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EFFECTIVE DEMAND: AN ANALYSIS FRAMEWORK**

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FINANCIALISATION OF NON-FINANCIAL CORPORATIONS AND EFFECTIVE DEMAND: AN ANALYSIS FRAMEWORK

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Abstract

Some recent contributions to economic literature have highlighted the role of corporate savings decisions by big corporations in devoting their profits to direct investment in capital goods, showing how this role is affected by the features of corporate governance and the forms of competition, but also by the possibilities of holding liquid financial assets bearing high returns. However, at the macroeconomic level, some of these analyses show a fallacy of composition in explaining the effects of financialisation on real aggregate investment.

The paper proposes an analytical framework in which the growing financialisation of big corporations, interacting with financial globalization, can play a major role in timing the rhythms of real investment in a part of the world economic system.

Moreover, the paper shows how the liquidity degree of the assets can also be a very important determinant in portfolio choices by corporations, in close connection with business fluctuations.

Keywords: Investment theory, Corporate Savings, Capital Movements, Financialisation, Financial Crises.

JEL Classification Codes: B510, E110, E120, E320, F230, G350.

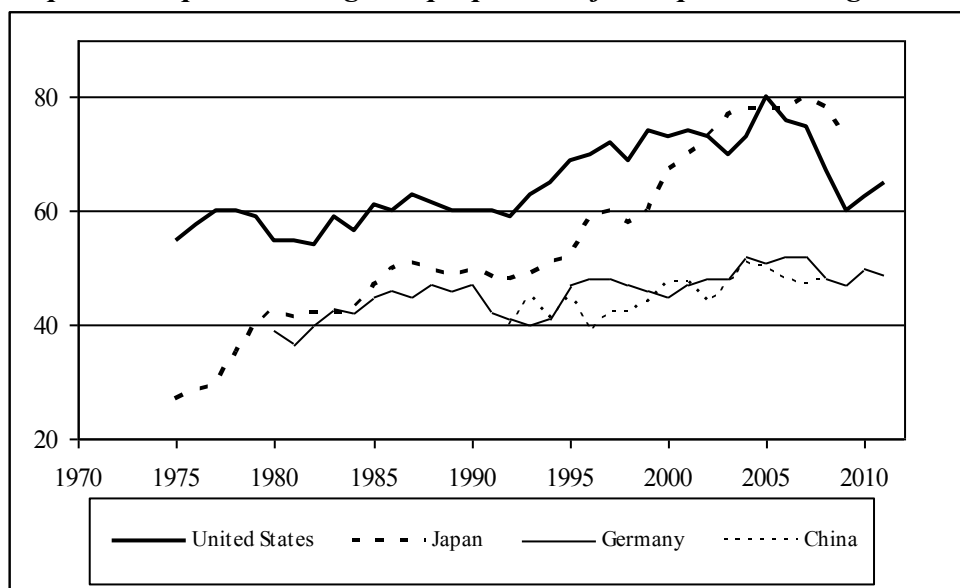
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1. Introduction

One of the main components of effective demand, if not its prime mover, is, as we all know, aggregate real investment, which ultimately depends on the share of social surplus devoted to capital accumulation. In capitalist economic systems, moreover, profits constitute the major part of social surplus on the income distribution side (Piketty, 2014).

Profits have traditionally been viewed as the most prominent source of potential investment in new capital goods (Allen, Gale, 2000), yet in 2010 the McKinsey Global Institute, in decomposing savings of the world economy in their three major institutional components (households, corporations and governments), further highlighted the growing importance of the corporate sector in the global supply of savings since the early 2000s. In fact, whilst household saving was declining in all the developed world, the corporate sector increased its share in total saving worldwide, raising its own saving rate. In the first decade of the 2000s, indeed, about 2/3 of the supply of capital in the developed economies was coming from the corporate sector (see Graph 1).

Graph 1 - Corporate saving as a proportion of total private saving



Source: Karabarbounis, Neiman (2014).

Thus, today the investment/profits ratio proves a key magnitude for economic growth and, given productivity trends, employment rates.

Unfortunately, in the past fifty years this key ratio has shown a declining trend in the most developed countries (Stockhammer, 2006). Since the late 1980s, however, the non-financial corporations of these countries, while reducing their accumulation of capital goods, have progressively increased their financial investment (Stockhammer, 2004a).

Moreover, some surprising empirical evidence, at least in the context of current mainstream economic theory, appears to lie in a growing *corporate savings glut* and an unprecedented *corporate liquidity holding* (Scarano, 2015).

In 2005, the Economist argued that the saving glut, highlighted by Bernanke successively to the financial crisis of 2007-2008, was in fact largely generated by an excess of corporate savings, i.e. the difference between undistributed profits and capital spending, which paradoxically turned into “net lending” by the corporate sector (The Economist, 2005).

The corporate saving glut before the financial crisis of 2007-2008 was also pointed out by many other research institutes and authors. JP Morgan (2005), for instance, noted that the increase in G6 corporate saving was about five times the aggregate external surplus of the emerging market economies (see Table 1).

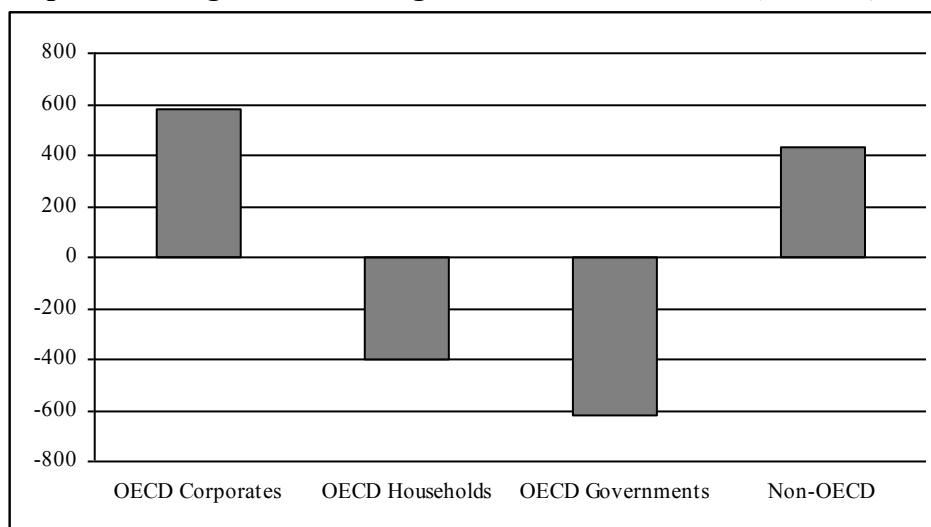
Table 1 - Changes in net saving (gross saving minus gross investment) (\$ billions)

	1996 - 2000	2000 - 2004
G6 countries	-371	-137
<i>Corporate</i>	-730	1091
<i>Household</i>	-323	-246
<i>Government</i>	681	-982
Emerging countries	217	208

Source: JP Morgan Research (2005).

