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The Profit-Investment Puzzle under Financialisation.

An empirical enquiry on financial and productive accumulation by non-financial corporations

Le problème du profit sans l'investissement à l'ère de la financiarisation.

Une étude empirique sur l'accumulation productive et financière des sociétés non financières

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List of Abbreviations

AE: advanced economies.

BEA: Bureau of Economic Analysis.

BOP: Balance of Payments.

BRICS: Brazil, Russia, India, China and South Africa.

C: Commodities.

CCM: CRSP-Compustat Merged database.

CEO: Chief Executive Officer.

CFO: Chief Financial Officer.

DB: Defined Benefit.

DC: Defined Contribution.

ECLAC: Economic Commission for Latin America and the Caribbean.

EF: Expansion Frontier.

EME: Emerging Market Economies.

FAB: Financial Account Balance.

FAUSA: Federal Reserve's Financial Accounts of the USA.

FC: Financial Corporations.

FDI: Foreign Direct Investment.

FED: Federal Reserve System.

FF: Finance Frontier.

FOREX: Foreign Exchange Rate.

GDP: Gross Domestic Product.

GMM: Generalized Method of Moments.

GVC: Global Value Chain.

IAS: International Accounting Standards.

ICT: Information and Communications Technology.

IFRS: International Financial Reporting Standards.

IFS: International Financial Statistics.

II: Intangible Investment.

IMF: International Monetary Fund.

IP: Intellectual Property.

IRS: Internal Revenue Service.

ISIC: International Standard Industrial Classification.

IV: Instrumental Variables.

M&A: Merger and Acquisitions.

M: Money.

MSV: Maximization of Shareholder Value.

NAICS: North American Industry Classification System.

NFC: Non-financial Corporation.

OECD: Organization for Economic Cooperation and Development.

OLS: Ordinary Least Squares.

Pr: Production.

R&D: research and development.

ROA: Return on Assets.

SEC: Securities and Exchange Commission.

SG&A: Selling, General, and Administrative.

SIC: Standard Industrial Classification.

SOI: Statistics of Income.

TI: Tangible Investment.

UK: United Kingdom.

USA: United States of America.

VECM: vector-error correction model.

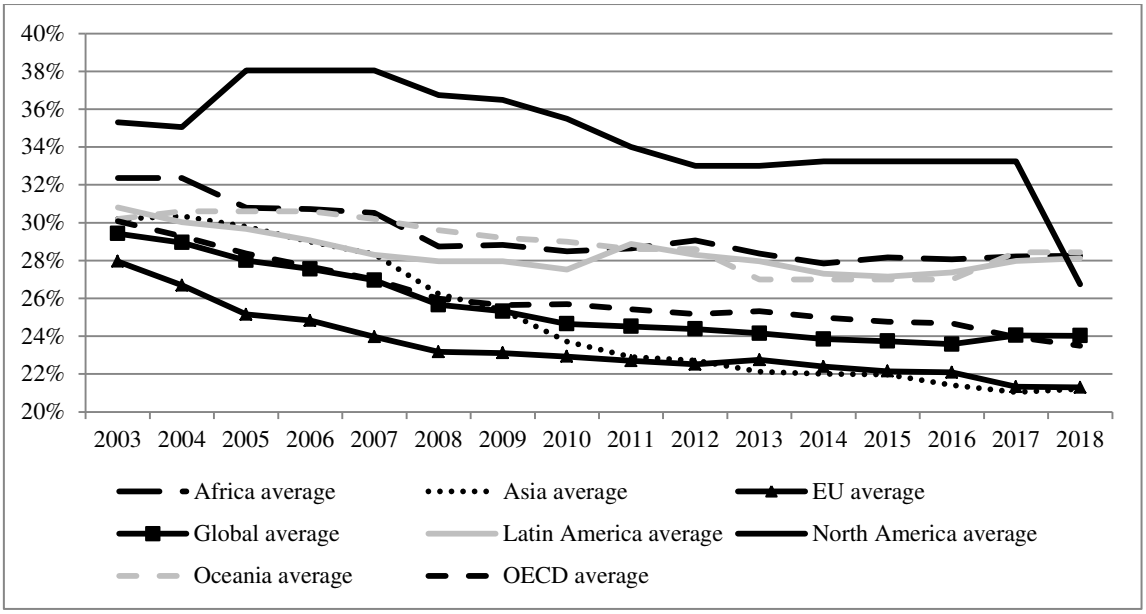
WIOD: World Input-Output Database.

WWII: World War II.

Introduction

By the end of 2017, the government of the USA was trying to pass a law whose objective was to reduce the tax rate of individuals and enterprises. Regarding the later, the idea was that, by going from 35% to 21%, firms would have more funds and, by having more funds, they would increase investment and also the number of employees. Hence, the name 'Tax Cuts and Jobs Act'. In this context, on November 14th the Wall Street Journal organized a meeting with a group of CEOs and Donald Trump´s chief economic adviser at that moment, Gary Cohn. There, one of the newspaper editors asked the CEOs to raise their hands in case they planned to increase investment if the law was approved. Few hands were up so Gary Cohn asked people again to raise their hands. Despite the uncomfortable situation, the result was relatively similar.[1]

Figure I. Corporate tax rate in selected regions, 2003-2018



Source: https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html.

