbf{1}-\boldsymbol{\tau_b})=[\boldsymbol{\lambda Br}+(\mathbf{1}-\boldsymbol{\lambda})\boldsymbol{B}(\mathbf{1}+\boldsymbol{\beta})+\boldsymbol{r_{TB}}\cdot\boldsymbol{TB_b}-(\boldsymbol{n_2w}+\boldsymbol{\alpha nw}\times\boldsymbol{i})]\cdot(\mathbf{1}-\boldsymbol{\tau_b})$$

As $\boldsymbol{\tau_h},\boldsymbol{\tau_f}$ and $\boldsymbol{\tau_b}\in(\mathbf{0},\mathbf{1})$, the new coefficients $(\mathbf{1}-\boldsymbol{\tau_i})>\mathbf{0}$ and have no role in changing the sign of NAFAs.

The requirement of having a surplus in all sectors can be set by the following inequalities, in which, all lump-sum taxes are removed:

$$\frac{(\mathbf{1}+\boldsymbol{\alpha i})}{[(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})(\mathbf{1}+\boldsymbol{\beta})]}+\frac{(-\boldsymbol{r_{TB}}\cdot\boldsymbol{TB_b}-\boldsymbol{n_3w})}{\boldsymbol{nw}[(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})(\mathbf{1}+\boldsymbol{\beta})]}<\frac{\boldsymbol{n_1}}{\boldsymbol{n}}$$
$$<\frac{(\mathbf{1}+\boldsymbol{\alpha i})}{[(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})(\mathbf{1}+\boldsymbol{\beta})]}+\frac{(\boldsymbol{r_{TB}}\cdot\boldsymbol{TB_h})}{\boldsymbol{nw}[(\mathbf{1}+\boldsymbol{\lambda r})+(\mathbf{1}-\boldsymbol{\lambda})(\mathbf{1}+\boldsymbol{\beta})]}$$

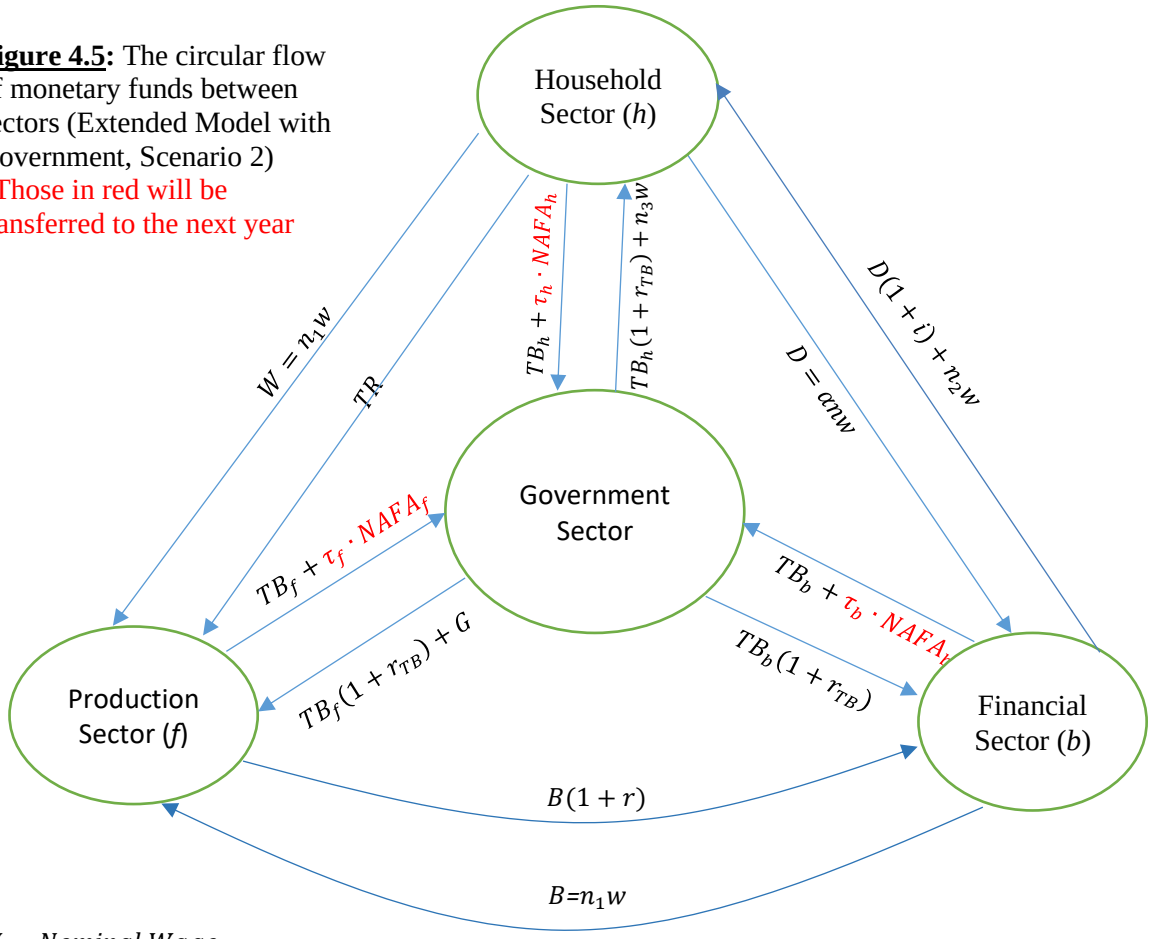
The first expression of the lower and the upper bound is the same, so they can be ignored in this analysis. Now we can focus on the second expressions on both sides. This is a possible situation and consistent as $-\boldsymbol{r_{TB}}\cdot\boldsymbol{TB_b}-\boldsymbol{n_3w}<\mathbf{0}$ and $\boldsymbol{r_{TB}}\cdot\boldsymbol{TB_h}>\mathbf{0}$ and $\frac{\boldsymbol{n_1}}{\boldsymbol{n}}$, and eventually, the mark-up price $\boldsymbol{\theta}$ could be any value between the lower and upper limits.

Table 4.5: The monetary flow of all transaction between sectors (Extended Model with Government, Scenario 2)

Sector	Firm	Household	Bank	Government	Total Receivable
Firm		$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right]$		$r_{TB}\cdot TB_f + G$ (*)	$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right] + r_{TB}\cdot TB_f + G$
Household	$n_1 w\ (=B)$		$n_2 w + \alpha n w \times i$	$n_3 w + r_{TB}\cdot TB_h$	$n_1 w + n_2 w + \alpha n w \times i + n_3 w + r_{TB}\cdot TB_h$ $= nw(1+\alpha i) + r_{TB}\cdot TB_h$
Bank	$\lambda Br + (1-\lambda)B(1+\beta)$			$r_{TB}.TB_b$	$\lambda Br + (1-\lambda)B(1+\beta) + r_{TB}\cdot TB_b$
Government	$\tau_f \cdot NAFA_f$ (**)	$\tau_h \cdot NAFA_h$ (**)	$\tau_b \cdot NAFA_b$ (**)		$\tau_f \cdot NAFA_f + \tau_h \cdot NAFA_h + \tau_b \cdot NAFA_b$ (**)
Total Payable	$B + \lambda Br + (1-\lambda)B(1+\beta)$ = $B(1+\lambda r) + (1-\lambda)B(1+\beta)$	$n(1+\theta)\left[\frac{B(1+\lambda r)+(1-\lambda)B(1+\beta)}{Q}\right]$	$n_2 w + \alpha n w \times i$	$r_{TB}\cdot TB_f + n_3 w + r_{TB}\cdot TB_h + r_{TB}\cdot TB_b + G$ = $n_3 w + r_{TB}(TB_f + TB_h + TB_b) + G$	

. (*) In this model, government expenditure on goods and services is financed by the tax on the net profit collected from the previous period.
(**) These are collected at the end of the year and will be transferred to the next year as government expenditure. So, they do not come into this year calculation.

Figure 4.5: The circular flow of monetary funds between sectors (Extended Model with Government, Scenario 2)
*Those in red will be transferred to the next year



$W = Nominal\ Wage$
$TR = Total\ revenue\ of\ production\ sector$
$r_{TB} = Interest\ rate\ of\ Treasury\ Bills\ (TB)$
$TB_i = The\ value\ of\ the\ treasury\ bills\ bought\ by\ sector\ i$
$r_{TB}.TB_i = Sector\ i's\ Financial\ gain\ from\ buying\ TB$
$r = Interest\ rate\ on\ loans$
$B = Total\ amount\ of\ loan$
$i = Interest\ rate\ on\ deposits$
$D = Total\ deposit\ of\ household\ sector$
$n_1 = Total\ No.\ of\ workers\ in\ production\ sector$
$n_2 = Total\ No.\ of\ workers\ in\ financial\ sector$
$n_3 = Total\ No.\ of\ workers\ in\ government\ sector$
$\alpha = Percentage\ of\ the\ total\ household\ income\ deposited\ in\ the\ financial\ sector$
$\tau_i = Tax\ rate\ on\ the\ net\ profit\ of\ sector\ i$
$G = Government\ expenditure\ on\ goods$

4.3. Summary

In this chapter, various theoretical static models were demonstrated. In the first model (the simplest model) there was no government sector and under two different scenarios, it was evident that the profit for some sectors is equivalent to the loss in at least one sector. In each scenario, the household sector was the losing sector. This means that the financial sector (bank in the model) and the production sector can make a profit only if the household sector's loss is financed, i.e. it borrows and becomes a debtor sector. As the only source of finance is the credit issued by the financial sector, this means a shortage of money in this sector will be covered by the credit expansion, which, in turn, increases the initial level of the shortage by the amount of the interest rate. Without finding a new source of monetary funds the initial debt reproduces itself to a level at least equal to the level of the household's loss.

In the second model (the fundamental model without government) some of the assumptions in the simplest model were relaxed to reach a model which is much closer to reality. In this model, the financial sector has its own employees, adding to the household sector and working population, which can increase the demand for goods in the production sector. At the same time, the household can have the option to save and the production sector has the choice of changing its capital structure to reduce the level of debt through borrowing. Under these assumptions, the shortage of money in circulation re-emerges and it is impossible to have a positive monetary balance sheet for all sectors. This means that the profit of some sectors will be achieved (if it is financed through new credit) through the loss made in at least one sector.

In the third model (the extended model with government), the government sector is added with some new assumptions regarding government employees and their wages. Two scenarios have been considered: 1. Government imposes a lump-sum tax just to cover its expected cost 2. Government imposes a tax on the profit of each sector, which can be re-distributed at the beginning of the next period. This means that those sectors with a negative balance will receive the government subsidy. The latter scenario is the only situation in which the paradox of profit does not appear. Therefore, the paradox of profit can have a theoretical solution if the government imposes a tax on the profit of the profitable companies in each sector and re-distributes it to those sectors with a negative monetary balance.

The aim of the next chapter is to show how the paradox of monetary profit — discussed in these models in the form of shortage of money in circulation — has worked through the history of capitalism and has provided a specific form of accumulation process in which financial capital gains more importance in the production and re-production processes, and how the power of creating such capital has provided monopoly power for the financial sector to be dominant over every aspect of the economic system. This is the topic of financialisation that will be discussed and scrutinised in the next chapter.

Chapter 5: Financialisation

5.1. Introduction

Over the last four decades, there have been serious attempts to investigate the role of the financial sector and its movements in capitalist economies. The term "financialisation" has been used to describe a situation where for example, one or more of the following features might be present:

a) The rate of profit in the real sector is falling or narrowing down and there are no massively profitable opportunities in the real part of the economy to absorb the surplus "generated by the enormous and growing productivity of the system" (Foster, 2008: 5). See also Magdoff & Sweezy (1987), Moseley (2018).

b) Production in the real part of the economy becomes stagnated while the financial activities of non-financial sectors (household and production) increase. (see Foster, 2006, 2009, 2010a; Philippon & Reshef, 2013; Greenwood & Scharfstein, 2013; Brown et al., 2017)

c) The level of debt accumulation is rising fast and its ratio to GDP is expanding rapidly. (see Stockhammer and Kohler, 2019; Gunten et al., 2018, OECD, 2019)

d) The household sector and small to medium-size firms in the real sector are continuously and progressively more reliant on financial services to restructure their financial obligations. (see Stockhammer, 2012; Lapavitsas, 2013; Naisbitt, 2018)

e) The financial sector is more independent and its growth is much faster than that of the real sector.[69] (see Philippon & Reshef, 2013; Greenwood & Scharfstein, 2013; Blue Book, 2019; Sparshott, 2020)

The aim of this chapter (which is also the contribution of this chapter the existing literature, is to show how the shortage of money in circulation in connection with the idea of credit-debt reproduction mechanism can provide an analytical framework by which the above features, as different aspects of financialisation, can be explained. It would be wrong to confine the concept of financialisation just to the increase of the size of the financial sector, or its share of GDP.