In the same years, other economic analysts noted that the excess of gross saving over fixed investment in the OECD corporate sector over the period 2001-2005 was actually unusually large compared with the previous historical trends of the major economies, driving the run-up in net lending phenomena by corporations and having a major effect in driving the decrease in global interest rates. Moreover, although around two thirds of the increase in undistributed profits was generated by the financial sector (JP Morgan Research, 2005), the major role in net lending was played by the non-financial sector (OECD, 2007; André et al., 2007). But above all, these new trends were producing an apparently unnatural economic result, the corporations becoming *net lenders* while the households were becoming net borrowers (see Graph 2).

Graph 2 - Change in net lending between 2001 and 2005 (\$ billion)



Source: OECD (2007).

Thus, in the light of this unexpected empirical evidence, it becomes important to understand whether there is a connection between decreasing real investment and growing financialisation by non-financial corporations. Yet unfortunately investigation into this potential connection is made very difficult by the present weakness of investment theory (Scarano, 2019).

In fact, even though trends over time and volatility of aggregate investment in fixed capital should be central to understanding aggregate fluctuations in economic activities, investment theory has been traditionally weak on these matters. Moreover, in the early 1960s Jorgenson had already noted there was a great gap between economic theory and econometric practice in the literature on business investment in fixed capital (Jorgenson, 1963). Econometric models, indeed, are often a simply attempt to find empirical correlations between aggregate investment and other economic variables, sometimes without any rigor in the underlying theoretical foundations.

Obviously, as physics shows, mass phenomena can usually reveal rules of aggregate functioning that cannot be easily reduced to atomistic behaviours. However, physicists can discover these rules with empirical experiments in the lab. Unfortunately, things in economics are more complex, because economic phenomena cannot be reproduced in labs and empirical rules can be discovered only by measuring ex-post statistical correlations, which may often be interpreted in various ways and by means of different causal relationships. Moreover, some variables, like interest rates and investment decisions, can act on each other through different transmission mechanisms, producing contradictory net effects.

Economists have long been trying to explain the aggregate investment demand empirically simply by using scale variables. The most famous attempt of this kind, of course, is the *accelerator model* by Clark (1917), built on the basis of the relation existing between the first differences of a simple fixed coefficient inverse production function. However, despite the empirical success of this model, since the late 1960s there have been many attempts to introduce the cost of capital as explanatory variable in

econometric models specified starting from the optimisation problem of a perfectly competitive firm (Hall, Jorgenson, 1967). In this way, interest rate has traditionally assumed a major role in explaining the level of investment decisions, because in neoclassical models in which the investment decision is the direct consequence of the entrepreneurs' choice of techniques the interest rate is simply the price of utilising capital. Thus, its changes determine changes in the optimal technique chosen. If the interest rate goes down, then the choice moves towards more capital-intensive techniques, increasing the stock of capital desired and creating investment demand.

Meanwhile, other economists highlighted the predominance of liquidity variables over the interest rate for short-run investment, introducing elements of portfolio choices into the investment theory (Tinbergen, 1939; Meyer, Kuh, 1957). Subsequently, according to the Tobin approach, investment has been recognised as an increasing function of q , the ratio of the financial value of the firm to the market cost of its capital goods, which is, in fact, closely connected to the companies' rate of profit (Brainard, Tobin, 1968; Tobin, 1969; Hayashi, 1982; Caballero, 1999).

Yet very few models highlight the fact that investment in capital goods depends mainly on corporate savings decisions, which are closely connected to the features of corporate governance and the forms of competition, and strategic competitive behaviours. In most advanced economies, in fact, retained earnings constitute the dominant source of finance (Mayer, 1988; Godley, Shaikh, 2002; Tirole, 2006; Shaikh, 2012; Shaikh, 2016). Thus, even though the interest rate, in itself, can play a minor role in determining real investment (Haavelmo, 1960), the term structure of interest rates could be very important in determining portfolio choices, and then the alternative between financial and real investments, in non-financial corporations behaving like financial investors.

Moreover, most models of investment decisions utilised in macroeconomic models, both neoclassical and heterodox, take free or perfect competition as explicit or implicit assumption, under which firms are aware they cannot modify their decision-making parameters. In this way real investment, as accumulation of capital, is viewed as a passive behaviour, led both by changes in technology and consumption preferences, as well as the relative availability of production factors in neoclassical models, or by changes in distributive variables and exogenous aggregate demand in neo-Ricardian, Keynesian and post-Keynesian models (Crotty, 1992; Bonifati, 2016).

However, the oligopolistic structure of most real markets leads to corporate strategic behaviours that can produce very different results. Strategic decisions, connected with agency problems, can indeed play a major role in producing financialisation and timing the rhythms of real investment.

Under oligopolistic competition hypothesis, in fact, firms could be following strategic behaviours aiming to gain key positions in the market for successive competition battles, such as a growing share of the total supply in specific production sectors. Thus, in accordance with the empirical analyses of *managerial capitalism* (Chandler, 1977), which sees salaried managers running giant corporations, the pursuit of growth has long been regarded as the major aim of firms (Stockhammer, 2004b). Thanks to asymmetry in information, in fact, management had the upper hand (Lavoie, 1992), and the pursuit of growth improved real investment.

In this institutional context, firms could forgo present normal profit for greater expected future extra-profit, based on greater monopoly power. Therefore, these kinds of strategic behaviour, insofar as they are founded on information asymmetry, could increase aggregate real investment as compared with equilibrium saving decisions based on pure market information, producing disequilibria in the financial markets and pressures on interest rates, as was probably the case in Europe during the 1960s (Lamfalussy, 1968).

Such strategies, however, depends on managers' degrees of freedom, which depend, in turn, on the current institutional settings and corporate governance rules. The institutional settings that enabled them in the past were, in fact, historically specific to the *Fordist accumulation regime* which characterised the so-called *Golden Age* between the end of World War II and the early 70s. And they were largely the direct consequence of the institutional arrangements that followed the crisis of 1929. In the 1930s, indeed, governments over the world, on the basis of the experience of the dynamics that led to the financial crisis, severely limited the influence of financial capital, ending up by reinforcing the role of corporate management.

In the *Post-Fordist accumulation regime*, or *neo-liberal era* if you prefer, thanks to the massive deregulation process in financial markets, the old group of financial capitalists have been emerging once again, assuming a crucial position in financing mergers and organising hostile takeovers to discipline managers, and thereby forcing them to follow their interests and objectives.

Yet financial investors usually have a shorter time horizon than traditional corporations and banks (Stockhammer, 2004b). They are interested in short-run returns and therefore tend to underinvest in long-run projects, changing the growth strategies of the controlled corporations.