Analogous situations can be verified in different parts of the world (although, probably, without the instant verification provided by a group of CEOs). As it is shown in Figure I, corporate tax rates have diminished worldwide in the last years. One justification is always present, from

[1] The situation which we make reference was described in many newspaper articles (see for example Higgins, 2017). It was also recorded and can be watched online in https://www.youtube.com/watch?v=vIkC0JTzRvU.

Australia[2] through Hong Kong[3] to France[4]: taxes have to be lowered in order to attract investment.

The fact that the same argument is applied worldwide is a clear illustration that there still prevails an idea of a strong link between disposable funds and investment in policy makers' public speeches. We do not pretend to disentangle whether Mr. Cohn (and other politicians) really believed what they were saying but in the very first moment that the law started to be discussed in the USA, there was already enough evidence that most of the funds given back to enterprises, far from being reinvested in new plant, property and equipment would end up in the hands of those firms' shareholders. In fact, by mid-April 2018, only a few months after the law was passed, estimations from JPMorgan quoted in the Financial Times (Wigglesworth, 2018) indicated that US enterprises would go from $1 trillion dollars distributed to shareholders in 2017 to more than $1.2 in 2018 (more than half of total 2016 French GDP). While the increase in spending on investments, research and development was expected to be around 11%, buybacks and dividends were estimated to grow by 21.6%.

The final number was $1.25 trillion. The cumulative amount since 2009 is almost $8 trillion, something that would "at current prices, be more than enough to buy all the major listed companies of the UK, France, Germany, Spain, Italy and Sweden. It is nearly five times the size of Russia's annual economic output, and almost equal to the current value of all gold ever mined through history." (Wigglesworth, 2019)

In fact, given the experience of previous years, it was perfectly reasonable to expect the increase in dividends and buybacks. The coexistence of high levels of aggregate profits with low levels of investment in developed economies has been one of the salient features of the last decades (Figure II). Hence, low levels of investment do not seem to be related to insufficient funds. The underlying fading relation between profits and investment will be the subject of this thesis.

We find this weakening relation particularly puzzling because it seems to run counter to economic intuition. Besides the conceptual framework or theory used, investment is always, and at the same time, an addition to the current and future productive stock or supply of the society and a current source of demand for produced goods. Having this in mind, it is easy to see that in

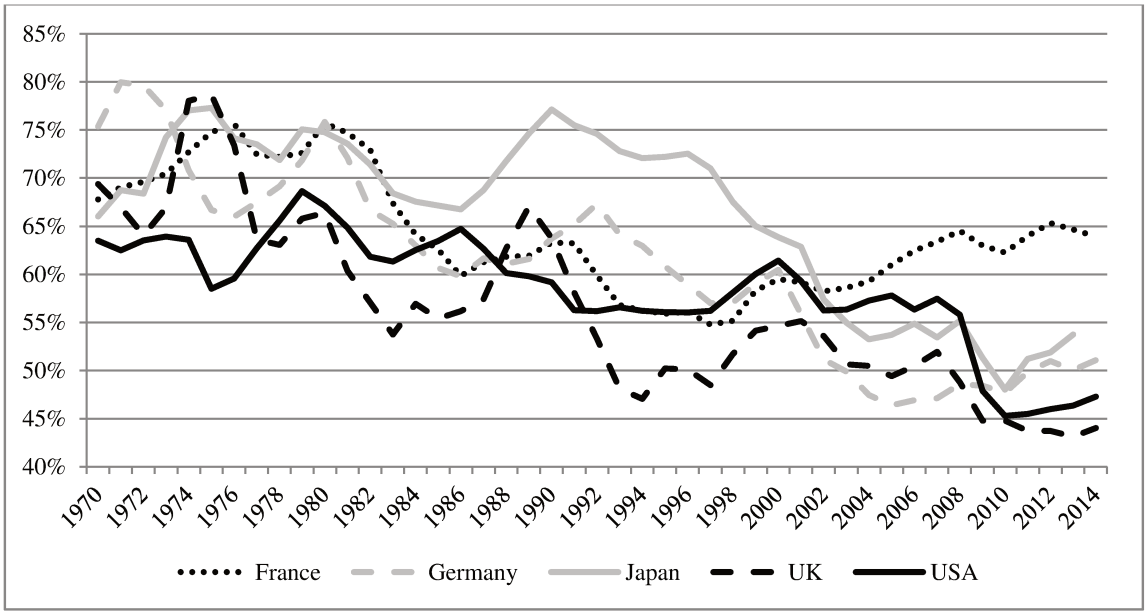
[2] Scott Morrison, by the time Prime Minister of Australia, said that corporate taxes should be reduced "because it promotes investment, create jobs and drive growth" (Karp, 2018).

[3] Hong Kong's Financial Secretary Paul Chan Mo-po, said in his speech on the Hong Kong Government's 2018/19 Budget that if "the Government puts forth various incentives such as additional tax deduction and government cash grants for start-ups, we believe more foreign investments will flow into Hong Kong."