[69] Since the beginning of COVID-19, many companies have been unable to keep their employees due to the lack of demand and shortage of cash to pay their financial obligations. Unemployment has been massively increased around the world and GDP has fallen sharply but stock market indices have shown a powerful performance. See https://www.wsj.com/articles/newsletter-soaring-debt-big-layoffs-and-a-booming-stock-market-01599129017 [last access 19/09/2020]

There are other dimensions, as mentioned before, such as the rise in the total level of private debt and the increase in the financial activities of non-financial institutions and the household sector, which will be discussed later in Section 5.5. Any theoretical approach to the concept of financialisation should be able to analytically explain its key features. The last feature (e), in fact, can be viewed as the direct outcome of the others and it is more measurable than the others. In fact, the financial sector's share of aggregate income has experienced rapid growth compared to that of the real part of the economy. Data collected from the *Blue Book* (2019) in the UK shows that financialisation is not just a theoretical concept. The percentage share of GDP (income approach) has increased for financial corporations from 0.9% in 1983 to 2.7% in 2017 while that for non-financial corporations (public and private) has dropped from 21.08% to 19.1% in the same period. To put this in context, a 1.98% share loss in the non-financial corporation is compensated by a 1.8% share gain of the financial sector. This means despite negative growth in the real sector, we observe positive growth in the financial sector. These percentage share changes give a rate of substitution of 90.9% for the financial sector over the real sector.

There is a similar story in other economies with modern financial institutions. Greenwood & Scharfstein (2012) have provided details of financial services and their movements in the US economy. They state that "the US financial services industry grew from 4.9% of GDP in 1980 to 7.9% of GDP in 2007". They believe that the main areas of financial sector growth in the US are related to "rising asset management fees", and also rising fees in connection with "household credit", a process that was powered by the shadow banking system. Based on Poszar et al.'s (2010) estimate, this system in the US economy is now bigger than the traditional banking sector, though performing similar jobs, because it is subject to less regulation.

Philippon and Reshef (2013) also identify two waves of US financial sector growth: from 1860 to the 1930s and from 1950 to the present, during which the long-term growth of the income share of finance is similar to that in some other countries with a well-established financial sector. A large part of this rapid growth in US financial services is attributed to asset management, which explains about 36% of the total growth as a share of GDP (Greenwood et al., 2012). Other scholars such as Goldstein et al. (2007) also point to the profit that individual brokers/dealers have gained through trading securities, which has given them a "degree of pricing [or monopoly] power".

This development is described by Stockhammer (2012: 50) as a deliberate "shift towards fee-generating business rather than traditional banking that generates income as a result of interest differential between rates on deposits and on loans". Considering the fact that asset management fees have not changed dramatically in the financial world, and in some cases have even fallen (see Greenwood & Scharfstein, 2012; French, 2009; Philippon and Reshef, 2013), the increase in total fee income reflects the increase in demand for these services.

Stockhammer (2012: 39-40) and Lavoie and Stockhammer (2013: 8-9) explain another aspect of the financialisation process in which the "finance-dominated" and "profit-led" regime of accumulation" leads to the "polarization of income distribution" in favour of profit-makers rather than wage-earners. They argue such a regime has a long-run negative impact on domestic aggregate demand by the extension of the household sector's debt, leading to an "unbalanced economic growth" and eventually to frequent financial crises. Other aspects of financialisation have been addressed by other post-Keynesians such as Hein (2011: 58). He explains two 'models of capitalism' under financialisation based on the 'debt-led consumption boom' and the 'export-led mercantilism' which have emerged in the early 21st century.

If we assume that financial institutions are profit-seeking and not benevolent institutions, this shift seems logical and should not be criticised. The system moves toward the options that offer more return/profit. Even non-financial corporations do not invest all their profits in their businesses but speculate with their surplus, through professionally managed mutual funds or hedge funds, in order to seek to generate more income (see Section 5.2 for the mainstream review of the positive role of financial institutions in the economy). The greater cause for concern is not the movement of the financial institutions towards generating more return/profit, but more about the shifting balance within the system as a whole (including non-financial corporations, households or government) towards rent-seeking or speculative activities. The expansion of rent-seeking or speculative activities in a financial market therefore can be seen as a warning sign that the financial sector is becoming detached from the real sector.

So, what is financialisation? In the 1970s, a specific form of capital accumulation process in capitalism started to emerge in the US economy which was unprecedented in appearance and speed of development. In the following decade, two heterodox scholars, Magdoff and Sweezy (1987), paid attention to it and named the process "financialisation", but not all heterodox scholars defined it as a capital accumulation process. As a result, the term is not conceptualised uniformly by all heterodox scholars, and for this reason, there are two main approaches in the

heterodox literature. These two approaches have several similarities in the way they look at certain implications and empirical manifestations of financialisation in the modern world, but they are fundamentally different in perspective, as we discuss next. Fundamental to this distinction is the question of whether or not financialisation is inherently reversible. In this section, we initially go through these approaches very briefly and give full explanations with critical analysis later in this chapter.

The first approach assumes that the term refers to a specific phase of capitalism. The roots of financialisation are located in the neoliberal free-market policies that started in the early 1980s, along with globalisation and the massive international movement of capital, which gradually changed the role of government in the economy towards market forces (see for example Epstein, 2005; Lapavitsas, 2013). For these heterodox scholars, increasing the role of finance in all economic activities manifests a new phase of capitalism that had not previously existed. They believe that the term should only be applied to this new phase, which is totally separate from the other phases of capitalism.

According to this approach, financialisation could not have developed without the imposition of the neoliberal policies concerning free capital movement and integrated capital markets, mainly in the US and UK, from the late 1970s and which had given a globalised character to capitalism. Based on this view, financialisation can be defined as "the increasing role of financial motives, financial market, financial actors and financial institutions in the operation of the domestic and international economies" (Epstein, 2005: 3), which should be understood in association with economic liberalisation and the globalisation of capital markets.

Despite differences in their analytical discussions, the many followers of this approach can be categorised together inasmuch as they believe financialisation is a new phenomenon in the capitalist economy, one that has no parallel in the history of capitalism prior to the 1980s. Some of the scholars in this category are Epstein (2005), Krippner (2005), Foster (2006, 2007, 2008, 2009, 2010a, 2010b), Palley (2007, 2013), Pozar et al. (2010), Lapavitsas (2011, 2013), Stockhammer (2012), Van Treek (2012), Hein (2012), Greenwood & Scharfstein (2013).

The second heterodox view is that the term refers to an old and ever-growing accumulation process working alongside the credit-led monetary production economy. These scholars believe that the capital-dominated accumulation process has been an inseparable part of capitalism and cannot be confined to a specific period, (see; Braudel, 1981 & 1984; Arrighi, 1994; Phillips, 2006; Kotz, 2008; Robinson, 2011; Sawyer, 2013; Hudson, 2015 & 2018). The

accumulation started with the birth of the monetary production economy, and the speed of capital accumulation by financial institutions has simply increased following the imposition of neoliberal policies in financial markets.

We need to consider the fact that the investigation about the roots of financialisation makes the two approaches dissimilar, but they are not so very far from each other when it comes to the empirical manifestations of financialisation in modern capitalist economies, as discussed at the beginning of Section 5.1. The second approach, however, has an inclusive and integrated view in their historical analysis of capitalism. In this approach, the process of financialisation is seen over a much longer period, the "longue durée" (or long term). Some of the advocates of the second approach, such as Arrighi and Braudel, are from the French Annales School who are seeking a pattern or a structure in the history of economic and financial crises. They believe that the root of financialisation should be investigated in the long period of capitalism which includes the era of mercantilism, and not just in the policies chosen after the 1980s. The present study does not believe in extending the period of capitalism to include mercantilism and for that reason, Keynes's term "monetary production economy" is used to refer to both periods.

Influenced by Marx's historical account of capitalism and the analysis of Rosa Luxemburg (1913) on the historical conditions of accumulation and impossibility of monetisation profit in a closed capitalist system (see Section 3.3, p. 77), some scholars in the second approach take this long-term view since longue durée capitalism is "in its innermost essence an expanding system both internally and externally. Once rooted, it both grows and spreads" (Sweezy, 1997: 1).

Marx and Engels (1848, [2004]: 16), defined the "bourgeoisie" as "the class of modern capitalists, owners of the means of social production and employer of wage labour". According to Engels (1888) "capitalist mode of production" works based on the capitalist (bourgeois) mindset. He explains how such a system has worked through centuries without any change in its essence of the accumulation process or why this system develops globally beyond any nationalistic agenda:

> The need for a constantly expanding market for its products chases the bourgeoisie over the entire surface of the globe. It must nestle everywhere, settle everywhere, establish connexions everywhere. The bourgeoisie has through its exploitation of the world market given a cosmopolitan character to production and consumption in every country. To the great chagrin of

> Reactionists, it has drawn from under the feet of industry the national ground on which it stood. All old-established national industries have been destroyed or are daily being destroyed. They are dislodged by new industries, whose introduction becomes a life and death question for all civilised nations, by industries that no longer work up indigenous raw material, but raw material [is] drawn from the remotest zones; industries whose products are consumed, not only at home but in every quarter. In place of the old wants, satisfied by the production of the country, we find new wants, requiring for their satisfaction the products of distant lands and climes. In place of the old local and national seclusion and self-sufficiency, we have intercourse in every direction, universal inter-dependence of nations. And as in material, so also in intellectual production. The intellectual creations of individual nations become common property. National one-sidedness and narrow-mindedness become more and more impossible, and from the numerous national and local literatures, there arises a world literature.
>
> The bourgeoisie, by the rapid improvement of all instruments of production, by the immensely facilitated means of communication, draws all, even the most barbarian, nations into civilisation. The cheap prices of commodities are the heavy artillery with which it batters down all Chinese walls, with which it forces the barbarians' intensely obstinate hatred of foreigners to capitulate. It compels all nations, on pain of extinction, to adopt the bourgeois mode of production; it compels them to introduce what it calls civilisation into their midst, i.e., to become bourgeois themselves. In one word, it creates a world after its own image.

According to followers of this second approach, this is the same expansion (accumulation) that explains the change of capitalism from a competitive productive to a monopoly productive and eventually to a financialised unproductive system. The last form represents the final stage of the capitalist economy and one that is more susceptible to crisis. Among these scholars, again with differences in their analytical views, we can identify Sweezy and Magdoff (1987), Arrighi (1994), Wolman and Colamosca (1997), Hudson (2003), Phillips (2006), Kotz (2008), Sawyer (2013). This group of scholars believes that financialisation "has deeper roots that are unrelated to neoliberalism" (Kotz, 2008: 18).

This study follows the second approach as, contrary to the first approach, it enables the researcher to explore the roots of financialisation as a process of capital accumulation in a monetary production economy, but it also goes further to analyse the role of financial institutions in the process of the financialisation of the economy. It examines their active role in the spiral of credit expansion, debt intensification, and the increasing scale of the shortage of money in circulation. These, in turn, increase the demand for money beyond the supply of it thereby leading to the current dominance of money/credit and money/credit issuers as the main providers of financial capital in the system. It will be also discussed how this process is inevitable in all "mature capitalist economies" where, in the absence of major technological advancements, more monetary profit can be made, much more easily and with less risk through financial activities (speculation, rent seeking, etc.) than through investment in the production of goods and services.

At this stage, we informally accept Palley's basic definition of financialisation as "a process whereby financial markets, financial institutions, and financial elites gain greater influence over economic policy and economic outcomes" (Palley, 2007), but we discuss this in more detail and consider other definitions in Section 5.5 when we explain how market bubbles and buy-back strategies can be seen through the lens of financialisation. In all cases, the accumulation of debt is the main but not the only focus of the debate about financialisation.

Before starting to analyse these alternative approaches, it is interesting and relevant to know why the concept of financialisation is not recognised in mainstream literature. Then, the two approaches will be explicitly analysed and finally, using the concept of the credit and debt reproduction mechanism introduced in Chapter 3, the theoretical connection between the paradox of monetary profit and financialisation will be established in this chapter.