The change in investment/profit rate can therefore be the direct consequence of changes in institutional settings and corporate governance rules.

In the following pages, the paper deals with some contributions, both mainstream and heterodox, that analyse the effects of the changes in corporate governance and strategic behaviours on portfolio management and investment decisions in big corporations, seeking to determine how these effects might play a major role in producing growing liquidity holdings and financialisation, and how they can be influenced by the new opportunities created by free movements of capital and the economic dynamics of the emerging countries. Finally, a conceptual scheme for interpretation and a mathematical model will be proposed to explain how the tendency in developed countries to place growing shares of social surplus in speculative financial channels can contribute to their long-term real stagnation.

2. The effects of the changes in corporate governance on investment choices

If corporate managers act as financial investors, then the term structure of interest rates could play a major role in determining investment in capital goods as a share of companies' portfolios. This idea is obviously nothing new. Capital goods, for example, were dealt with as a component of the corporate portfolio by Foley and Sidrauski in

1970 to model their demand in the context of a general equilibrium scheme (Foley, Sidrauski, 1970).

Under this hypothesis, the way managers make their portfolio choices becomes crucial and is closely connected to corporate governance problems.

Since the appearance of the book by Berle and Means (1932), the separation of ownership and control and the substantial managerial discretionary powers have constituted a path-breaking issue in the debate on corporate decision-making (Tirole, 2006, p. 15).

Severe agency problems can impair corporate performance in both public companies, such as those operating in Anglo-Saxon countries, and companies with a controlling shareholder, such as those prevailing in European countries. Insiders can operate on the basis of criteria other than those of the fund providers, not necessarily against their long-run interests, but through strategic considerations that are not easy for the mass of outsiders to understand.

In any case, if firms are viewed as mere instruments operating in the interest of the equity owners, the agency problem needs the organisation structure of firms to be shaped to provide proper incentives for managers to act in the shareholders' interest. And corporate governance is usually defined as “ways in which the suppliers of finance to corporations assure themselves of getting a return on their investment.” (Shleifer, Vishny, 1997; Becht et al., 2002). The main problem, therefore, seems to be how corporations' insiders can attract external financial funds, committing themselves to paying back funds, with an adequate rate of return, to external investors.

In the usual description of the financing of firms, accountants and economists distinguish between debt and equity. However, on a closer look, debt and equity are only the two extremes of a long claim series on corporate income held by a number of different claimholders (Tirole, 2006). Common stockholders, of course, have voting rights in shareholders' meeting, by means of which they can exercise direct control over the board of directors. Most claimholders, however, can vote with their feet in financial markets, if the latter are sufficiently liquid.

However, who holds the claims definitely matters. The corporate governance way of functioning depends on whether equity is held by “insiders” (managers or entrepreneurs) or by “outsiders”, on the shareholding concentration and the nature and dimension of the claimholders.

In any case, an agency conflict can arise whenever managers have different objectives from their shareholders. Of course, there are many ways in which managers may not act in the shareholders' best interest, but they are all gathered by mainstream economists under the label “moral hazard” (Tirole, 2006, p. 16). One of these ways, in particular, is defined by Tirole “extravagant investments”, which could sometimes be only strategic moves over a horizon longer than that of financial investors, who are often victims of the short-sighted view of the discount rate.

In the first three post-war decades, the role of shareholders in corporations was severely limited by heavily restrictive financial regulation and capital flows control, which were the political reactions to the financial and real crisis of the 1930s.

In the 1950s and 1960s, according to Baran and Sweezy (1966), giant corporations usually aimed at financial independence through retained earnings. They were able to borrow from financial institutions and markets, but were not normally forced to act so

and could avoid subjection to control by financial corporations and outside shareholders. In this kind of corporations, managers were a self-perpetuating group that identified itself with the corporation and its fate. The board of directors and the chief executive officers were “organization men” and the control rested securely in their hands. Their major objectives were the corporation market share and its strategic positions in the market.

However, this situation has been changing since the late 1970s, through the progressive erosion of financial regulation by means of the invention of new financial instruments, such as junk bonds and other high-risk and high-return securities. Moreover, up to 1982 the *Securities and Exchange Commission* (SEC) could counteract massive stock repurchases as illegal attempts to manipulate stock prices by the companies. Since the end of 1982, instead, during the deregulation onset of the neoliberal phase, the SEC has partially liberalised stock repurchases, provided that they be less than 25% of the average daily trading volume over the previous four weeks and the buybacks be carried out at neither the beginning nor the end of the trading day (Lazonick, 2013).

By means of this financial deregulation, the financial markets have progressively exerted increasing pressure on non-financial corporations (NFCs), by means of hostile takeovers first, and then with the “shareholder revolution”, characterised by a growing presence of institutional investors within their shareholding (Lowenstein, 2004; Orhangazi, 2008). French regulationists have been emphasising corporate governance since the 1970s, because the pursuit of “shareholder value” is closely associated with the short-termism of non-financial corporations (Boyer, 2000; Grahl Teague, 2000; Aglietta, 2000; Aglietta and Breton, 2001), and Lazonick and O’Sullivan (2000) have perceptively shown the connections between shareholder value and company downsizing throughout the neoliberal phase of capitalist development (Lapavistas, 2011).

According to Stockhammer, the “shareholder revolution” is one of the main features of the present neoliberal era, which has produced radical changes in corporate behaviour in the name of creating “shareholder value.” According to him, this revolution has been the consequence of the financial liberalization and the emergence of very liquid share markets in the 1980s and 1990s, together with the successive rise in shareholders’ capability to influence public company managers by means of the creation of “a market for corporate control”. The managements of large corporations, in fact, would have committed themselves to increasingly producing shareholder value because of the expanded possibilities for financial investors to use the capital market to estimate and compare performance of their corporations and to discipline them with the threat of hostile takeovers. In this new context, the managers of large corporations could easily be replaced by shareholders if corporate performance proved inadequate in creating value for them (Stockhammer, 2006).

Moreover, twenty years ago an important tendency was identified in the emergence of mutual and pension funds which held growing fractions of equity, increasing their ownership shares at the expense of cross-shareholdings between non-financial firms. These institutional investors allocated capital among industries and firms in a decidedly market-based way, imposing profitability norms on enterprises and looking to short-term profit. They exerted their power over the management with exit strategies, creating

difficulties for the firm to obtain new financing. Their arrival unleashed competition for global saving among companies. However, investment funds were set up by the banks, especially in Europe (Levine, 2003).

Thus, the threat of growing control by large financial intermediaries in public companies could be an incentive for managers to change their investment behaviours, increasingly orienting them towards short-term profit investment and discouraging “extravagant” or long-term strategic investments. This change is also supported by an incentives system for managers that closely connects their wages to the company stock prices, encouraging financial operations like share repurchasing by means of retained earnings, which would thus be subtracted from investment in new capital-goods and technologies.