[4] Current French President Macron justified the ongoing diminution of corporate tax from 33.3% to 25% by an incentive to invest. In his campaign programm we can read: "La baisse du taux de l'impôt sur les sociétés est indispensable pour attirer les activités en France et soutenir la compétitivité de nos entreprises, en leur donnant les moyens d'investir." Available in https://en-marche.fr/emmanuel-macron/le-programme/fiscalite-et-prelevements-obligatoires.

relation to profits, investment represents a realization of present profits and is a basis upon which future profits will be made.[5] Moreover, all schools of thought recognize that, in capitalist societies, the quest for profitability is a fundamental determinant of investment while different theories in mainstream and non-mainstream economics indicate that profits also serve as a relevant source to finance investment. Figure III illustrates these various relations.

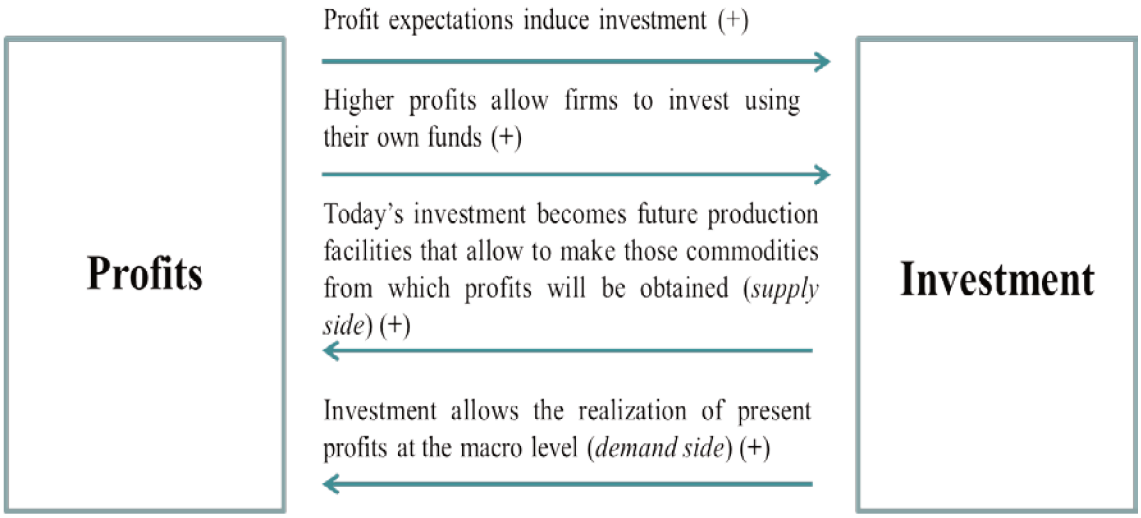
Figure II. Investment-profit relation in selected countries, 1970-2014



Note: Investment calculated as proportion of operating surplus.

Source: OECD.

Figure III. Main relations between profits and investment



[5] It is important to clarify that some of these relations operate at different levels. For example, the ´realization´ channel belongs only to the macroeconomic level.

As it is shown in Figure III, the four channels indicate that profits and investment have a double sided relation which should be positive.[6] We will see later that different theories point towards different arrows as the determinant causal relations but still expect a positive relation. This is why a weakening link between them since the 1980s represents a very puzzling situation.

The puzzling coexistence of high levels of profits with low levels of investment has received a growing attention from a wide spectrum of fields, from academia (Alexander & Eberly, 2018; Döttling, Gutierrez Gallardo, & Philippon, 2017; Durand & Gueuder, 2018; Gutiérrez & Phillipon, 2017; D. W. Lee, Shin, & Stulz, 2016; Orhangazi, 2018; Peters & Taylor, 2017; Stockhammer, 2005), to international organizations (IMF, 2006, 2015; OECD, 2007) and the media (Elliot, 2017; Harding, 2018; McCrum, 2018).

This thesis continues the aforementioned research carried on the changing relation between investment and profits and intends to answer questions related to *uses* and *sources* of funds at the firm level. In relation to the former, we will ask why those funds are not being invested and, hence, how those funds are being used. In relation to sources, we will ask how NFCs have remained profitable in spite of a decrease in their own rate of accumulation, taking also into account the increased international competition. This question about the sources is what we define as the *supply-side* face of the profit-investment puzzle. We call it this way in opposition to the *demand-side face* of the puzzle which consists in the alternative sources of effective demand that compensate the reduction of investment at the macroeconomic level and will not be part of this thesis. Therefore, our questions involve the three first arrows and are the following: a) why are not firms investing in spite of high profitability?, b) what are they doing with those funds?, c) how can they remain profitable with low levels of investment?