5.2. Mainstream vs Heterodox (Financial Development vs Financialisation)

Regardless of the direct connection to Marxist political economy as a possible political reason that financialisation, as a term, does not appear in the orthodox literature, mainstream scholars do not even recognise the process described by the term financialisation as a problem within capitalism. There are three reasons for this: a) their doctrine with regards to the neutrality of money in the long-term (from the quantity theory of money), b) the passive position of the financial sector in connection with the real sector in their analyses (see, for example, Mankiw,

2016) the theory of loanable funds in which banks, as the facilitators, bring savings to investments and making the possibility of reaching to an equilibrium position in which saving and investment are equal in their aggregates), and c) their belief in market forces as the efficient means of resource allocation (see Hillier et al., 2013 and Section 1.3 on Friedman's view on the theory of efficient markets with the presence of rational agents).

The combination of rational expectations theory and the efficient market hypothesis also leads mainstream scholars to dismiss the whole idea of financialisation and degrade it to the concept of financial development. According to these theories, the deviation of prices from their equilibrium positions provides a profitable (or arbitrage) opportunity for some rational agents to get into the market, and as the markets are fully efficient, the information about these opportunities is immediately available for all rational agents. Thus, the arbitrage opportunity will soon be wiped out by arbitrageurs and speculators who help the system go back to the equilibrium position, and this happens in all three forms of efficiency, that is, weak, semi-strong and strong forms. This is the main reason that Friedman (1953) interprets speculation as the stabilising factor.[70]

The mainstream view on banking follows the same direction as it still reflects a passive intermediary role for banks in the economy, which connects savers to borrowers through the loanable fund market, despite all the evidence that shows they are active in the creation of credit beyond the savers' deposits, (see McLeay et al., 2014). According to their account, bank loans are limited to the volume of the savers' deposits on the one hand, and to the reserve ratio imposed by the central banks on the other. This is the story that even new central bank researchers do not follow anymore. Many of them, and most specifically in the Bank of England, now follow the heterodox view that the savers' deposits do not create loans, but by contrast, loans create deposits:

> [T]he majority of money in the modern economy is created by commercial banks making loans. Money creation in practice differs from some popular misconceptions — banks do not act simply as intermediaries, lending out deposits that savers place with them, and nor do they 'multiply up' central bank money to create new loans and deposits. … Whenever a bank makes

[70] "People who argue that speculation is destabilizing seldom realize that this is largely equivalent to saying that speculators lose money, since speculation can be destabilizing in general only if speculators sell when the currency (or commodity) is low in price and buy when it is high" (Friedman, 1953: 175).

> a loan, it simultaneously creates a matching deposit in the borrower's bank account, thereby creating new money. The reality of how money is created today differs from the description found in some economics textbooks: Rather than banks receiving deposits when households save and then lending them out, bank lending creates deposits. In normal times, the central bank does not fix the amount of money in circulation, nor is central bank money 'multiplied up' into more loans and deposits" (McLeay et al., 2014: 1).

The "monetary policy transmission channels", and more specifically the "credit channel" explained at the end of Chapter 2, is also a very basic and immature acknowledgement of the impact of the financial sector on the real sector in the mainstream economics literature, (see Bernanke et al., 1995). The mainstream picture of this impact is not complete since in their account banks cannot lend beyond their capabilities that are confined by the savers' deposits and the central bank's reserve regulations.

In mainstream literature, the term "financialisation" as explained by Palley (2007), in Section 5.1, has no meaning. The sharp increase in the size of the financial sector (see Blue Book, 2019 for the UK; and Sparshott, 2020 for the EU), from the mainstream perspective, is not seen as a problem but as a "financial development" in response to the needs of the real sector for the services provided by the financial sector. Therefore, the size can change easily, "like the weather, if you do not like the size of finance, just wait a while…. Demand that shifts out can shift back again" (Cochrane, 2013: 31 & 47). Cochrane (2013) provides some examples about asset-backed commercial papers, credit market debt, and even employment in the US financial sector, to show how an "inflated financial sector" can revert to its initial state. He believes that economists should use their analytical tools, such as demand and supply, in order to reach a correct conclusion about the movement of the financial sector. From his point of view, the question about the size of the financial industry is basically a "wrong question*"* and a "waste of time*"*, which leads us to the "failed experience of central planning"; rather economists need to focus on the functionality of this industry instead of its size or its rapid growth (Ibid: 47).

By substituting "financial development" for "financialisation", mainstream scholars are able to defend the role and the impact of the financial sector in the economy. There are, however, some recent studies in the mainstream literature (see, for example, Ibrahim et al., 2018 and Asteriou et. al, 2019) that question such a positive linear association between financial development and

economic growth. To understand this change, which is still far from accepting the concept of financialisation, we need to lay out the view of the conventional mainstream literature on the role of financial sector in the economy. The growth of the financial sector, either in the form of financial development or as an extension of financial activities, has long been considered by various mainstream scholars to make a positive contribution to economic growth. Levine (2005: 869) enumerates five functions for any financial system, which can be considered as the contribution of the financial sector to the real sector. According to him "financial systems:

• Produce information ex-ante about possible investments and allocate capital.

• Monitor investments and exert corporate governance after providing finance.

• Facilitate the trading, diversification, and management of risk.

• Mobilize and pool savings.

• Ease the exchange of goods and services."[71]

He believes that these functions influence savings and investment decisions and therefore economic growth. The original idea goes back to Bagehot (1873) and, more specifically, to Schumpeter (1912), who argued that bankers, through their screening and funding of entrepreneurs, encourage innovative activities and so stimulate economic growth. That is to say, investment only takes the form of "productive" investment in the real economy.

Early studies, such as those of Gurley and Shaw (1955), Robinson (1952), Goldsmith (1969), and McKinnon (1973), presumed that there is a causal relationship between financial development and economic growth, but that the direction of causality is from the real to the financial sector. Others, such as King and Levine (1993) and Rajan and Zingales (1997), believed that the causal direction is vice versa. In another study in 2003, however, Rajan and Zingales concluded that developing financial institutions does not necessarily lead to economic growth if "private interests" are not aligned with "national interests". This can be particularly highlighted when "private interests" are mostly satisfied through "unproductive" investments, such as speculations on the existing assets, which do not create new wealth. This result is supported by some of the recent studies that shed light on the non-linearity between financial development and economic growth (see Ibrahim et al., 2018), or even a negative impact on

[71] The bullet points are not in the original paper.

economic growth (see Asteriou et. al, 2019, for the negative impact after a crisis, and Prochniak, et al. 2017).

After considering all theoretical and empirical works on the issue, Levine (2005) concludes that there is some micro-firm-level evidence of the impact of the financial sector on the real sector, but he found it very challenging to establish the same result at the macro-level. He eventually reached the point that the "theory and empirical evidence make it difficult to conclude that the financial system merely — and automatically — responds to economic activity, or that financial development is an inconsequential addendum to the process of economic growth" (Ibid: 921). This is against Cochran's (2013) view on the dependency of the size and activities of the financial institutions to the size and activities in the real part of the economy. (see footnote 64)

A study in 2011, based on a sample of 77 countries during the period 1980-2007, indicates that the expansion of the intermediation activities by banks increases economic growth and reduces volatility but that it has no long-term effect on the real sector. In the short term, the stimulated growth comes at the cost of higher volatility in countries with a modern financial sector (see Beck et al., 2011). This last result has been highlighted by Hein (2011: 58), who has shown that "during the trade cycle of the early 2000s two 'models of capitalism' under financialisation have developed, the 'debt-led consumption boom' and the 'export-led mercantilist' model …these two models are complementary and they have generated a highly fragile constellation".

5.3. Financialisation in Heterodox Literature

In Section 5.1, an informal definition of financialisation was given for each approach, but the gap between them cannot be bridged easily. Their difference in their retrospective views on financialisation led them to provide separate definitions. Each definition highlights certain aspects of financialisation, and the possibility of reaching a single definition by compromise, if not unlikely, is very low.

For the first group of scholars, the term financialisation refers to the new era of capitalism which is accompanied by neoliberal policies and the integration of financial markets with the ease of capital movement around the globe, whereas for the second group, financialisation is the process of capital accumulation that had started with the birth of the monetary production economy, in which the era of mercantilism is also included.

Historically, the initial appearance of the term goes back to Sweezy and Magdoff's (1987) Marxian analysis of "stagnation" in capitalist economies. But Magdoff (2014)[72] explains that the theoretical framework that connects stagnation to financialisation goes back to a much earlier time. Quoting from a talk that Sweezy gave in England in May 1980, Magdoff (2014) reiterates his phrase "a long-term crisis of capital accumulation" regarding the situation in the United States. In that speech, Sweezy explains that the theoretical framework of the relationship between stagnation and financialisation "draws upon … a line of thought which originated with Michal Kalecki and attained its most complete expression in the work of Josef Steindl published in the early 1950s, *Maturity and Stagnation in American Capitalism*…. A simpler version appeared in Paul Baran's and my book *Monopoly Capital,* begun in 1956 and published in 1966" (Paul Sweezy, 1980, *The Crisis of American Capitalism*, quoted from Magdoff, 2014: 3).

In heterodox literature, the term "financialisation" is now more developed, and more independent from the term "stagnation", but its definition is still opaque among scholars and is strongly linked to the particular approach chosen when referring to its historical origins.

The first approach conceptualises financialisation as a specific form and a new stage of capitalism in which the financial sector sharply increases its share of GDP and its influence over the agents in the other sectors by re-prioritising the time-frame of their investment strategies (i.e. focusing more on the short and medium-term profit rather than the long term profit) and changing their motives in making profits without trade or selling production (i.e. focusing more on financial assets than real assets). The scholars who follow this approach believe that this process emerged gradually from the 1970s and restructured developed economies "due to pressures of competition and the underlying drive to maintain profitability" (Lapavitsas, 2013: 793).

Following the first approach, Epstein (2005: 3) defines financialisation generally as "the increasing role of financial motives, financial market, financial actors and financial institutions in the operation of the domestic and international economies". He believes that the rise of neoliberalism and globalisation, alongside financialisation, are three defining characteristics of the new transformation which started in the late 1970s. This is the period, according to Epstein, during which the world economy had been witnessing three major shifts: the decline of the role of government in the economy and the rise of the role of markets, a significant increase in

[72] Not the same Magdoff as the 1987 author,

financial transactions domestically and internationally, and an exponential increase in trade between countries.

In an attempt to include some applications into the definition, Lapavitsas (2011: 611) defines financialisation as a "systemic transformation of mature capitalist economies with three interrelated features. First, large corporations rely less on banks and have acquired financial capacities; second, banks have shifted their activities toward mediating in open financial markets and transacting with households; third, households have become increasingly involved in the operations of finance. The sources of capitalist profit have also changed accordingly". He claims that this major transformation was due to the "profound changes in production methods deriving from information and telecommunications technologies. Transnational enterprises have become dominant over global production and international trade" (Lapavitsas, 2013: 793).

Looking through the income distribution lens and the relation between capital and labour, Stockhammer (2012: 48) argues that financialisation has changed non-financial actors' perceptions of themselves and their motives and has led to a shift of power from labour to capital on the one hand, and from company to lenders/shareholders on the other. He believes that economic crises are the outcome of the "process of financialisation*"* along with the "polarisation of income distribution". He emphasises the role of the "finance-dominated regime of accumulation" in financial crises. According to him, one of the characteristics of this regime is the increase in profit, while investment has "sluggish growth". This idea of financialisation is challenged by Toporowski (2012: 5), who believes that what has been observed in a developed and sophisticated financial systems, such as the United States or the UK, is "more active banking and financial markets" in response to the "routine or even more fundamental changes in the economy". He believes that what some scholars bring "as evidence of financialisation may arise simply because transactions in the real or non-financial sector entail more credit operations than in the past and need not necessarily mean that real transactions are now in the service of financial markets", but he does not go further to find the root cause of more credit operations in these sectors.