However, this tendency to produce an increasing shareholder value could not only be the result of new forms of corporate governance and new financial intermediaries, but rather the traditional way to maximise the equity capital self-valorisation in a different competition environment and given new financial investment opportunities. This puts the emphasis on other transformations of the capitalist system in its neo-liberal phase, which have been in part gathered under the label of financialisation.

3. The rise of financialisation of non-financial corporations

Today the term financialization is usually used to refer to three different, even though interconnected, phenomena. The first is the reduction of reliance on bank loans by large non-financial corporations and their growing autonomous ability to raise funds in financial markets. The second is the expansion of banks’ mediating activities in financial markets and their tendency to lend mainly to households. The third is the increasing involvement of households in the financial markets, as both debtors and asset holders (Orhangazi, 2008; Lapavitsas, 2011).

Thus, at the macroeconomic level, financialisation in practice simply becomes synonymous with the expanding financial sector within the economic system. This expansion of financial markets in what we can define as *Post-Fordist* or *neo-liberal era*, however, has been mostly due to innovations in securitization and credit enhancement, which have favoured new trading strategies (Bodie et al., 2014).

Yet the concept can have a deeper and more interesting meaning at the firm level, where it can highlight the changes in the behaviours of the managers of non-financial corporations and their new relations with the financial markets.

An important part of the literature on the relation between financialization and investment draws on Keynesian and Minskian approaches, which emphasize the importance of financial factors in corporate investment (Eichner and Kregel, 1975; Minsky, 1986; Skott, 1989; Crotty, 1990, 1992; Lavoie, 2014; Davis, 2017). Financialization of non-financial corporations, however, is often referred to as the adoption of shareholder value orientation by their managers, associated to increasing investment in financial assets (Stochhammer, 2004a, 2004b).

In the last three decades, in fact, a new kind of phenomenon has been powerfully emerging. Mainly in the US, but also in continental Europe, non-financial corporations have been increasingly investing in financial assets and creating own financial

subsidiaries, deriving increasing shares of their income from this kind of pure financial activities (Stockhammer, 2004a; Orhangazi, 2008). In the same period, NFCs have increased transfers of earnings to the financial markets in the forms of interest payments, dividend payments and, mainly, stock buybacks. Thus, according to some analysts, these transformations are among the main results of the previously examined evolution in corporate governance, which have produced radical changes in the objectives of top managements, favouring an increasing propensity to substitute real investment with short-term financial investment in the process of corporate investment decision-making in order to promote the ‘pursuit of shareholder value’. In fact, according to Sawyer (2017), financialisation has changed the relations between the financial sector and the real sector precisely because the passing of ownership of non-financial corporations into the hands of financial corporations has itself, in turn, fuelled the pursuit of this objective. In pursuit of higher corporate performance, defined as meeting financial markets’ expectations for quarterly earnings per share, American companies have conducted great stock repurchases to increase their own corporations’ stock prices (Lazonick, 2013). In this way, trillions of dollars have been subtracted from innovation and job creation over more than three decades.

According to Stockhammer this phenomenon is an important factor in the slowdown of accumulation, not because investment in financial assets is necessarily in conflict with physical investment, but because it is a symptom of the changes in management strategies, closely connected with a change in the institutional setting of the firms. This aspect, therefore, could also be viewed as a symptom of the transition from the *Fordist* to the *post-Fordist* accumulation regime.

The *Fordist Golden Age*, as we saw, was characterised by ‘managerial capitalism’, with relatively autonomous management decision-making based on strategic behaviours, which in fact lead to a growth-oriented investment policy. Since the 1970s, shareholders have been progressively overwhelming by means of the development of a “market of corporate control” (hostile takeovers and so on) and changes in the pay schemes of managers.

According to Stockhammer, therefore, the discipline imposed on managers by the market of corporate control has led them to adopt or follow shareholders’ preferences, shifting management priorities from real investment for growth to profits. Thus, if in fact there is a trade-off between growth and profits on the firm level, then this will imply lower corporate real investment.

Thus, from this point of view, a financialized mode of corporate resource allocation could have been produced through the principle of maximizing shareholder value, and corporate executives have been incentivised in this direction by their stock-based compensation.

Financial control, however, has traditionally been viewed also as a particular organization controlling model by top managers (Fligstein,1990). Thus, the ‘pursuit of shareholder value’ could simply be the effect of traditional maximising self-valorisation of the capital of owners, also in companies with a controlling shareholding, who utilise mass-shareholders and their financial intermediaries as less-secured claimholders, with a minor final role played by the “shareholder revolution”.

In any case, a marked slowdown in accumulation was experienced by most OECD countries from the 1960s to the 1990s. The growth rates of non-residential business

capital stock, which is a measure of productive capacity of a country and is closely correlated with its GDP, reached their lowest points between the first half of the 1980s and the middle of the 1990s in most European countries and the United States. In the USA, the UK and Italy non-residential business capital accumulation saw a slight increase in the second half of the 1990s, but this was not the case in France and Germany (see Table 2).

Table 2 - Non-residential business capital accumulation rates

	France	Germany	Italy	UK	USA
1960–64		7.00	6.48		3.01
1965–69	4.80	6.57	4.70	1.98	4.74
1970–74	6.09	5.81	5.01	1.81	4.06
1975–79	4.37	3.93	3.85	1.58	3.70
1980–84	3.03	2.94	2.98	1.06	3.17
1985–89	3.68	2.99	3.11	2.52	2.59
1990–94	3.23	3.01	2.77	2.44	1.82
1995–99	2.77	1.69	3.03	3.12	3.66
2000–02	3.02	1.50	3.29	3.34	3.54
	France	Germany	Italy	UK	USA
1960–74	4.93	5.74	5.16	1.94	3.99
1975–84	3.70	3.50	3.45	1.35	3.48
1985–99	2.54	2.34	2.50	2.34	2.55

Source: Stockhammer (2004b).

As pointed out above, in the same period the non-financial corporations, while reducing their accumulation of capital goods, progressively increased their financial investment (Stockhammer, 2004a). Accumulation, while picking up again thereafter, never got back to the levels of the previous *Fordist period*, and non-financial corporations have continued to invest heavily in financial instruments (Stockhammer, 2004b).

However, the decreasing fixed capital formation rate in many countries, both developed and developing, has probably been the effect of growing uncertainty, risk and volatility on the real investment performance (Demir, 2009). Thus, the relation between fixed investment, uncertainty, increasing integration of international capital markets, the widening gap between real and financial sector transactions and corporate portfolio choice seems to be a very important factor. Successively to financial liberalization, in fact, NFCs have been facing portfolio choice problems in their investment decisions between fixed and financial assets and increasing availability of alternative financial investments can channel NFCs' retained earnings to short-term financial investments instead of long-term fixed capital formation, and thus contribute to deindustrialisation.