In this thesis we defend the idea that this fading relation between profits and investment not only has been possible because of the introduction of a new type of corporate governance (shareholder value orientation), but **also because some further mechanisms have been put in place to sustain profits without investment. The mechanisms that will be studied in this thesis are financial accumulation, offshoring of production and intangible accumulation. Our findings, moreover, go against the former and point towards the two latter.**

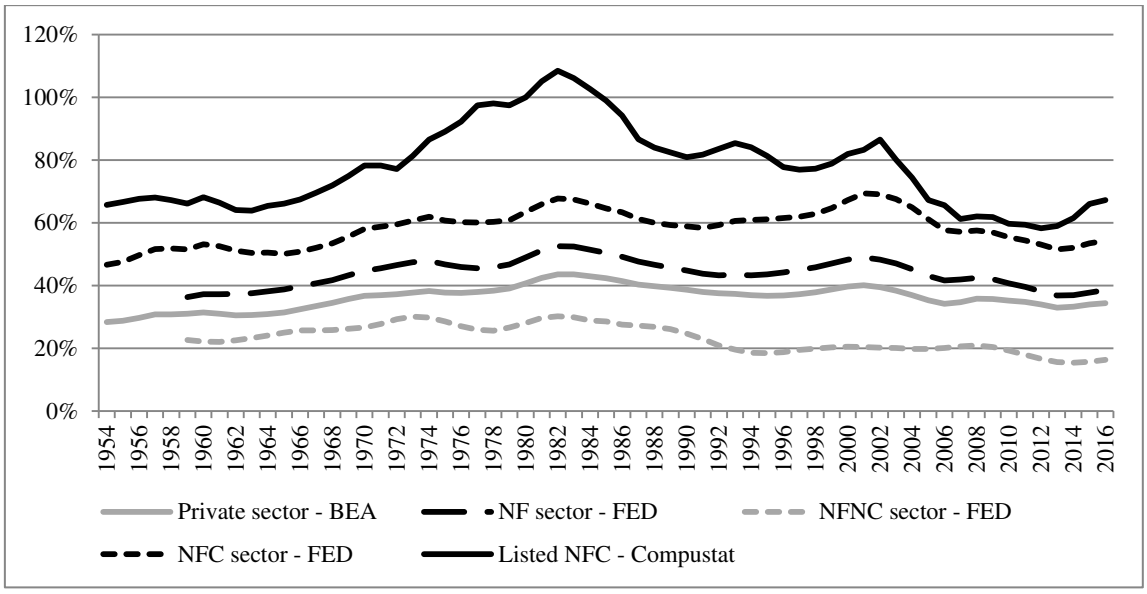
But before going there, let us take a look at the profit-investment puzzle with more detail. Figure IV analyzes the relation between investment and profit since the mid-1950s at different aggregation levels of the US economy: from the most general to the more specific. That is, from the private sector of the economy, to the non-financial (corporate and noncorporate) and then listed non-financial corporations. Most of them display a similar pattern: a relatively constant or

[6] The only exception may probably be the third arrow considering that, starting from some point, investment may generate an increase in the supply that harms profits.

slightly upward trend up to mid-1960s followed by an upward slope until the beginning of the 1980s ending with a downward trend since that moment, which is only interrupted in the 1990s. The decrease in listed NFCs has been the most dramatic, with a reduction of approximately 50% since its peak.

Moreover, the relation starts to decrease since the beginning of the 1980s, a period associated with the financialisation of the economy. The term 'financialisation', as will be shown in Chapter 1, is related to different changes in the economy affecting not only the financial sector but also households and, what is specifically the scope of this thesis, non-financial corporations (Van der Zwan, 2014). In Chapter 1 it will also be shown that the 'financialisation of the non-financial corporation' is also associated with different phenomena among which we find: 1) the primacy of shareholder value orientation and 2) the engagement of NFCs in financial activities which, at the same time, can be divided into a) financial payouts and b) financial income obtained due to the increased acquisition of financial assets. In any case, the concomitance of low levels of accumulation with constant or increasing profit rates and high financial payouts is at the core of the process known as 'financialisation of the non-financial corporation'.[7]

Figure IV. Investment-profit relation at different aggregation levels of the US economy, 1954-2014



Note: Investment calculated as proportion of operating surplus, 5 year moving average.

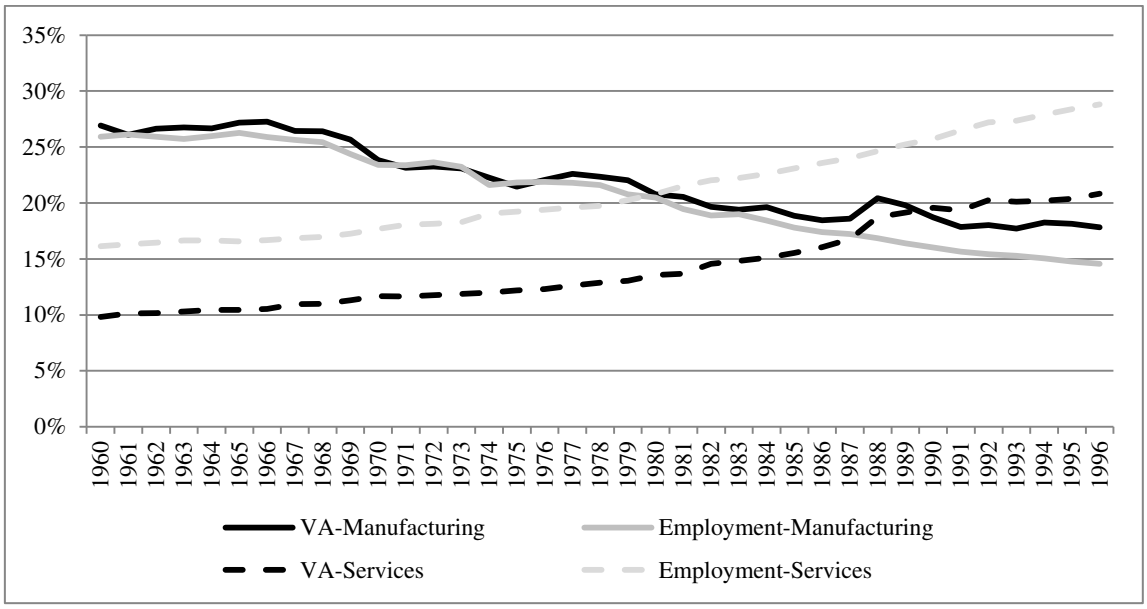
Source: Bureau of Economic Analysis, Financial Accounts of the USA (FED) and Compustat.