Apart from Epstein (2005, 2015), Lapavitsas (2011, 2013) and Stockhammer (2012) other heterodox scholars, such as Palley (2007, 2013), Van Treeck (2012), Hein (2012), Orhangazi (2008), Greenwood & Scharfstein (2013), and Krippner (2005), limit the term to the period since the late 1970s. For example, Orhangazi (2008) investigates the impact of financialisation

on real investment in the US in the period of 1973-2003 and finds a negative relationship between them, but instead of using the term "capital formation" for investment, he uses "capital accumulation". Foster (2006, 2008), though generally following the second approach, highlights the increase in the participation of non-financial corporations in financial activities specifically after the 1970s as "monopoly-finance capital". This was a phase in which the difference between financial and non-financial corporations in terms of their financial activities (specifically financial speculation), is not very clear. He asserts that all these activities contribute to the increase of "financial bubbles" and income inequality, as the result of "wage stagnation" and the fact that the demand for more cash goes to speculation for making more profit (Foster, 2007). It should be noted that Foster (2008: 8) believes that what we see as financialisation in the last decades "should not blind us to the fact that the real problem lies elsewhere: in the whole system of class exploitation rooted in production." This is similar to Marx's theory of exploitation which will be discussed in section 5.4.1.

Based on the first approach, apart from its impact on the real sector, financialisation has three dimensions:

1. The massive growth of the financial sector and its profits. Evidence of this massive rise is provided by Greenwood & Scharfstein (2013) and Philippon & Reshef (2013) using various variables and indices such as share in GDP, average wage in the financial sector, profit share, stock market capitalisation, etc.
2. Increase in the level of financial activities by non-financial corporations and the growing importance to them of financial profits, as discussed above (see Foster, 2006, 2009, 2010a).
3. A sharp rise in the accumulation of debt especially in the household sector.[73]

[73] ONS data shows that before the recent crisis in 2007, the UK government's debt had increased by 27% during the period of 2004 to 2007, on average about 4% each year, while the gross national income (GNI) had increased by 17.4% during the same period (see ONS, UK's economy accounts Q1 2013). Crotty (2009) shows the evidence for increasing debt in the period of 1981 to 2008 from 22% to 117% in financial sector alone of the US economy, and the increase in household debt from 48% of GDP in 1985 to over 100% by 2008. He concludes that the "real [part of the] economy cannot consistently generate the cash flows required to sustain such inflated financial claims. It is not economically efficient to have such large proportions of income and human and material resources captured by the financial sector" (Crotty, 2009: 576).
For the latest information about government & household debt in OECD countries, see OECD (2019), General government debt (indicator). doi: 10.1787/a0528cc2-en (Accessed on 11 July 2019)

Some scholars argue for the possibility that financialisation can be reversed. While this is not a universal view amongst all who follow the first approach, these scholars believe de-financialisation can happen simply by means of tighter regulations, separation of investment banking from commercial banking (Sweeney, 2019), democratic reformation and reorientation of the finance industry, and by both prohibiting financial institutions from risky speculative activities and leading them towards their basic and essential functionalities, (Lawrence, 2016; Ulgen 2016), and in one word, by "socialising" their activities. This is echoed by some other scholars, such as Karwowski (2019: 1020) who believes that de-financialisation is a process of controlling motives, acts, and whatever leads to financialisation. She talks about the role of government and syndicates in "regulatory change", and more strangely, "the resistance of financialised citizens" to financialisation through "democratic pressure".

One view held by some who follow the first approach do not take the role of financial institutions in credit creation, debt expansion, and their spiral reproduction mechanism into account when specifically analysing financialisation. For example, Lapavitsas (2013: 792) believes that the roots of financialisation should be investigated "in the altered behaviour of the fundamental agents of capitalist accumulation, including non-financial corporations, banks, and workers". Although he explains that finance has restructured the behaviour of these agents and led them towards "new forms of profit" (via the production channel), nonetheless he believes that there is a possibility to reverse the process of financialisation by "re-establishing the command of the social and collective over the private and individual for the modern era" (Ibid: 792).

This idea is rooted in Lapavitsas' analysis of financialisation as a "systemic transformation" that could be prevented in the absence of "active and continuous intervention by the state". In his analysis, he refers to the collapse of the Bretton Woods Agreement in 1971-73 — which destabilised the exchange and interest rates globally, prompting the growth of international capital flows — as one of the main factors behind the start of financialisation. He assumes that this beginning depended on state intervention to control international capital flows and also to control the level of risk and competition between financial institutions. He simply considers that the collapse of the Bretton Woods Agreement must be viewed as an exogenous and independent political decision by the US but, in a system where the value of a dollar is tight to

https://data.oecd.org/gga/general-government-debt.htm and Household debt (indicator). doi: 10.1787/f03b6469-en https://data.oecd.org/hha/household-debt.htm#indicator-chart (Accessed on 11 July 2019).

a certain amount of gold. This could not be maintained, in the long-term under a financialised system in which debt is accumulating on an exponential scale.

Apart from the historical pattern in the devaluation of metal money, discussed in Chapter 2, there is a simple reason for this. In a financialised system in which credit is the main source of money in circulation, there is always a shortage of money, either due to the existence of the paradox of monetary profit or any other factor that creates more demand for money (such as war, natural disasters, etc.). Credit expansion covers the shortage of money in circulation temporarily at the cost of more debt in future, which, in turn, increases the demand for more credit, decreases the level of consumption and increases the level of unemployment. This may also be accompanied by a slight rise in prices, which in turn devalues the currency further. The spiral of the credit-debt reproduction mechanism undermines the confidence of currency holders and destabilises the value of the currency even in the absence of any currency speculation.[74] In the process of financialisation, any fixed conversion ratio between a currency and gold or other commodities cannot be maintained due to the exponential increase in the demand for the currency and the shortage of the gold/commodity in the long-term.

Bordo (1993: 82-83) explains that the convertibility of dollar and gold, as it was agreed in the Bretton Woods agreement, was faced with three problems: "adjustment, liquidity, and confidence". If we ignore the first problem, the liquidity and confidence problems are the exact issues that we addressed above, that is the worldwide shortage of dollars and decline in confidence regarding the sufficiency of gold stocks that support that convertibility. In a financialised economy, the credit/debt reproduction mechanism increases the level of demand for money (even in the absence of population growth, policy change, disasters such as war/pandemic/natural, and technological advancement). In short, the shortage of money (nationally or internationally, either through the interest rate mechanism or for any other reason) makes any fixed conversion rate between dollar and gold untenable. The fixed conversion rate between dollar and gold could not be maintained for much longer and sooner or later had to be terminated, to allow the US policymakers to increase the national and international supply of dollars.

[74] In his speech to end the Bretton Woods Agreement on 15 Aug. 1971, Nixon refers to the previous seven years in which, on average, there had been one international monetary crisis every year, and he accuses the international money speculators as the main beneficiaries of these crises (see Nixon's speech: https://www.youtube.com/watch?v=iRzr1QU6K1o).

Therefore, the collapse of the Bretton Woods agreement is the outcome of financialisation process in the US and other countries dependent on the US credit expansion in dollars and not the cause of it. Any regulation that restricts credit extension cannot survive in a financialised economy due to an increasing shortage of money in circulation. The shortage is created by an artificial demand for money as a result of the rent/profit-seeking mechanism that is rooted in the monetary production economy. This is a characteristic that has been overlooked by those following the first approach. This will be discussed thoroughly in Section 5.5.

The discussion of the first approach cannot be completed without looking at Krippner's (2005) definition of financialisation. Her definition provides a good entry point into the second approach, and so, it might be better to see her as an outlier among the scholars of the first approach:

> I define financialization as a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production (see Arrighi, 1994). Financial here refers to activities relating to the provision (or transfer) of liquid capital in expectation of future interest, dividends or capital gains (Krippner, 2005: 174).

Her reference to the accumulation pattern and then to Arrighi (1994), who follows the second approach, makes her definition very different from the others in this category because this accumulation pattern can be traced to other earlier periods and not just to the post-1970s.

Despite the diversity of these definitions, they address one of the key features of financialised economies, that is the fact that the massive rise in the size and activities of the financial sector post-1970s has nothing to do with economic growth. This feature and the reasons behind it will be scrutinised as we examine the second approach.

The second approach tries to conceptualise financialisation by highlighting some patterns in the history of capitalism in order to show that what emerged and was observed after the 1970s was not just a simple deviation or disconnected chapter from the evolution of capitalism, but has been a core and natural transformation of the system, and one that has repeatedly occurred in history. The followers of this approach argue that, although the term financialisation is associated with neoliberalism, it is not the outcome of the neoliberal policies adopted in the 1970s-1980s because financialisation, as mentioned before, "has deeper roots that are unrelated

to neoliberalism" (Kotz, 2008: 1). They believe the process of financialisation is the final stage in capitalism and that the imposed neoliberal policies in the 1970s-1980s simply removed the constraints and paved the way for faster development of financialisation in the developed economies (Kotz, 2008: 18).

This is one of the main differences between the two approaches. Financialisation in the second approach refers to an old and ever-growing capital accumulation process in capitalism which "is not limited to a specific period or place, though it would be anticipated that the pace and form of financialisation vary across time and space" (Sawyer, 2013: 3).[75]

Based on this line of thought, the underlying capital-dominated accumulation process has not changed in the history of capitalism. Getting the surplus-value, either in the production sector or in the financial sector, is the core characteristic of the accumulation process defined in the monetary production economy, and it is an inseparable part of capitalism. Thus, what is observed post-1970s is "a quantitative expansion of the role of finance in the economy, but it is not clear whether this means that the role of finance changes qualitatively" (Kotz, 2008: 4). Therefore, the late 1970s onwards "should not be seen as the start of financialisation but rather the start of an era in which the processes of financialisation had some continuing aspects of previous processes (e.g. the growth in the volume of financial transactions), some acceleration of previous processes (e.g. perhaps de-regulation), and some novel aspects (e.g. securitization). Thus, it is helpful to think in terms of different eras of financialisation, different intensities and different forms of financialisation" (Sawyer, 2013: 3).

It is true that in the last 40 years many innovative and transformative instruments in the financial sector have been introduced, which have changed many aspects of this sector in capitalist economies, but these instruments have not changed the intrinsic characteristic of this sector. For example, "securitisation"[76] is one of these features that was not available some

[75] Sawyer also argues that "there are periods of de-financialisation as well as those of financialisation" (Ibid: 3), but he does not introduce these periods in his paper.

[76] According to Jobst, (2008: 48-49) from the IMF "securitization is the process in which certain types of assets are pooled so that they can be repackaged into interest-bearing securities. The interest and principal payments from the assets are passed through to the purchasers of the securities. … financial institutions employ securitization to transfer the credit risk of the assets they originate from their balance sheets to those of other financial institutions, such as banks, insurance companies and hedge funds. … In essence, securitization represents an alternative and diversified source of finance based on the transfer of credit risk … from issuers to investors".

decades ago, and many heterodox scholars point to its role in the economic and financial crisis of 2007-8 (see Lavoie, 2014; Foster, 2008). But securitisation is just the process of transferring debt, with all its rights and liabilities, from one entity to another entity, and this transfer does not change the structure of the capital accumulation process in the financial sector. Therefore, it can be confidently claimed that financialisation, contrary to the view of the first approach, is just a change in the superstructure but not the infrastructure of the system. What was observed in the 1970s was merely the emergence into full view of the underlying capital accumulation regime that has operated for centuries under the monetary production economy, in which credit and credit-issuers have increased their power and weight in all economic activities due to a shortage of money in circulation that they have been directly involved in creating.

Based on the second approach, the history of financialisation coincided with the history of the monetary production economy, in which money, credit, and the interest rate have prevailed over the whole economic system. This is the main idea behind Arrighi's (1994) novel concept of "systemic cycles of accumulation", which is initially based on Marx's theory of "the circuit of money capital" (M-C-M'). Arrighi (1994) believes that this circuit demonstrates the logic of accumulation in capitalism both at the micro-level (an individual capitalist) and at the macro-level (the whole system).

By dividing this circuit into two cycles (phases), he concludes that in the first cycle, which can be called the "material expansion cycle" (or M-C phase), money is used for investment and the production of commodities and these commodities are the source of profit for some time. During this stage, which is not a short period, the economic system is productive and accumulates profit through production, but the monetary profit of this accumulation will decline as a result of "market saturation and capitalist competition" (Robinson, 2011). This cycle will be followed by the "cycle of financial expansion" in which "the locus of accumulation shifts to finance capital; *haute finance* comes to dominate the hegemonic power by manipulating financial services to sustain profit-making" (Robinson, 2011: 273). From Arrighi's point of view this is the beginning of the end of "hegemonic power" as happened in Italy in the 16th century, in the Netherlands in the 17th century, in Great Britain in the 19th century, and in the USA in the 20th century.

The transition from one cycle to another happens through both collaboration and competition between states and "finance capitalists … who control the means of payments and extract huge profits by combining their own organisational forms with the political-military power of

particular states" (Robinson, 2011: 273). These financial capital owners (or "rentiers" as a class with socio-economic and political power) could systematically and lawfully increase their share of profits, and gradually extend their dominance over the distribution of income and over other factors of production, such as labour, land, technology, etc.