If companies are viewed as common financial investors, Tobin's portfolio choice theory points out the substitutability of real and financial assets also in their portfolios, depending on the respective rates of returns. Increasing risk and uncertainty, combined

with capital market imperfections, higher real interest rates and increasing rates of return in the financial markets, may encourage short-term financial investments over long-term real investments. In fact, according to Tornell (1990), an uncertain environment can usually encourage NFCs to invest in more liquid assets, which at the same time offer comparable or higher rates of return, at the expense of their real fixed assets.

In the first decade of the 2000s a growing part of the literature on financialisation focused on increasing rates of return on financial capital over those on fixed capital and at the same time increasing acquisition of short-term financial assets by NFCs in high-income OECD countries, providing empirical evidence of a structural change in their portfolio decisions (Stockhammer, 2004a; Crotty, 2005; Dumenil, Levy, 2005; Epstein, Jayadev, 2005). Other studies suggest that also NFCs in developing countries take into account alternative financial investment opportunities when making their decisions on physical investment (Demir, 2009). All these empirical works, moreover, have demonstrated that the increasing financial activity of NFCs has had a negative effect on their real investment (Stockhammer 2004, Orhangazi 2008, Demir 2009).

Thus, financialisation constitutes a radical change in corporate management behaviour that can produce major changes in investment demand for single firms. However, even though financial investment can be alternative to physical investment at the level of the single corporation, at the macroeconomic level the phenomenon shows a clear *fallacy of composition*. Indeed, financial investment only transfers liquidity from one agent to another one. Thus, it could transfer financial resources from firms with bad investment opportunities to others with better profitability prospects. From this point of view, it should have no macroeconomic effect, apart from increasing efficiency (Tobin, 1997).

There are only two possible macroeconomic effects, global and local. The former is substantially reducible to possible corporate hoarding or a speculative demand for money, closely connected to the phenomenon of corporate liquidity holding which we will discuss in the next section. The latter, instead, is closely connected to capital transfers between different countries as a consequence of capital movement deregulation, a new pattern of division of labour among countries and a relocation of material production to the developing countries, where labour is cheaper, as we will see in the following section. Be that as it may, in both cases the macroeconomic problem does not emerge from financialization in itself, but from its relations with other features of economic systems. You might say, in accordance with Itoh and Lapavistas (1999), that it is real accumulation that determines the parameters on which finance runs, even though the latter can cause counter-effects on the former.

4. The revenant liquidity holding

Hoarding money and very liquid assets by NFCs, as in Marx's theory of crisis (Scarano, 2018), could therefore be once again the first mover of decreasing aggregate investment that actually lies behind the multiform appearances of financialisation. And this phenomenon, of course, is closely connected to the role of money in business fluctuations.

The cash balance policy of enterprises was already attracting attention in the late 1920s, immediately before the Wall Street crash of 1929. At that time corporations utilised part of their previous accumulated cash balances to buy securities in the stock exchange market in order to profit from the high call loan rate. So they were accused of contributing to the boom on the stock exchange, but also of feeding the financial markets at the expense of the other markets (Scarano, 2016).

In the 1930s, corporate cash holdings were again an object of heated discussion because, according to some economists, corporations held "idle" cash (cash balances in excess of current operation needs), contributing to the stagnation of the economic system.

According to a seminal study by Lutz (1945), in the years of the Great Depression the ratio of cash plus marketable securities to payments rose sharply. This ratio diminished from 1933 to 1937, and then rose again in 1938, because of a new business contraction. According to Lutz, the ratio of cash plus marketable securities to payments showed a rise in periods of business contraction and a fall in periods of expansion, and the movement of these free liquid funds showed an inverse correlation with the profit rate of the large corporations.

Thus, according to him, in the 1930s the large manufacturing corporations held "free" liquid funds because they were hoarding money. The major reason for this was that the big corporations were largely independent of bank credit, so that their bank debts did not absorb the "surplus" cash originated through liquidation of inventories and receivables during the depression. This behaviour suggested that in a system in which companies are not largely indebted to the banks, business fluctuations may be reflected in a change in the velocity of circulation of firms' deposits.

According to Lutz, during the period of depression in the thirties, medium-sized and small corporations had a small increase in their cash holdings, because great losses and the retirement of bank debt absorbed the liquid funds that would otherwise have been accumulated. Thus in the thirties, "hoarding" was mainly a matter of large manufacturing corporations.

The corporations' cash balances were fed by partial liquidation of inventories and receivables and by the postponement of replacements for fixed equipment. Most of the additional cash was paid out mainly through distribution of dividends.

Coming back to the present, since 2002 the gross saving in the OECD corporations has, as we have seen, been progressively exceeding their fixed investment (OECD, 2007; André et al., 2007; Scarano, 2015). Only one third of this increase in undistributed profits was generated by the non-financial sector, but this sector contributed to the increase in corporate net lending more than the financial sector.

The large-scale expansion of corporate net lending in the non-financial sector has been interpreted as partly due to the cyclical downturn since 2001 (OECD, 2007). Some econometric works, in fact, suggest a significant influence of the business cycle on the corporate net lending between 2001 and 2005 (André et al, 2007).

However, the rise in net lending is the result of two different tendencies: falling corporate investment and increasing corporate saving share. The weakness in corporate investment, compared with GDP, can usually be largely the consequence of the business cycle, but other causes, more structural in nature and thus longer-lasting, have been

detected in the progressive decline of the relative price of capital goods, in lower depreciation rates, in lower growth trends and increasing net foreign investment abroad.

If growing corporate cash balances might seem relatively trivial after the financial crisis of 2007-2009, its beginning seven years before the crisis was a warning signal that, in 2012, led the 'Economist' to write about "hoard instinct" and "dead money" (The Economist, 2012).

Corporations usually utilise their gross savings for depreciation, new investment, acquisitions, paying off debts and share repurchases. The change in the cash balance should normally be just the residual after spending. However, they can also hold liquid balances for precautionary, speculative and transactional reasons. The precautionary motive obviously prevails when they fear unforeseen fluctuations.

After the financial crisis, companies were certainly keen to accumulate more substantial cash balances to face up to the credit crunch. But most of companies were waiting to invest and make acquisitions because of uncertainty following the crisis. The beginning of the phenomenon, as from the early 2000s, suggests that uncertainty in the non-financial sectors really came to dominate the global economic scene as from the burst of the 90s bubble.

In any case, corporations may wish to hold liquid assets for a variety of reasons. Some minimum of liquidity is needed to cover the possible day-to-day differences between receipts and expenditures and to smooth seasonal variations in cash inflows and outflows, without taking out bank loans. This kind of liquidity demand is very similar to the transaction demand for money.