At first glance, the decrease in the investment-profit ratio could be associated with the structural change experienced by developed economies consisting in the shift from manufacturing to services as the most important sector in terms of value added and employment (Figure V). One

[7] As it will be clear in Part 2, the definition related to increased financial income is problematic. Therefore, throughout this thesis, the term financialisation of non-financial corporations will be mainly used to talk about the effects of increased payouts on investment.

may argue that structurally low investment in services drive the general weakening relation between profit and investment. However, the same relation between profits and investment is verified in the manufacturing sector in general, as well as in the disaggregation between durables and non-durables (Figure VI). In fact, the pattern in this sector is very similar to that in Figure III: a relatively constant relation up to mid-1960s followed by an increase until the beginning of the 1980s and a secular decrease since then.

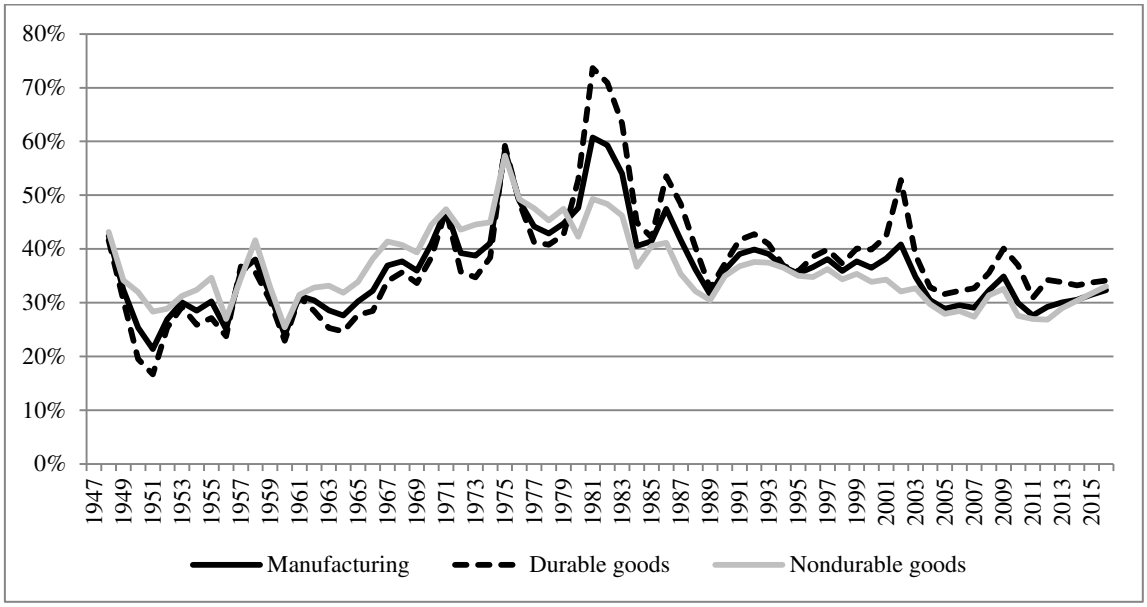
Figure V. Value added and employment in manufacturing and service sector in the USA, 1960-1996.



Note: Value added and employment calculated as proportion of total.

Source: Bureau of Economic Analysis.

Figure VI. Investment-profit relation in the manufacturing sector (total, durable and nondurable), 1947-2014