This is the same view that leads Hudson (2003) to define financialisation as "a lapse back into the pre-industrial usury and rent economy of European feudalism".[77] Phillips (2006: 268) believes that financialisation is a "sign of late-stage debilitation, marked by excessive debt, [the] great disparity between rich and poor, and unfolding economic decline". He refers to historical patterns in the 16th, 18th, and 19th centuries, in which the supreme economic powers of the time, namely Spain, the Netherlands, and Great Britain, were led to economic decline as part of their evolution from the agricultural boom to the industrial and trade boom, and eventually to the last stage, the financial boom. Quoting Wolman and Colamosca (1997), Phillips continues:

> Historically, the financialization of society has always been a symbol that a nation's economic position has entered a phase of deterioration. … the best historians … have noticed that in each major phase of the development of capitalism, the leading country of the capitalist world goes through a period of financialization, wherein the most important economic dynamic is the creation and trading of abstract financial instruments rather than the production of genuine goods and services, (Phillips, 2006; 298 & 302).

In brief, the history of capitalism in the second approach is the story of the evolution of the role of money in the monetary production system, from being a collaborative factor of production in productive-led capitalism (M-C-M') in which production is more profitable than finance, to a most important factor to make a casino profit in financialised-led capitalism (M-M'), in which finance and financial activities are dominant on production. The most important aspect of this approach is the link between the monetary production economy and financialisation. According to this view, financialisation happens in a monetary production economy, in which money is used in the hope of making more money in the future. Thus, money is the main objective of any economic activity. In this approach, there is no distinction between mercantilism and capitalism in regard to the capital accumulation regime. Both systems follow the same process; their intrinsic rule of expansion is the same and neither can be confined to any national territory.

[77] See his interview with Schaefer: "*Who Benefited from the Tech Bubble?*", Aug. 2003

The global reach of mercantilism and capitalism is initiated in their unique form of capital accumulation, which is established on a zero-sum mindset, that is, to be a continuous winner in a competitive world it is necessary to find a constant loser, either nationally or internationally[78]. But this type of growth cannot continue forever as it creates its antithesis in the expansion process. This will be discussed in more detail in Section 5.5.

5.4. Financialisation and the Paradox of Profit

As stated previously, this study follows the second approach. The first approach is unable to explain some of the characteristics of financialisation described in the introduction to this chapter. For example, it contains no discussion about the capital accumulation regime as a distinct process in a monetary production economy, in which there will be no distinction between mercantilism and capitalism. Their approach overlooks the repetitive decline in the rate of profit in the real sector. Equally, they are unable to see the process of financialisation in its historical context, which is considerably older than the date of the collapse of the Bretton Woods Agreement.

The second approach is based on certain theoretical concepts — the "theory of surplus value", "the tendency of [the] rate of profit to fall" and "stagnation" — that will allow us to connect the paradox of monetary profit directly to the process of financialisation. This is one of the major theoretical contributions of this research as it provides a theoretical framework through which financialisation can be derived ultimately from the shortage of money in circulation. This means that financialisation is an inevitable final destination in a monetary production economy. In order to provide this theoretical structure, we need to explore these theoretical

[78] In her 2018 interview with Andrew M. Fisher, Kari Polanyi Levitt says: "We are now seeing a certain regression of capitalism to these mercantilist origins in the capitalist heartlands in the US, the UK and even in continental Europe. This regression is commonly referred to as "financialization", meaning the growing dominance of finance and commerce over production. This is best seen in terms of the concentration of power in multinational corporations, which increasingly do not directly produce anything but, instead, organize production and distribution. Hence, production has become increasingly subservient and subordinated to commerce through subcontracting and outsourcing in various ways, and through proprietary arrangements and monopsonistic structures of buyers vis-`a-vis producers. This is a very different reality from that of industrial capitalism in its heyday and from the descriptions of firms in typical microeconomics textbooks. It can be seen as a certain type of degeneration of capitalism in comparison to the age when industrial capitalism was based on innovation in production rather than innovation in financial and proprietary arrangements, which is why we call it a predatory form of capitalism. (2018: 551-2)

concepts, namely, Marx's theory of "surplus value", his view on the "tendency of [the] rate of profit to fall", and the theory of stagnation, and its association with the issue of "surplus absorption" as hypothesised in Baran and Sweezy (1966).

5.4.1. The Theory of Surplus Value

The core element in the theory of financialisation in both approaches explained in Section 5.3 is Marx's theory of "surplus value" and how the surpluses are channelled into financial products rather than being invested in the real part of the economy (see Magdoff and Sweezy, 1987).[79] To understand how "surplus value" is created we must focus on the circuit of capital in production, which explains the stages of the capital accumulation process. Using Marx's notation in its simplest form M-C-M', the production process starts with a certain amount of capitalist investment (M) in both "constant capital" (c), i.e., the cost of raw materials, hiring machines, tools, etc., and "variable capital" (v), i.e., the cost of the labour force. The constant capital (c) is called "constant" as it is unable to create any value when left idle, and it also does not add any new value in the process of production but rather transfers its value into output. Labourers, by their "mental and physical capabilities", are the source of creating new values much above the value they receive as wage. Therefore, in the production stage, money metamorphoses into a commodity and the value of the produced commodity (C) will be greater than the value of the initial investment. This means the surplus value is now embedded within the produced commodity as a potential profit ($c + v + s > c + v$, where "s" represents the surplus value). Creating and extracting more surplus value from each individual labourer is the motivating factor for each capitalist and is also the engine of capitalism. In the final stage, the potential profit will be changed to realised profit when the produced commodities are sold and turned into more money (M′) in a competitive process in the market. This process would be much easier if there were some degree of monopoly in the market.

5.4.2. The tendency of the Rate of Profit to Fall

Marx argues that in a developing and competitive process of capital accumulation capitalists are forced to replace labourers with more advanced machinery and use new technologies in transport and communication (which massively increase the turnover of capital) to increase the

[79] Lapavitsas (2013: 794), in contrast to others following the first approach, tries to make an incorrect distinction between the profit made through financial transactions and the surplus value. He does not recognise that the profit of the financial institutions, as profit-seeking economic units, is similar to the surplus value made by non-financial institutions in the real sector.

efficiency of the labour force and extract more surplus value from each labourer, otherwise they will be forced out of the market by their rivals. Therefore, capital accumulation is a constant process and this, in turn, increases the ratio of constant capital (c) to variable capital (v), i.e. (c/v), which he calls the "organic composition of capital".[80] But, ceteris paribus, this finally leads the rate of profit, which is the ratio of the surplus-value (s) to total capital used in production (c+v), to fall. Marx provides numerical examples to show how the rate of profit ($p'=\frac{s}{c+v}$) falls by increasing the organic composition of capital (Marx, 1883, Vol. 3: 128-129).

The rate of profit shows an average surplus value for one-unit cost on both living and dead labour and it can be re-written as $p' = \frac{s}{c+v} = \frac{s/v}{(c/v)+1}$, where (c/v) is the organic composition of capital (OCC) and (s/v) is the "rate of exploitation of labour". Marx claims that during capital accumulation OCC= c/v goes up (through larger investment in capital (dead labour) and this, in turn, increases the denominator of the rate of profit ratio. The numerator also increases through capital accumulation but there is a limit for s/v to increase. So, the same elements that accelerate the accumulation process and the creation of surplus-value, also cause the rate of profit to fall (Ibid: 160).

Marx does not deny that the rate of profit may rise as the result of the counteracting influence of some variables (Ibid: 165). This is the reason he prefers to call the fall of the rate of profit a "tendency" rather than a "law". There would be a rise in the rate of profit "if a rise in the rate of surplus-value was coupled with a significant reduction in the value of elements of constant capital, and fixed capital in particular" (Ibid: 163).

Some Marxist economists, such as Brenner (2009), Harman (2010) and Collinicos (2010), offer a specific account for the theory of the tendency of the rate of profit to fall. For example, Brenner (2009: 12) has a specific focus on the decline of the rate of profitability at the beginning of the 1970s, its link to stagnation and "over-capacity" in production, and eventually, its impact on the economic and financial crisis. Harman (2010) defends his view against what Husson (2009) calls "a counterproductive and discouraging dogmatism…references to the orthodox interpretation of the law of the tendency of the rate of profit to fall". Herman and Collinicos emphasise the decline of the rate of profit and its connection with "over-

[80] He calls the ratio the "organic composition of capital" because it represents a combination of "dead labour" (i.e., machines, tools, materials, plants etc.) and "living labour" (i.e., labour force) in capital investment. (*Capital*, Vol. 1: 407).

accumulation" as the main cause of the recent crisis of 2007-8, whereas Sewell (2012: 1) believes that this is an "isolation" and "exaggeration" of the significance of the tendency of the rate of profit to fall, as one part of Marx's economic theory that has been developed "far beyond Marx's intention".

Keynes (1930, [2011], Vol. 2: 148-162) in his historical interpretation of the economic success of Spain, France, and England long before the industrial revolution, detects periods of reduction in the rate of profit, which he calls "profit deflation" as opposed to "profit inflation". He believes that economic progress in history, including ancient history, has happened when there is prolonged profit inflation, whereas economic deterioration should be associated with persistent profit deflation. In *A Treatise on Money*, Keynes states that accumulation of wealth took place in the years during which more precious metals were in circulation and profit inflation was higher than wage inflation. This situation happened in Spain between 1520 and 1590,[81] in France between 1530 and 1700, and in England from 1550 to 1650. As he says, "in these golden years modern capitalism was born" (Ibid: 158-159). It seems that Keynes was also aware of Marx's analysis of the link between extracting more surplus and the exploitation of labour as he says:

> A relatively low level of real-wages is necessarily a characteristic of a period of Profit Inflation because it is partly at the expense of current consumption that the abnormal growth of capital-wealth which accompanies a Profit Inflation is derived. It does not follow, therefore, that a Profit Inflation is to be desired; it is a much safer conclusion that a Profit Deflation is to be avoided (Ibid: 162).

It should be noted that, while the availability of money/credit is necessary for "profit inflation", it would not be sufficient for stimulating economic growth further when the economy reaches its efficiency limit or productivity frontier. In such a case, profit inflation will switch to simple inflation.

5.4.3. Stagnation & the Theory of Surplus Absorption

Another aspect of Marx's analysis of the dynamics of capitalism is his view of the monopoly of capital in the process of capital accumulation. In volume three of *Capital* (Chapter 15: 171),

[81] Referring to the research of Professor Earl J. Hamilton, Keynes states that "the first Aztec spoils from Mexico arrived in 1519 [into Spain]" (Keynes, 1930, Vol. 2: 152).

Marx talks about how the "concentration of capital and its centralisation through the expropriation of minor capitalists" accelerates the accumulation of capital for the whole system but places it in few hands. Baran and Sweezy (1966) used the term "monopoly capitalism" to describe this trend.[82] Under monopoly capitalism, the amount of created surplus is considerable and it is a big challenge for the capitalist economy to absorb this surplus either through consumption or re-investment.

Magdoff and Sweezy (1987) use the "theory of surplus absorption" in association with the term "stagnation" to explain the cause of financialisation in capitalist economies. The idea of stagnation appeared long before them, in a series of essays collected by Hansen and Schumpeter (1938). A monopolistic economy tends to reach the stage of stagnation, and "the more monopolistic economy, the stronger the tendency to stagnation" (Sweezy, 1980: 2-3).

Magdoff and Sweezy (1987) believe that the start of WWII ended the enquiry about the core issues in capitalism and shifted the attention away from stagnation as one of the symptoms of monopoly capitalism. They also try to provide another logical explanation for stagnation, one which is not related to the monopolistic trend in capitalism but more closely linked to the nature of investment as a "self-limiting" phenomenon. This explanation is short, but mimics the logic in the theory of the tendency of the rate of profit to fall in a very simplistic way:

> So, at bottom we are back where the debate of the 1930s left off: why is the incentive to invest so weak? … a strong incentive to invest produces a burst of investment which in turn undermines the incentive to invest. This is the secret of the long post-war boom and of the return of stagnation in the 1970s. As the boom began to peter out, stagnation was fought off for some years by more and more debt creation, both national and international, more and more fanatic speculation, more and more inflation. (Ibid: 34-36)

After the war, the US economy and its currency were dominant. Without serious damage to its infrastructure during the war and with vast demand from Europe for basic consumption and capital goods, the US economy gained post-war monopoly power in investment, production, trade, distribution, and most importantly, in financial transactions with the dollar, as the only

[82] They borrowed the term from Lenin's definition of imperialism: "If it were necessary to give the briefest definition of imperialism, we should have to say that imperialism is the monopoly stage of capitalism" [quoted in Baran and Sweezy, 1966: 4].

reliable currency in international trade. Creating more demand for dollar compared to its supply (on the global scale) helped the US economy to accumulate massive surpluses.