Most corporations, moreover, can hold liquidity to meet the cumulative difference between net cash flow from operations and the sum of debt service and dividends during a depression. This kind of liquidity demand obviously plays the role of precautionary demand for money.

Yet if corporations behave like financial investors, also a speculative demand for money can in turn arise within them.

Thus, corporate demand for liquidity does not differ from other economic agents' demand for money. This implies that it can be dealt with in the context of portfolio choice models (Duesenberry, 1963).

5. The contribution of free movements of capital

Free movements of capital can in turn play a major role in financialisation of NFC from two different points of view.

In fact, if real investment depends on the term structure of interest rates over the full range of financial and real investment opportunities, then real investments in the developed countries also depend on the differential between their rates of returns and the rates of returns on real investments in the developing or emerging countries. However, this differential does not only act by means of FDI, but also by means of the possibility of financial investment in foreign securities, associated with real investment in foreign countries. Financial globalization, multiplying the potential range of financial instruments available to big corporations' portfolios and creating new ways to indirectly access the high profits produced in the emergent markets, can therefore play a major

role in changing the portfolio composition. Moreover, the managers of “financialised non-financial corporations” can decide to substitute direct national real investments with financial investments in foreign corporations, thus also obtaining a greater liquidity for their portfolios.

However, this kind of investment does not necessarily have to go through the acquisition of equity, but can also be made by acquiring debt securities. Thus, decreasing capital controls can influence the very structure of countries’ external liabilities, leading to substitution of FDI with equity inflows and external debt, which can, in turn, have a sizeable impact on the financial stability of debtor countries, significantly raising currency mismatch and making them more vulnerable to financial contagion (OECD, 2012b).

Furthermore, financial investments by non-financial corporations are usually very different from the traditional forms of takeover and corporate holding because their profitability depends not only on the ratio between profits and invested capital, but also on the terms of capitalisation of the expected future profits realised through the financial markets. Thus, the growing liquidity of non-financial corporations’ portfolios can contribute to heightening the usual volatility of the rates of return on financial assets as well as the vulnerability to contagion-induced financial shocks (OECD, 2012a). Moreover, countries with a large financial sector have a riskier financial account structure, compared, for instance, with commodity-exporting countries, which show a safer financial account structure. And above all, free movements of short-term capital, such as portfolio flows and short-term bank loans, have so far been related to a long series of serious economic and financial crises because of their volatility and exposure to surges in and sudden withdrawals from the financial markets.

All this obviously increases the overall uncertainty of financial investment profitability itself. And this growing uncertainty, in turn, leads to a greater tendency to money hoarding by non-financial corporations, which reduces the mass of real investment directly or indirectly financed by them.

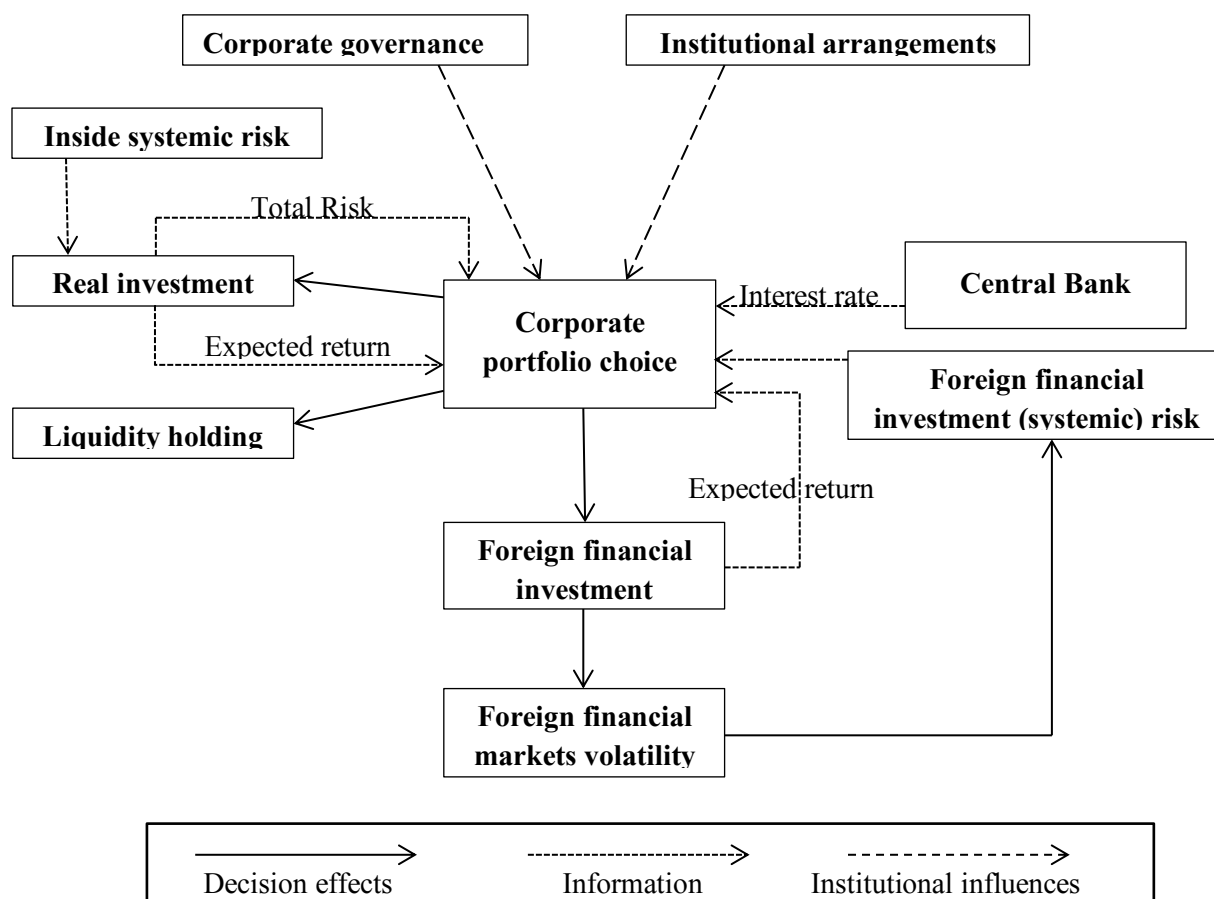
6. An interpretation model

6.1. The conceptual scheme

In the previous pages we have dealt with a big number of different phenomena that can play a role in changing corporate real investment decisions through many and complex transmission mechanisms. For a clear understanding of the possible effects of financialisation on real investment in big non-financial corporations, therefore, it may be useful to propose a model summarising the major connections previously examined (see Graph 3).