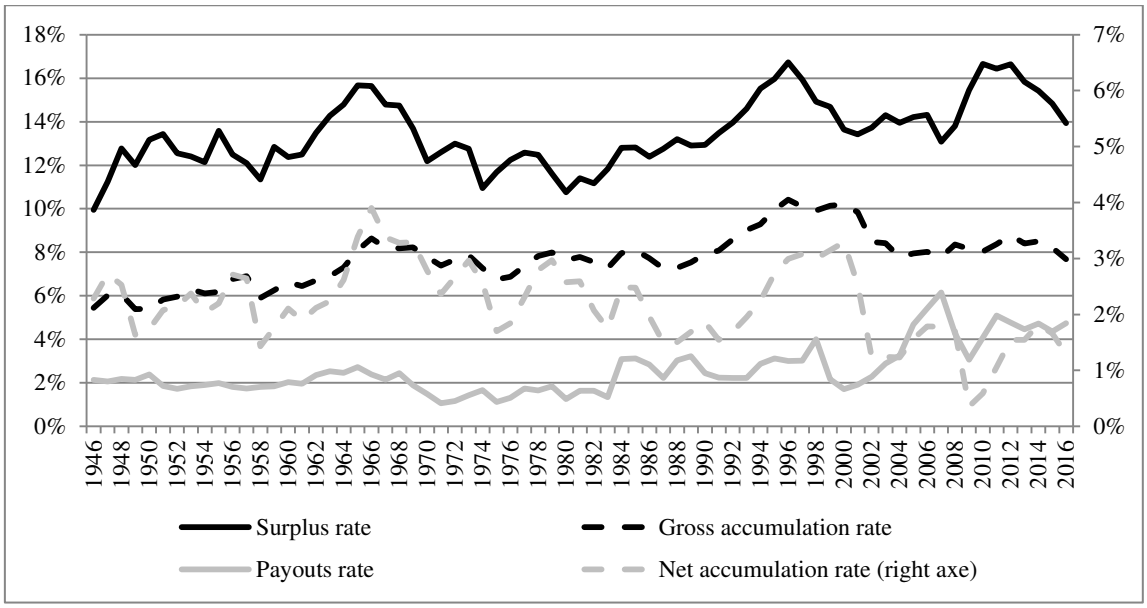
Note: Investment calculated as proportion of operating surplus.

Source: Bureau of Economic Analysis.

However, the negative slope can be due to a variety of different dynamics, not necessarily because investment is decreasing and profitability is increasing. Figure VII shows that, in fact, the rate of profit is overall increasing either with the rate of gross accumulation being constant (in the 1980s), growing (1990s) or decreasing (2000s). In any case, the same underlying phenomenon holds: lower accumulation is compatible with higher profitability.

Figure VII reinforces the puzzle with other interesting facts. First, the increase in payouts suggests that a significant proportion of those funds were distributed to shareholders as we mentioned before. Second, Figure VII and VIII also indicate that net capital accumulation started to significantly deviate in trend from gross accumulation since the beginning of the 1970s due to a higher depreciation rate. This only emphasizes the fact that a lower productive capacity is able to mobilize an increasing amount of profits. In fact, Gutierrez and Phillipon (2017, p.12) mention that it was mainly in the corporate sector from 1960 to 2000 where a secular increase in depreciation was verified, due to a shift from structures and equipment to intangibles which are included in gross and net investment in Figure VII and VIII. On the other hand, the drop in net investment since 2000 is due to a decrease in gross investment, not a rise in depreciation.

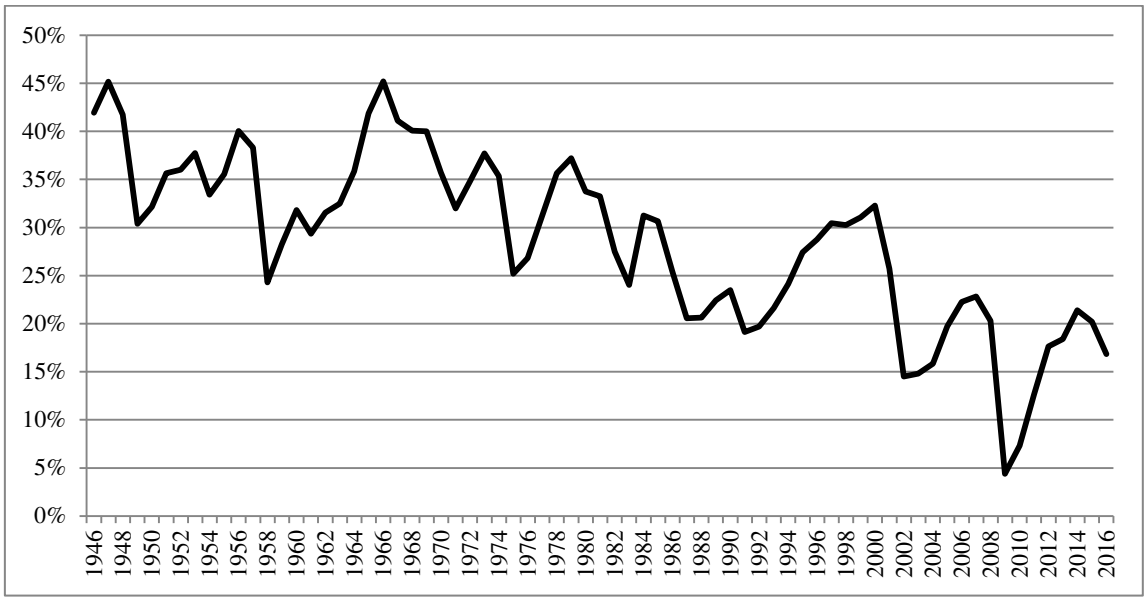
Figure VII. Profit, payouts, gross and net investment for US NFCs, 1946-2015.



Note: variables calculated as proportion of the stock of NFC´s non-financial assets.

Source: Financial Accounts of the USA (FED).