After the economic recovery of the major European countries, the main political and economic powers in Europe were able to accumulate surpluses autonomously and this added to the massive surplus already accumulated by the US economy. But, as Lapavitsas (2013: 795) summarises, "by the 1970s, surplus absorption had become problematic, crisis had burst out and the spectre of stagnation hung over mature capitalist countries. As a result, capital began to search for refuge in the sphere of circulation and above all in the speculative activities of finance. Financialization has emerged as a decisive way of absorbing the investible surplus that inundated the sphere of production by channelling it to the realm of finance".

Sweezy (1997) believes that moving from "competitive capitalism" to "monopoly capitalism" did not happen as the result of globalisation, though it was affected by it through the introduction of new technologies in communication and transportation, but it happened as the result of the change in the process of capital accumulation that had begun in the early 19th century. He highlights three trends in this movement (or better to say transformation):

> [H]ere are the three most important underlying trends in the recent history of capitalism, the period beginning with the recession of 1974-75: (1) the slowing down of the overall rate of growth, (2) the worldwide proliferation of monopolistic (or oligopolistic) multinational corporations, and (3) what may be called the financialization of the capital accumulation process. (Ibid: 2)

In *Monthly Review*, there is no direct reference to the concept of the tendency of the rate of profit to fall, but Sweezy (1997) shows he is fully aware of the concept when he is talking about the relationship between monopolisation and profit:

> Monopolization has contradictory consequences: on the one hand it generates a swelling flow of profits, on the other it reduces the demand for additional investment in increasingly controlled markets: more and more profits, fewer and fewer profitable investment opportunities, a recipe for slowing down capital accumulation and therefore economic growth which is powered by capital accumulation. (Ibid: 3)

Lapavitsas (2013: 795), in his comment on Magdoff and Sweesy's (1987) theory, believes that the connection between, and the transformation from, stagnation to financialisation "is an appropriate point of departure for a theory of financialization", but he adds that the theory fails to analyse how this transformation happens through the "operations of the fundamental agents of the capitalist economy". In fact, he believes that there is no direct relation between stagnation and booming finance. He also claims there is no evidence of over-accumulation or any decline in the rate of profit in developed economies post-1970s, as many Marxist economists believe.

According to Lapavitsas (2011: 618), it is a mistake to consider the financial system in the capitalist economy as the rentier section that extracts profit from lending capital.[83] In examining "the characteristic features of financialisation", he believes that the increase of financial activities by individuals and large non-financial corporations should be linked to the low cost and flexibility of these activities, which has no link to the financialisation process.

His first comment on Magdoff and Sweezy's theory can be applied generally to any theory of financialisation, even his own view of it as a "systemic transformation of mature capitalist economies" (2011: 623 and 2013: 802). For example, he does not explain why large non-financial corporations and some individuals become heavily involved in rent-seeking or lending activities in the stock market. With regard to his neoclassical view on financial institutions, it seems that he overlooks the role of stock markets in the history of economics.

The bubbles resulting from the stock market, through rent-seeking or lending activities, have not resulted from the intermediary role of such institutions. They are not just "mobilising idle money" for the purpose of funding new investment projects. They are not the facilitators of the real part of the economy, as mainstream economists claim. Like other agents in the economy, the main goal of financial institutions is to make a profit, through investment either in the productive sector or, if it is more profitable, in existing financial assets, and also by means of activities such as lending, speculating, and mobilising capital to take fees for their managerial skills. Historical evidence against the mainstream view on the passive role of financial institutions is overwhelming. Hudson (2015: 133-134) provides many examples of the

[83] It seems he has a classical view of the role of the financial sector as he believes "financial institutions are intermediaries that mobilize idle money across social classes, not a rentier social layer" (2011: 618). But he forgets to acknowledge that those financial institutions, such as hedge funds, that benefit from fund management are a small part of what is known as the financial sector. The financial sector cannot survive and cannot be as big it is now based on management fees alone.

profit/rent-seeking role of financial institutions (in general) and private financiers (in particular). Even at the beginning of the Industrial Revolution, financial institutions refused for a long time to finance the railway industry in Britain until they acquired monopoly ownership rights or a long-term right that allowed them to keep their "rent-seeking privileges".

Thus, by highlighting profit/rent-seeking activities as the main characteristics of the accumulation process in capitalism, we show that financialisation is an epidemic and intense version of this accumulation process on a large scale (including non-financial corporations and individuals) when more profit can be made through lending and speculation than through production. This means that the accumulation logic does not change but in a financialised economy it finds a shortcut through financial channels that have no link to or association with the real part of the economy. Using Marx's notation, financialisation can be illustrated as the process whereby the economy moves from (M-C-M') to (M-M').[84] This means that during the process of financialisation of an economy, when the rate of profit in the real sector is falling and the economy is moving towards uncertainty, money can mostly be seen as a factor of speculation rather than a factor of production.

This is what happened in mercantilism as the first manifestation of the monetary production economy in which money as the "state creation" enters into the "social relations" between people and institutions, (see Knapp, 1905 [Eng 1924]). Keynes (1936: 210) explicitly explained the mercantilist scholars' monetary dilemma in the last chapter of the *General Theory* (Chapter 24). In his attempt to show "the inadequacy of the theoretical foundations of the laissez-faire doctrine" in introducing a self-adjusting mechanism in the money market, he refers to some mercantilists' practical challenges in the 16th and 17th centuries to keep the rate of interest down by increasing the money supply. They wanted money to be seen and treated again as a factor of production rather than a factor of speculation. After providing a general picture of the monetary policy in the mercantilism era in Chapter 23 and analysing the reasons behind the scarcity of money and the high volume of demand for money in that period, he explains how mercantilist scholars had a constant battle to find the optimal level of the interest rate. He shows that they were concerned about the high rate of interest as the "main obstacle to the growth of

[84] Surprisingly, this is the title of Lapavitsas's (2013) paper, *The financialisation of capitalism: 'Profiting without producing'*, although he does not believe that this is the final stage of a capital accumulation process that is repeated in history rather than being created by the deregulation policies of the 1970s.

wealth" and how they were preoccupied "with increasing the quantity of money … due to their desire to diminish the rate of interest" (Ibid: 212).

Their dilemma was clear. On the one hand, the interest rate had to be high enough to motivate savers (mostly rich people) to save for new investment projects, and on the other hand, it had to be not so high as to demotivate them from investing/producing and push them towards lending and speculation. What happened in Spain in the 16th century was the financialisation of the economy that severely damaged the economy by changing investors and merchants largely into rent/profit-seeking usurers since more profit could be made through financial activities than through investment in the real sector. In *General Theory*, Keynes refers to John Locke's explanation in *A Letter to a Friend concerning Usury* (1621): "High Interest decays Trade. The advantage from interest is greater than the Profit from Trade, which makes the rich Merchants give over, and put out their Stock to Interest, and the lesser Merchants Break" (Ibid: 214). To win this battle mercantilist scholars developed a specific, but very dangerous and aggressive monetary doctrine in which the solution was the continuous supply/import of gold and silver from anywhere into their economy so as to be able to mint and print more money than their "neighbouring nations". Keynes (1936: 215) quotes from Petty (1665, [published in 1691]) that the only way to end "the violent efforts to increase the quantity of money" is "when we have certainly more money than our Neighbor States (though never so little), both in Arithmetical and Geometrical proportion".

This is the main reason that Keynes (1936 [2008]: 234-235) talks about the necessity for "euthanasia of the rentier". He believes the rentiers are "functionless investors" with a "cumulative oppressive power" who benefit from the "scarcity of capital" through an interest rate that can no longer be justified as a reward for "genuine sacrifice". He considers the theory of the rate of interest as the fundamental base for the analysis of wealth inequality. Therefore, Lapavitsas's (2011, 2013) rejection of the dominant profit/rent-seeking role of financial institutions in financialised capitalist economies is in sharp contrast both with Keynes's analysis and also the abundant historical evidence provided by many economists, even Adam Smith (for Adam Smith's view on usury and rent-seeking activities, see *The Wealth of Nations*, Book V, Part III).

5.5. Connection to the Paradox of Monetary Profit

It is now the time to analyse the theoretical connection between the paradox of monetary profit and the process of financialisation within the framework set out in the previous sections.

What the paradox of monetary profit, as a theory, brings to light is the shortage of money in circulation in a profit-seeking and usury-based monetary production economy. This has been an overlooked concept since the collapse of feudalism as a system in which money does exist, but the monetary gain is not the objective of the main economic agents such as Lords, peasants, serfs (see Section 2.3.2).[85] The first historical evidence of the extensive shortage of money in circulation goes back to the period of mercantilism. Keynes (1936, Chapter 23: 215-216) provides some evidence from that period when he highlights the shortage under the term "scarcity" of money. He shows how the rise of the interest rate, as the result of this shortage, paved the way for capital owners to move from productive activities to rent-seeking activities, similar to what happened in Spain and the Netherlands in the 16th and 18th centuries (see Braudel 1979 [1984], Vol. 3: 246).

The "scarcity of money" or the "scarcity of capital" was a repeated challenge for the merchants, mercantilist scholars, political rulers, and ordinary people. The main point of Keynes's writing about this period is to show that there was a necessity and inevitability involved in creating the specific monetary policy that demanded a continuous money supply through importing gold and silver coins or bullion. Adam Smith (1776: Part IV) believed that the constant search for gold and silver cannot lead a nation towards wealth because, in contrast to the mercantilist doctrine, money cannot be a measure of value, whereas Keynes believed that there is an "element of scientific truth" in this doctrine.[86] (see Section 2.4.1, Page 53)

Keynes (1930, Vol.2: 149), however, argues that the engine of the world's wealth is not "abstinence" and "thrift", but profit made by enterprises whose power to execute their investment projects depends on the availability of money and "the behaviour of the banking and monetary system". His view on the role of money in the rise of civilisations and their accumulation of wealth is so important that he suggests re-writing the history of economics:

[85] This is also the concept that Modern Monetary Theory (MMT) fails to bring into its theoretical analysis of the money market. Under certain conditions and constraints, MMT theorists justify the creation of money by the state through "budget deficit spending", without analysing the demand side of the money market. They are silent on the shortage of money in circulation but recommend a policy for the supply of money through government spending to push the economy towards full employment, with inflation as the main constraint.

[86] In the passage explaining this doctrine, he shows that he is aware of the tendency of the rate of profit to fall and the important role of the domestic interest rate in inducing investors into long-term investment (1930, Vol.2: 208).

> It would be a fascinating task to re-write Economic History, in the light of these ideas, from its remote beginnings; to conjecture, whether the civilisations of Sumeria and Egypt drew their stimulus from the gold of Arabia and the copper of Africa, which, being monetary metals, left a trail of profit behind them in the course of their distribution through the lands between the Mediterranean and the Persian Gulf, and, probably, farther afield; in what degree the greatness of Athens depended on the silver mines of Laurium not because the monetary metals are more truly wealth than other things, but because by their effect on prices they supply the spur of profit. (Ibid: 150)

Increasing the money supply is also Keynes' policy recommendation for the contemporary capitalist system and he thinks it should be done with the help of government "such that the functionless investor will no longer receive a bonus" as the result of the scarcity of money (see *The General Theory*: 235-237). As mentioned before, Keynes believed that modern capitalism was born in the golden years in which "profit inflation" was above "wage inflation" but that golden age had a specific characteristic that has not left us all these centuries and that has been a shortage of money in circulation, whether it is commodity money (gold/silver), currency (backed by a fixed portion of gold/silver) or fiat currency (backed by nothing).

Keynes is not alone in this recommendation. Monetarist scholars support a similar policy. For example, Friedman's k-percent rule is one such recommendation that suggests that central banks should increase the money supply each year by a constant percentage, regardless of business cycles. With historical hindsight, however, these scholars are also aware that "a constant money supply growth rate might reduce the frequency of manias but is unlikely to consign them to the dustbins of history" (Kindleberger et al., 2005: 15).