This is, of course, no macroeconomic model, but rather a “mesoeconomic” one, describing the aggregate behaviour of just a part of the productive system – i.e. the sector of the big or giant non-financial corporations – even though this sector can produce major effects on the whole macroeconomic system. Like every model, moreover, it is a simplified description of the main links we can empirically observe in reality.

Graph 3 – Flow-chart of the conceptual scheme of the model



The first simplification, to remove the problem of fallacy of composition, is to assume a single corporate sector of a developed country that can financially invest only in the rest of the world. Inside the developed country only real investment in capital goods are possible.

Let us assume, on the basis of the previous analysis, that corporate decision makers behave like the financial agents of shareholders as a consequence of changes in corporate governance and institutional settings. Under this assumption, the managers' objective function is to find the best combination of the expected rate of return and risk in the corporate portfolio, given their degree of risk aversion. If the managers are mere agents of the potential population of shareholders, we can assume that they have the average risk aversion that the financial markets show.

Let us also assume, for the sake of simplicity, that the aggregate corporate portfolio is composed of only three kinds of assets: liquidity, capital goods and foreign securities.

We will also assume that the three assets in the portfolio are gross substitutes, i.e. that an increase in the rate of return of one asset raises its demand and lowers the demanded amount of the others. Decision makers being risk-averters, if they face different and uncertain returns they will then diversify their portfolios.

Thus, decisions on liquidity holding, real investments and foreign financial investments are the consequence of maximising the managers objective function that takes as arguments the expected return and risk of the corporate portfolio, under the constraint of their *efficient frontier*.

The foreign financial investment risk can be reduced to the foreign systemic risk because the optimal diversification of this part of the portfolio can theoretically eliminate its specific risk.

The flow of foreign financial investments, in turn, if they are massive, can produce increasing volatility in foreign financial markets over time, as we saw in the case of emerging countries. This increased volatility obviously results in an increasing level of uncertainty for the financial component of the portfolio, producing a higher demand for liquidity over time.

In this scheme it is evident that the quantity of real investment is a function of its expected return and risk, composed by the systemic risk within the developed countries plus its specific risk, compared with the systemic risk of foreign financial markets, the expected return on foreign financial investment and the interest rate applied by the central banks in developed countries that determines the risk-free rate in portfolio choice.

However, changes in the official interest rate can act only on the portfolio share of liquidity, because the final result on the front of real investments will depend on comparison between its expected return and risk and the expected return and risk on foreign financial investment. In fact, when a portfolio consists of only one non-risky security and several risky securities, the set of risky assets behaves as if it were a single asset, i.e. the percentage composition in risky securities does not change as the proportion between non-risky security and risky assets do.

The expected returns on foreign investment are obviously influenced by the higher profits in foreign productive activities, due to the lower cost of labour. Thus, the only chance for inside real investment to survive depends on the share of the risky component of portfolio and the difference between the inside and foreign systemic risk, which must be greater than its specific risk.

6.2. The mathematical model

The corporate portfolio choice shown described in the previous scheme can be mathematised by means of a simple two-period optimisation model in which we assume that managers wish to maximise an objective function that depends only on date-1 expected portfolio return and risk. This kind of objective function, in fact, proves a good way to model the behaviour of managers that operate in accordance with the current predominant financial rules.

Thus, the maximisation problem can be written as:

$$\max_{q \in R^m} U(E(w_1), var(w_1)) \quad (1)$$

subject to:

$$w_0 = p'q \quad (2)$$

$$w_1 = \mathbf{x}' \mathbf{q} \quad (3)$$

where:

w_0 is the corporate wealth at date-0.

w_1 is the corporate wealth at date-1.

\mathbf{x} is the payoff vector for the assets in the corporate portfolio at date-1;

\mathbf{q} is the vector of quantities of the assets in the corporate portfolio;

\mathbf{p} is the price vector of the assets in the corporate portfolio at date-0;

Let corporate choice space, as in the previous section, comprise only three kinds of assets: liquidity, capital goods and foreign securities, respectively denoted as 1, 2 and 3. Let asset 1 be risk-free, while assets 2 and 3 are obviously risky. Let $\mathbf{p} = (p_1, p_2, p_3)$ be the asset price vector at date-0 and $\mathbf{q} = (q_1, q_2, q_3)$ the vector of quantities of the assets in the corporate portfolio.

The initial corporate wealth will be:

$$w_0 = \mathbf{p}' \mathbf{q} = p_1 q_1 + p_2 q_2 + p_3 q_3 \quad (4)$$

while the final wealth will be:

$$w_1 = \mathbf{x}' \mathbf{q} = x_1 q_1 + x_2 q_2 + x_3 q_3 \quad (5)$$

where $\mathbf{x} = (x_1, x_2, x_3)$ is the vector of the payoffs for the different assets. Both x_2 and x_3 are obviously *state-contingent* variables, i.e. their values depend on the possible alternative *states of the world*.

If we define $R_i \equiv \frac{x_i}{p_i}$ the gross return obtained by investing in the i -th asset, the rate of return of every asset will be $r_i = R_i - 1$. Accordingly, $r_1 = R_1 - 1$ will be the safe interest rate r_f , controlled by the central bank, while $r_2 = R_2 - 1$ is the rate of profit on capital goods.

Let us, to simplify successive notations, define the asset value vector $\mathbf{v} = (v_1, v_2, v_3)$, where $v_i = p_i q_i$. Thus, we can rewrite the final corporate wealth as follows:

$$w_1 = R_1 v_1 + R_2 v_2 + R_3 v_3 \quad (6)$$

Combining Eq. (6) and (4) we obtain:

$$w_1 = (R_2 - R_1) v_2 + (R_3 - R_1) v_3 + R_1 w_0 \quad (7)$$

or, alternatively:

$$w_1 = (r_2 - r_f) v_2 + (r_3 - r_f) v_3 + R_1 w_0 \quad (8)$$

The rates of return r_i on the risky assets can, of course, be treated as random variables, because they depend on *state-contingent* variables for which we assume a probability distribution can be defined. Accordingly, we can rewrite Eq. (8) as follows:

$$w_1 = \tilde{\mathbf{v}}' [E(\tilde{\mathbf{r}}) - \mathbf{1}_2 r_f] + \tilde{\mathbf{v}}' [\tilde{\mathbf{r}} - E(\tilde{\mathbf{r}})] + R_1 w_0 \quad (9)$$

where $\tilde{\mathbf{v}} = (v_2, v_3)$, $\tilde{\mathbf{r}} = (r_2, r_3)$ and $\mathbf{1}_2$ is the 2×1 sum vector.

We can now use the decomposition, $E(\tilde{\mathbf{r}}) - r_f = \mathbf{B}\mathbf{u}$, where \mathbf{B} is a $2 \times d$ “volatility” matrix, with $d \geq 2$, and \mathbf{u} is a random vector with expectation zero and variance-covariance matrix equal to the identity matrix (Mele, 2013).