Figure VIII. Relation between net and gross fixed capital formation, 1946-2015

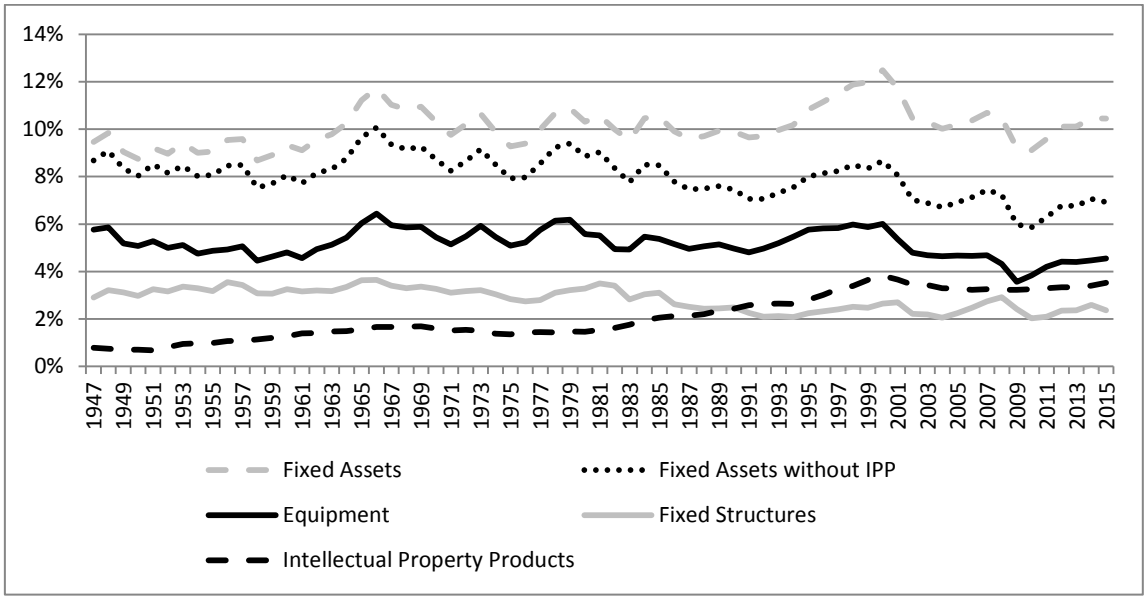


Note: net investment as proportion of gross investment.

Source: Financial Accounts of the USA (FED).

In Figure IX we distinguish among the different components of gross accumulation. It can be seen there that when intellectual property products are removed (the only component with a positive trend), gross accumulation of fixed assets has been decreasing since the 1980s both for equipment and especially for fixed structures.

Figure IX. Various rates of accumulation for US NF sector, 1947-2015



Note: different types of investment calculated as a proportion of net stock of fixed assets. NF sector calculated by removing "Finance and Insurance" and "Real estate and rental and leasing" from total.

Source: Bureau of Economic Analysis.

In a nutshell, from Figures IV-IX we know that the puzzle a) operates at different levels of the economy but it is more acute in bigger firms (at least in the USA), b) starts in the last quarter of the XXth century (under financialisation), c) is not a reflection of the structural move to a service economy, d) is related to higher profit rates and lower accumulation and e) the lower accumulation is more severe if we do not take into account intellectual property products. All these features only reinforce the need to study the puzzle with more detail.

As we already said, the relation between profitability and investment is transversal to many economic theories. We will review these various theories and the answers they provide to the feeble link between profitability and investment in Part 1 of the thesis. One frequent answer found in the literature emphasizes the pervasive role of the maximization of shareholder value and financial payouts on investment. However, as it will be shown there, this explanation is unable to solve the *supply-side* face of the profit-investment puzzle and, therefore, has to be linked to others. With this in mind, the rest of the thesis will be dedicated to the empirical study of two types of answers. Part 2 focuses on one response that we denominate the *financial turn of accumulation* hypothesis. We define this hypothesis as the contention that there has been an aggregate trend in which NFCs are increasingly acquiring financial assets in order to obtain a higher proportion of their income out of them. The solution to the puzzle in this case might be simple: a shift in the activities of NFCs to financial accumulation and profits. Part 3 of the thesis moves away from financial accumulation and will be dedicated, rather, to (some of) those changes arising in the productive sphere: offshoring and intangible investment.[8] Compared to Part 2, Part 3 will offer stronger and more promising results for the resolution of the puzzle.

[8] We acknowledge this is not an exhaustive list of changes related to production as we could also have included automatization, the introduction of new technologies and more intense labour conditions for example. We nevertheless chose to focus on offshoring and intangible investment because, as it will be shown later, they are either novel or vacant areas of research in terms of their interaction with financialisation, while other changes such as worsening labor conditions have been extensively analyzed.

Structure of the thesis

The thesis is organized in three parts, each consisting of two chapters. The three-part structure has the following rationale. Part 1 presents the historical and theoretical framework(s) used in the thesis, highlighting the unsolved questions that guide our research in terms of the coexistence of high levels of aggregate profits with low levels of investment. Part 2 explores one type of solution, broadly defined as 'financial', focusing one chapter on the USA and the other on Latin America. Part 3 explores another type of solution, broadly defined as 'productive', concentrating one chapter on offshoring (in the USA) and the other on intangibles (in the USA, UK, France, Germany and Japan).