We now have a theoretical framework with which to connect Keynes's historical observations on the scarcity of money and Marx's view on the paradox of monetary profit that manifests a shortage of money in circulation. This leads us to the role of financial institutions in a simultaneous creation of credit and debt because in the absence of a sufficient money supply, the surplus-value must be monetised through the expansion of credit, which creates more debt for borrowers/wage earners.

Credit and debt together generate an ever-growing and reproducible (repetitive) scarcity of money and, at the same time, more demand for money, which is then artificially created in

order to satisfy the desire of lenders/producers for a surplus in the form of profit. For this reason, the demand for money in such an economic system is permanently greater than the supply of money. In other words, there is a continuous shortage of money in circulation that should be satisfied. This situation makes money scarce and more expensive,[87] even in the absence of any exogenous shock (such as war, introducing new technology, population growth, which exacerbates the demand for money even further). Through this scarcity, money acquires more weight and becomes much more influential compared to other factors of production and other assets in the financial market, especially in times of rising uncertainty. Accumulating more money in the form of profit, dividends, hard work, etc. drives the whole economy and all its component units into extreme competition on a national and international scale. The history of mercantilism is full of these types of competitions, even in the form of a military or economic war, in order to get "absolute advantageous" in the competition, both on the national and the international scale.

Intense competition for greater accumulation forces profit-seeking units to continuously expand themselves and find the means to boost their monopoly power in every possible direction. Economic agents/units who want to remain idle without new investments and/or technological innovation cannot survive, and sooner or later must either leave the market or accept more debt. This holds true for both producers and consumers. The building industry is a good example. Construction companies borrow money from banks and go into debt to produce houses. They will be able to sell their new-built houses only if households acquire new debt.[88] The entire system relies on the services provided by the ever-growing creditors, who become "too big to fail".

Another possible way to survive is by acquiring a monopoly power, but this possibility is not available for all economic agents and in many cases is only accessible via political approval.

[87] Keynes (1936: 218) accusing the classical schools of a lack of understanding states that "the rate of interest is not self-adjusting at a level best suited to the social advantage but constantly tends to rise too high, so that a wise government is concerned to curb it by statute and custom and even by invoking the sanctions of the moral law".

[88] According to ONS, in 1992 (Q2), the average house price for first-time buyers was £47,000, while the average recorded income of borrowers in that year was £18,000, that is 2.61 times higher than their yearly income. These figures in 2019 (Q2) are £216,000 and £48,000 respectively, that is 4.5 times higher than their yearly income. (see https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/housepriceindexmonthlyquarterlytables1to19 [Last access 19/04/2020]

For other economic agents, the only ways to survive are by achieving permanent growth through massive investment in R&D and/or in new technologies, by constantly reducing all forms of extra cost (e.g., renting instead of buying or exploiting labour at low wages), by regularly reducing the risk of losing market share to other competitors, and by continuously searching for new markets (intense marketing).

On the supply side, in a situation of extreme competition, financial institutions cannot ignore such a demand for credit. Without new credit, the demand for money will be too high, putting pressure on the interest rate to rise until government feels the pressure and is persuaded to reduce the level of regulations thereby allowing financial institutions to have more space for credit expansion until inevitably an economic and financial crisis hits the economy. Therefore, a heavily regulated system cannot be maintained for a long period because the shortage of money in circulation forces policymakers to step back and follow deregulation policies. The history of banking regulations in capitalist economies is full of periods of tightening and relaxing regulations and it "is best characterized by the swinging of a pendulum, oscillating between the two opposing poles of greater and lesser regulation" (see Johnston, 2019).

In a deregulated system even risky borrowers are a source of monetary surplus, and banks are reluctant to check the creditworthiness of their borrowers because they are in intense competition with other lenders. Moreover, they do not share the losses of their borrowers because they are protected by collaterals and the government-supported financial safety net.

In an economy with a slow rate of financialisation, profit can mainly be made through activities in the real sector, i.e., through the production of goods and non-financial services. Uncertainty about the rate of return and the risk of investment in the real sector is relatively lower than in the financial sector. Unsatisfied demand in the real part of the economy is large enough that the future flow of income is guaranteed and lenders, such as banks, angel investors, and venture capitalist firms, are happy to offer good lending terms and conditions. The rate of profit in most investment projects is higher than the rate of interest, and the opportunity cost of keeping capital idle is high. Thus, capital is abundant and investment projects and new technologies can be financed easily at a low cost. But at the same time, although all aspects of the economy seem promising, the usury-based and rent-seeking system perpetually works its way in by producing and accumulating more debt and by creating a shortage of money in circulation. This shortage can only be cleared for part of the economy at the cost of more debt for the other parts, through the expansion of credit as was discussed in connection with the construction industry. But at

the same time, although all aspects of the economy seem promising, the usury-based and rent-seeking system perpetually works its way in by producing and accumulating more debt and by creating a shortage of money in circulation. This shortage can only be cleared for part of the economy at the cost of more debt for other parts: as businesses grow, so debt accumulation grows and more debt accumulation will be required across the system as a whole, due to the shortage of money, as outlined above.

During the debt-accumulation process, demand for money (liquidity preference) goes up, money gets more weight, prices go up (not just to make more profit but also to reduce further borrowing in the future), and the cost of borrowing increases uncorrelated to the official rate imposed by the central banks. It reaches a point that borrowing becomes too costly, both for producers and consumers.[89] With the higher cost of borrowing, only those companies with monopoly power in the market and the ability to transfer the price rise to their customers or those who are desperate enough (companies or individuals) to accept higher risks are ready to accept the higher rates. This is similar to the Ponzi finance in Minsky's (1986) theory. The continuation of this process has huge risks for the real part of the economy. Households are tightly constrained and must work harder due to their debt obligations, which lowers the efficient demand.

On the other hand, investments are now much riskier as the profit margins are narrower in a competitive world, so with this level of uncertainty, there is no guarantee they will be realised. Therefore, there is less incentive for investors to expand their investment projects. This is similar to the situation Marx explained in *Capital*, Volume 2 as the tendency of the rate of profit to fall in the capitalist economy. This makes investors seek alternative ways to make a profit. According to the French historian Fernand Braudel (1982), one of the key elements that should be considered when looking at the whole history of capitalism is that capitalists do not remain under any restriction and are under no obligation to follow any specific specialisation when it comes to profitability. They enjoy their "flexibility" and their "freedom of choice" by

[89] According to the Office of National Statistics (ONS), the average house price to earnings ratio in England and Wales has changed from 5.05 in 2002 to 7.85 in 2018.
[see https://www.ons.gov.uk/peoplepopulationandcommunity/housing/datasets/ratioofhousepricetoresidencebasedearningslowerquartileandmedian , last access 10/08/2019].

investing in any profitable project and it does not need to be in line with national or even international priorities.

The lack of incentives to investing in the real part of the economy becomes more problematic when ownership is separated from management. For large corporations, managers (agents) have a contract for a fixed term and during this term, they need to show their managerial skills to satisfy the shareholders' (owners') expectations about the distributed profit. By increasing the cost of borrowing the present value of future returns becomes lower. Uncertainty on the demand side also increases as a result of the growth in the household liquidity preference and their inability to increase their shares in income distribution such that keeping their socio-economic class requires them to go into "debt peonage".[90]

Under such conditions, corporate managers, who usually have a short term of responsibility in corporations, prefer to extend their managerial positions (or benefit from holding the position) by extending and focusing more on financial activities than project investment activities. This includes finding strategies to increase the stock price of the corporation and increasing the dividend for the shareholders through the stock market activities, mostly by debt leveraging or deploying a buy-back strategy, (see Stockhammer, 2012). For example, to keep the company's attractiveness in the eyes of money holders (shareholders and lenders), many firms, even blue-chip companies which normally have strong balance sheets, use the stock buy-back strategy to increase the value of their companies in the financial market and to make their balance sheets look healthier and stronger to encourage shareholders and lenders to keep and use their money in the company, (see Bagwell et al., 1989; Desjardins, 2019)[91].

Therefore, one of the points of departure from investment in the real sector is when capital becomes scarce and more expensive since this makes all long-term investment decisions less

[90] The term is borrowed from Hudson (2015: 29): "Trying to rise into the middle class these days is a road to debt peonage. It involves taking on mortgage debt to buy a home of one's own, student loans to get the education needed to get a good job, an automobile loan to drive to work, and credit-card debt just to maintain one's living standards as the debtor falls deeper and deeper in the hole. … That is why consumer spending has not risen since 2008. … That is what debt deflation means". There is also a technical term, "debt bondage", which is used by the UN to describe a modern version of slavery to clear debt.

[91] The idea behind the buyback strategy is to increase the share value of a firm through financial activities instead of investing in new projects or increasing real assets. Firms that follow this strategy can improve some financial ratios (such as returns on equity and returns on assets) by reducing the asset and equity side of their balance sheet, which are considered positive improvements by financial markets.

profitable and less justifiable. The shortage of money in circulation and the expansion of credit/debt as a temporary practical solution is the beginning of a financialisation process that eventually leads an economy to "a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production" (Krippner, 2005: 174). This means that in a financialised economy the transformation happens automatically from M-C-M' to M-M'.

This is consistent with Lapavitsas's (2011, 2013) evidence for the participation of large non-financial corporations and households in financial activities as part of the financialisation process. This is also consistent with Keynes's view on the reduction of inducements for investment when the economic agents working in the productive side of the economy find no better way to save the value of their assets or make a profit than to be actively involved in the world of finance. This sometimes offers them risk-less or low-risk returns from lending or speculating, which, in turn, increases unproductive investment in the existing assets instead of in productive projects. The expansion of the rent-seeking or speculative activities in a financial market should be seen as a warning sign that the financial sector is becoming more detached from the real sector.

To sum up, in a profit-led monetary production economy, there is a permanent shortage of money in circulation due to the presence of the paradox of monetary profit. Expansion of credit by banks or other private financial institutions works as a practical remedy and covers this shortage, at the cost of debt accumulation for the borrowing sectors. The amount of debt is always greater than the amount of initial credit, so, in a system where credit is the main source of money in circulation, more credit is needed to redeem the initial debt which in turn, creates another cycle of debt. This synergetic credit-debt reproduction mechanism maintains the situation in which the demand for money/credit is constantly above the supply of money/credit, even in the absence of other sources of the demand for money such as population growth, new investment projects, technological advancement or economic shocks.

Through such a mechanism, money/credit gradually gains more weight, status, and value in the economy and it becomes a more influential and dominant variable in both investing and financing decisions, compared to other factors of production. This process also makes the financial institutions bigger in terms of the size and importance of their activities as a result of holding monopoly power in lending in an environment with perpetually growing demand for money. The scale of the increase in the activities of financial institutions is one aspect of

financialisation, but other features such as debt accumulation, a stagnant or falling rate of profit in the real sector, an increase in the financial activities of households and non-financial corporations are other aspects of financialisation that can be explained by the increase in the weight, importance and value of money in the economy. As mentioned before, when the rate of profit in the real sector is falling due to a) debt accumulation on both the demand and supply sides of the economy, b) demand deficiency as the result of the unsustainable surplus-value distribution, 3) rising uncertainty and 4) lack of technological progress to absorb the surplus-value, money (as the most liquid form of capital) can mostly be seen as a factor of speculation rather than a factor of production.

In other words, the credit-debt reproduction mechanism not only shows how debt is accumulated in all the borrowing sectors, but also reveals the hidden process by which the realised and expected profit margins in the production sector gradually get narrower and eventually push the whole system towards financial activities (rather than investing in the production sector) as an alternative way of making a profit. On the demand side of the economy, the accumulation of debt in the household sector gradually decreases the demand for goods and services, which creates more uncertainty for the production sector, while the rate of profit in the real sector tends to fall. This is the same process observed in Spain and the Netherlands in the 16th and 18th centuries that brought down these two economic superpowers of the time, (see Braudel, 1979; Phillips, 2006). The speed of this process will be more intense by many important factors, including:

1) the lack of technological advancement. Any innovation or technological progress opens new opportunities in investment and a new window to make a profit by move into a new market (e.g. space travel, flexible smartphones, 5G networks, self-driving cars) that are yet to be challenged by other general competitors.
2) the severe competition in the real market (production of goods and services) that makes the margin of profit in this market even narrower for small and medium-sized companies unless there is a way to get bigger and have some form of monopoly power (e.g. Amazon, Facebook, pharmaceutical companies, etc.).
3) the separation of ownership and management in which making profit through production and long-term investment (especially with the rise of uncertainty) will be secondary to the short-term satisfaction of shareholders by making profit through financial channels, specifically when deregulation policies make it easier for specific financial activities, such as buy-back policies or investing in hedge funds.