By means of this decomposition, we can rewrite the budget constraint in Eq. (9) as follows:

$$w_1 = \tilde{\mathbf{v}}' [E(\tilde{\mathbf{r}}) - \mathbf{1}_2 r_f] + R_1 w_0 + \tilde{\mathbf{v}}' \mathbf{B}\mathbf{u} \quad (10)$$

Thus, the expected return and the variance of the portfolio value will respectively be:

$$E(w_1) = \tilde{\mathbf{v}}' [E(\tilde{\mathbf{r}}) - \mathbf{1}_2 r_f] + R_1 w_0 \quad (11)$$

$$var(w_1) = \sigma_p^2 = \tilde{\mathbf{v}}' \mathbf{\Sigma} \tilde{\mathbf{v}} \quad (12)$$

where $\mathbf{\Sigma} = \mathbf{B}\mathbf{B}' = [\sigma_{ij}]$ is the covariance matrix.

If we assume that $\mathbf{\Sigma}$ has full – rank and, as usual, $\sigma_i^2 > \sigma_j^2 \Rightarrow E(r_i) > E(r_j)$, then $r_f < \min_j [E(r_j)]$.

If we also assume that managers maximise the expected return on corporate portfolio, given a level of variance of the portfolio’s value amounting to $w_1^2 \sigma_W^2$ (the level they could obtain with a perfectly diversified financial portfolio), then we can model their choice problem as follows:

$$\hat{\mathbf{v}}(\sigma_p) = \arg \max_{\tilde{\mathbf{v}} \in \mathbb{R}^2} E(w_1) \quad (13)$$

subject to

$$\tilde{\mathbf{v}}' \mathbf{\Sigma} \tilde{\mathbf{v}} = w_0^2 \sigma_W^2 \quad (14)$$

The Lagrangian function for the constrained maximisation problem in (13) is as follows:

$$L(\tilde{\mathbf{v}}, \lambda) = \tilde{\mathbf{v}}' [E(\tilde{\mathbf{r}}) - \mathbf{1}_2 r_f] + R_1 w_0 + \tilde{\mathbf{v}}' \mathbf{B}\mathbf{u} - \lambda (\tilde{\mathbf{v}}' \mathbf{B}\mathbf{B}' \tilde{\mathbf{v}} - \sigma_W^2) \quad (15)$$

Thus, the first order conditions to maximise $L(\tilde{\mathbf{v}}, \lambda)$ are:

$$\begin{cases} \hat{\mathbf{v}}(\sigma_p^2) = (2\lambda)^{-1} \mathbf{\Sigma}^{-1} [E(\tilde{\mathbf{r}}) - \mathbf{1}_2 r_f] \\ \hat{\mathbf{v}}' B B' \hat{\mathbf{v}} = w_0 \sigma_w^2 \end{cases} \quad (16)$$

If we substitute the first condition into the second, we obtain:

$$(2\lambda)^{-1} = \pm \frac{w_0 \sigma_w}{\sqrt{[E(\tilde{\mathbf{r}}) - \mathbf{1}_2 r_f]' \mathbf{\Sigma}^{-1} [E(\tilde{\mathbf{r}}) - \mathbf{1}_2 r_f]}} \quad (17)$$

where the square root argument in the denominator is none other than the portfolio *Sharpe ratio* (\mathcal{S}), i.e. the surplus rate of return of the portfolio over the rate of return of a risk-free asset divided by the variability (standard deviation) of returns. This index, in practice, is a measure of the portfolio risk premium per “unit” of risk.

Taking the positive solution of (17) to ensure efficiency and substituting it into the first condition, we obtain that the optimal combination of values of the risky assets in the corporate portfolio is given by:

$$\hat{\mathbf{v}}(\sigma_p^2) = \frac{\mathbf{\Sigma}^{-1} [E(\tilde{\mathbf{r}}) - \mathbf{1}_2 r_f]}{\sqrt{\mathcal{S}}} w_0 \sigma_w \quad (18)$$

Thus, the capital goods value in the corporate portfolio will be:

$$\hat{v}_2 = \frac{1}{\sqrt{\mathcal{S}}} \left\{ \frac{\sigma_3^2}{\sigma_2^2 \sigma_3^2 - \sigma_{23} \sigma_{32}} [E(r_2) - r_f] - \frac{\sigma_{23}}{\sigma_2^2 \sigma_3^2 - \sigma_{23} \sigma_{32}} [E(r_3) - r_f] \right\} \quad (19)$$

Thus, real investment is directly proportional to the difference between its expected rate of return and the expected rate of return on financial investment, but also to the risk of financial investment and the correlation between its risk and financial risk. It is inversely proportional to its specific risk, to the portfolio risk premium per unit of risk and also to the risk-free interest rate.

In this model liquidity is a residual magnitude, being given by:

$$\hat{v}_1 = w_1 - \hat{v}_2 - \hat{v}_3 \quad (20)$$

However, it turns out to be directly proportional to the risk-free interest rate and the risky asset volatility.

7. Conclusions

Thus, ultimately, even though the interest rate can play a minor role in explaining real investment, in a world in which corporation managers behave as financial investors, the term structure of interest rates can play a major role at the firm level in determining

investment in capital goods as a share of companies' portfolios. This structure will obviously depend on the available financial alternatives and the risk premiums that prevail in their markets.

However, in imperfect markets the "risk premiums" that characterise expected returns on financial assets are not necessarily the statistic measure of the riskiness of loans and contributions of capital, as the mainstream theory assumes, but can rather be the result of the power relations between financial capital and industrial capital, as classical economists and Marx himself thought. Thus, the average rate of return on financial assets can be the measure of the comparative profitability in utilising capital in a financial or productive way.

From this point of view, the major variable in explaining investment decisions is not the interest rate on money markets, strictly controlled by central banks, but rather the average "risk premium" as a measure of the average profitability in financed real activities. And this measure is closely correlated with Tobin's q . Changes in the official interest rate influence only the portfolio share of liquidity, because real investments will depend only on comparison between its expected return and risk and the expected return and risk on foreign financial investment.

In fact, at the macroeconomic level, if the average profitability in closed economies can only affect capital movements from one sector to another, in direct or financial form, but cannot account for the absolute level of real investment, in open economies the differences in average profitability between different countries can matter, reducing capital sources for real investment in one country by means of capital transfers, in direct or financial forms, towards other countries.

Moreover, in portfolio choices by corporations, beside the rates of return, the liquidity degree of the assets can also be a very important determinant, in close connection with business fluctuations and uncertainty in worldwide financial markets. Thus, portfolio choices by corporations also mainly depend on the uncertainty degree of their economic environment, which can induce hoarding phenomena that are, ultimately, the real prime mover of decreasing aggregate investment.

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