5.6. Summary

In this chapter, the heterodox origin of the term financialisation was discussed and in a critical analysis it was explained why this term does not appear in orthodox literature and how mainstream scholars still try to confine it to what they call instead "financial development".

Next, two broad approaches to financialisation in the heterodox literature were reviewed. In the first approach, financialisation is interpreted as a new phase/stage of the capitalist economy, beginning in the late 1970s, and was accompanied by 1) neoliberal policies to reduce the role of government and deregulate financial systems around the globe, giving more roles to market forces for the allocation of resources, and 2) globalisation and allowing unrestricted capital movement beyond national territories.

In the second approach, financialisation is interpreted in its historical context as an intensified and speeded-up accumulation process. The followers of this approach try to find a pattern of financialisation in the history of capitalism. Therefore, from their point of view, financialisation is a recurring sequence of events that has happened already in Spain, The Netherlands, the UK, and now in the US. In this view, financialisation is the last stage of a capitalist economy and is caused by the nature of the capital accumulation process in which competitive capitalism changes into monopoly capitalism.

This study has followed the second approach but has tried to provide a new account that allows some of the elements in the first approach to be included. According to this study, financialisation in capitalist economies is neither a disconnected part of capitalist evolution nor a process that began only in the late 1970s. This should be seen as the final stage in the dynamic of all capitalist economies. As Fernand Braudel (1979 [1984], Vol. 3: 246) said:

> Was this burst of financial activity an aberration as some historians, taking a moral tone, have suggested? Was it not rather a normal development? Already in the latter part of the sixteenth century, another period when capital was superabundant, the Genoese had followed the same itinerary, as the *nobili vecchi*, the official lenders to the king of Spain gradually withdrew from commercial activity. It looks very much as if Amsterdam, repeating this process, dropped the bird in hand to go chasing shadows, abandoning the money-spinning entrepot trade for a life of speculation and

> rentierdom, and leaving all the best cards to London — even financing her rival's rise. But then, did Amsterdam really have any choice? Indeed had the rich Italians of the sixteenth century had any choice? Was there even the remotest chance of stopping the rise of the North? At all events, every capitalist development of this order seems, by reaching the stage of financial expansion, to have in some sense announced its maturity: it was a sign of autumn.

All capitalist economies based on rent/profit-seeking reach this stage because financialisation is a gradual capital accumulation process, by which capital owners can increase their share of profit, and extend their dominance on the distribution of income, over other factors of production, through debt creation and the interest rate mechanism. This expansion of debt continues until there is no further room for it in the real part of the economy.

In the absence of continuous growth in the money supply, the expansion of credit by the same financial institutions that have created the debt in the first place leads to a greater shortage of money in circulation, and this vicious circle continues until the debt is unbearable and cannot be circulated in the system. The dynamic of this credit-debt reproduction mechanism increases the role and weight of capital in the whole economy, and it impacts the decisions of all agents (investors, producers, households, and government) with regard to investment, production, consumption, and taxation.[92] By increasing the role and the weight of capital in the economy, the tendency towards making a profit without investment and production becomes prevalent as profit can be made much more easily through financial channels, where the risk is justifiable compared to the uncertainty of making a profit through long-term investment, when there are fewer profitable opportunities (as the rate of profit is generally falling and competition brings the profit margins down) and incentives for new investment are low.

[92] The idea of "tax cuts for rich people encouraging them to invest more" comes from the fact that capital is the most important factor of production, compared to labour, land, technology, etc.

Chapter 6: Concluding Remarks

This study started with a big ambition and, at the same time, some simple questions: Why economic and financial crises do happen in capitalism frequently? And why economists are so ineffective in predicting them? After the economic and financial crisis of 2007-2008, the validity of economics and its models have been under harsh criticisms. Many economists started to re-examine what they used to consider solid knowledge, fundamental models, and unbreakable theories. Many economists soon realised that they could not get anything useful out of these models and theories to analyse the crisis. Richard Posner in his university's weblog in 2009 correctly said: "We have learned since September [2008] that the present generation of economists has not figured out how the economy works". (see the link in the first footnote)

Anti-capitalist political movements found an opportunity to express their views louder after the crisis. Many socio-political movements such as Occupy Wall Street, and later Occupy Movement, started their rallies when people realised that the very same policies that were protecting big financial institutions during the crisis with the justification that they are "too big to fail", prescribed very strict austerity policies against public institutions not much long after the bailouts. From people's point of view, the policy of bailing out the wealthy 1% and imposing austerity measures against the 99% was evident that income and wealth inequality is in the nature of the dominant system which is run and orchestrated by greed, under the influence of the financial institutions and the multinational corporations.

If self-interest or greed should be blamed for the power and the size of these "too big" institutions the solution must be state intervention through imposing tougher rules and regulations on their lending and activities. In the case of financial institutions, what governments only need to know is the optimal size of a debt that is created by these institutions in the economy. Following this line of thought, the initial attempt of this paper was to find an optimal size for the financial sector which must be proportionate to the size of the real sector. But further research made it evident that even tough rules and regulations could not be imposed for a long period and they had to be replaced by much laxer alternatives not far from their initial imposition.

It is simple to put all the blames on "self-interest" as the root of all economic disorders in capitalism but greed, despite being philosophically legitimised in the monetary production economy (most notably in the era of mercantilism and capitalism together), did not emerge just in capitalism and it can be traced back in the history of mankind. A historical search in finding a pattern among different crises left no doubt that the accumulation process is the main common

problem and the major factor which separates capitalism and mercantilism from other economic systems. So, the size of the financial sector (or generally, financial activities) should not be considered as the cause but the effect of such process which has worked for centuries since the genesis of the monetary production economy. This means that as long as the process of capital accumulation does not change, the dominative power and size expansion of finance over production will continue. Even if the optimal size can be found (or reached) it will not be possible to be maintained.

Search for the components of this accumulation process shed light on the role of the interest rate mechanism. Knowing that interest rate has a much earlier recorded history than money, an important question started to emerge: if the interest rate is the core variable in the accumulation process, has there been any record of economic crisis prior to the genesis of the monetary production economy? The first part of Chapter two is designed to answer this question. In this chapter, we discover that the interest rate was a problematic economic variable even before the prevalence of money in the daily life of people. It has been found that even the main religions were against the practice of usury for profit and it seems this socio-political character of religions has been faded away specifically after the enlightenment period in Europe when the demand for money was much higher than its supply.

Going through the history of money also reveals that mainstream account of the formation of the monetary system is not accurate and the alternative heterodox theory, in which loans create deposits (and not the other way around) is more relevant. This implies that the majority of money in circulation in capitalism is credit and not high-powered money. This, in turn, sheds light on the level of debt accumulation and the gradual departure of the capitalist system from production-based towards a finance-based system.

In Chapter 3, two important contributions of this study were discussed. First was the concept of the "credit-debt reproduction mechanism" in a usury-based monetary production economy and the second was the "shortage of money in circulation" as the manifestation of the paradox of monetary profit. These two concepts are very interconnected and the latter is caused by the former. The "credit-debt reproduction mechanism" tries to explain why the monetary form of capital accumulation process in the financial side of the economy is growing much faster than the real side of the economy and how this mechanism works in favour of capital owners. By issuing credit, debt is also created and as the level of debt is above the received credit, shortage of money in circulation is inevitable. Some practical examples were applied to show the extent

of the shortage of money in circulation when credit is the main source of money supply in the system. It was explained how credit reproduces itself through debt expansion and create a situation in which demand is always above supply for money. The idea of scarcity of money in mercantilism that Keynes addressed in his *General Theory*, is a similar concept but it is extended to cover the longer period than mercantilism.

The shortage of money in circulation, in fact, is the main characteristic of all monetary production economies in which money is used in the expectation of more money in future. The chain of the monetary circulation starts through production (M-C-M'). This chain refers to the early period of the capitalist economy in which production is more profitable than finance, so, according to Kari Polanyi Levitt (2018: 550)[93] it was the time of the "predominance of production over finance". But with the decline of profit due to a) a gradual increase of the weight and cost of money in all investment projects and b) the increase in the level of competition, monetary funds will eventually move to the financial channels in which more profit can be made through lending and speculation rather than production (M-M').

Another contribution of Chapter 3 is the analysis of different theories expressed by Circuitists and Post-Keynesians with regards to their claims of finding a solution to the paradox of monetary profit. This study shows that their solutions are not theoretical but practical solutions that do not go beyond the initial Marx's solution as the disseminator of the paradox. In Marx's solution, the paradox can be solved when extra/fresh money is injected into the circulation either from the capitalists' pockets or from bank credit, otherwise, profit cannot be realised. The theoretical solution is the one that shows profit can be realised by the initial money that has been thrown into the circulation.

To show that the shortage of money (or the paradox of monetary profit as its theoretical base) is not just a hypothetical claim, many mathematical models, under different scenarios, have been designed in Chapter 4 to identify the existence of the shortage using the flow of funds between the main sectors of the economy. The combination of mathematical models with the social accounting matrix and the techniques used to show the shortage of money in circulation is the unique contribution of this chapter. Various scenarios were employed and, in all scenarios, except one of them, the shortage was identified. In the last model, however, with the

[93] From the interview of Andrew M. Fisher with Kari Polanyi Levitt in February 2018, available at https://onlinelibrary.wiley.com/doi/full/10.1111/dech.12480 [accessed 25/09/2020]

presence of various sectors, including the government sector, when the lump-sum tax policy changes to a tax on the sector's net profit, the shortage will be solved which means if the government acts as the main distributor of income and transfers money from those sectors with the surplus to those with the shortage, there will be no need for an extra injection of credit/money into the system. Finding this theoretical solution is another main contribution of this research.

After establishing the fact that the shortage of money in circulation is a real challenge in a monetary production economy, it is shown that the expansion of credit works as a practical and temporary remedy that covers this shortage at the cost of debt accumulation in favour of financial institutions. The job of Chapter 5 was to provide a link between the shortage of money in circulation and the process of financialisation. This is the most important contribution of this study as it sets a new theory and opens a new window into the process of financialisation.

The other two major theories were discussed and analysed at the beginning of the fifth chapter. Despite many modern interpretations of financialisation that try to connect financialisation to neoliberal policies and the trend of globalisation, this study tries to claim that financialisation as a gradual process starts with the birth of the monetary production economy. But some economies, depending on the extent of the shortage of money — created by the usury- or any profit-based activities— are moving much faster than others towards the final stage of financialisation in which finance is totally dominant on production and more profits can be made through lending and investment. It is similar to the process of ageing that starts with the birth of a child but some people age faster than others.

The objective of this theoretical study was to find the roots of instabilities in capitalism. The author cannot claim that this massive objective has been fully achieved as various factors work together to bring instability into a sophisticated system such as capitalism but it may be fair to say that this research has provided a new perspective and a new account for that purpose. There are still many unpaved roads and many open questions that still need to be addressed. For example, the mechanism by which economic and financial crises can be explained through the theoretical link between the paradox of monetary profit and financialisation. This will be the subject for future research as the time limit and the scope of this study did not allow the author to go further.

This study, similar to the majority of studies has specific limitations. One of the most important limitations goes back to the methodological constraint. To trace the shortage of money in some

sectors through a combination of mathematical models with social accounting matrix (SAM), the models must be simple and general with the minimum number of transactions between each sector. This is vital for the solvability of the model as any attempt to include extra details (such as inserting different interest rates, bond rates etc.) can convert the model to a very complicated mathematical system of inequalities with no specific technique for their solutions. The mathematical techniques that have been employed in this study to trace the shortage of money are complex enough for non-technical readers.

Another limitation of this research is its pertinence to the current issues in a specific economy. The theoretical nature of this study cannot be considered as its deficiency but it makes it very hard to derive any policy recommendation for the current issues in an economy. Instead, it provides a perspective for the economy's direction. This is one of the major traps for all theoretical discussion if people expect to derive a practical policy out of a theoretical discussion. For example, what should be the tax rate to avoid any shortage of money in circulation? or how the models in Chapter 4 can be used to trace the shortage of money in circulation in a specific economy? This study, by its nature, is not suitable for such questions and we need to use a very different practical approach to answer these questions.

A step forward in this research, as it was discussed before, will be linking the shortage of money in circulation and economic and financial crises. This is another most important objective that is going to be done in near future.

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