The **first part**, '**Financialisation, historical roots and theoretical challenges posed by the profit-investment puzzle**', is devoted to locating historically and theoretically the object of this thesis. The so-called *financialisation* of the economy and the firm has played a relevant role for the profit-investment puzzle. Therefore, in Part 1 we aim to identify the different meanings given to financialisation in general and the financialisation of the NFC in particular. We also track the historical origins of those changes associated with the financialisation of the NFC and how they affected decisions regarding profits and investment in different theoretical frameworks.

Chapter 1, '**Financialisation of the economy and the firm**', reviews the financialisation literature. First, it proposes the novelty of applying semantical techniques in order to identify those different meanings associated with the term *financialisation*. One of them specifically deals with the corporation. Therefore, we then study the different meanings associated with the *financialisation of the NFC* and provide a historical account of the changes they involved in the country where they first appeared, the USA.

Chapter 2, 'Profit-Investment relations under financialisation', investigates the relation between investment and profit, but focusing on the financialisation era since the puzzle consisting on low investment with high profits belongs mainly to it. We will review the Neoclassical, post-Keynesian and Marxian theory of investment although concentrating on the last two for different reasons that will be discussed in the chapter.

As a result of this first part, we set the theoretical foundations and questions that will be addressed in the rest of the thesis: a) why are not firms investing in spite of high profitability?, b) what are they doing with those funds?, c) how can they remain profitable with low levels of investment? In Part 1 we will also show that one common answer to the puzzle is that which emphasizes the role played by the maximisation of shareholder value as guiding principle for

corporate governance. The theoretical problem of this explanation is that, while it can answer questions a), and b), it provides no answer (and goes against) question c). The narrative needs to account not only for the distribution of funds to shareholders *instead of*, but also *in spite of* (not) investing them; and therefore needs to be necessarily linked with other explanations. We called this the *supply-side* face of the profit-investment puzzle. The solution to the *supply-side* face of the profit-investment puzzle is linked to the ability of firms to increase their profitability per unit of investment. In Part 1 we identify two broad, non-mutually exclusive answers that have been provided: one that we define as the *financial turn of accumulation* (explored in Part 2) and another that points towards changes in the productive sphere (explored in Part 3). Both of them are able to answer questions a), b) and c).

The **second part, 'The weak answer to the puzzle: the *financial turn of accumulation*'** explores the hypothesis that there has been an increasing accumulation of financial assets from which NFC derive a growing proportion of financial income. The two chapters study two different regions using two different methodologies. As the title indicates, in both cases we do not find supportive evidence for this type of answer.

Chapter 3, 'The financialisation of US NFCs. A critique to the *financial turn of accumulation* hypothesis', studies the US case. The chapter shows that the evidence used to sustain the *financial turn of accumulation* has to be reconsidered. Contrary to the hypothesis, financial income averages 2.5% of non-financial corporations' total income since the 1980s, oscillating since the beginnings of the 1990s until 2005 and then declining. In terms of assets, some of the alleged financial assets might actually reflect other activities in which non-financial corporations have been increasingly engaging such as tax avoidance, internationalization of production, activities refocusing and M&As. This chapter is based on an article published by myself in *Metroeconomica*.

Chapter 4, 'Cash holdings and the *financial turn of accumulation* of Latin American NFCs', turns to the Latin American case. The choice is not arbitrary. Even though the thesis is mostly based on the US setting, Part 2 studies the *financial turn of accumulation* hypothesis. Our interest in Latin America is because a significant amount of evidence points towards the fact that the hypothesis applies better to emerging economies in general, and Latin America in particular, due to the higher possibilities to profit from high interest rates and speculate with financial derivatives. However, even for these countries, we find that financial profitability plays only a minor role in the demand for liquid financial assets. This chapter is based on an article co-authored with Rodrigo Pérez Artica (Universidad Nacional del Sur, Argentina).

The weak results we find in Part 2 set the stage for our **third and last part**: '**The strong answer to the puzzle: offshoring and intangible investment**'. In this part we study those

solutions that involve material changes associated to the new productive and core activities performed by NFCs.

Chapter 5, 'The financialisation–offshoring nexus and the capital accumulation of US non-financial firms', shows that parallel to financialisation, many non-financial corporations have also engaged in an internationalisation of their productive activities, organising them under global value chains. Though offshoring may also explain the decrease in the level of investment of non-financial firms, the intersections between the literature on financialisation and the literature on global value chain remain surprisingly underdeveloped. This chapter contributes to fill this gap and finds evidence that both offshoring and financialisation are determinants of the decrease in investment and that financialisation occurs mainly among US firms belonging to sectors prone to offshoring. This chapter is based on an article published in the *Cambridge Journal of Economics* co-authored with my co-supervisor, Tristan Auvray (Université Paris 13).

Chapter 6, 'Explaining the investment slowdown. An empirical analysis of the joint effects of financialisation, offshoring and intangibles in advanced economies', builds a bridge between, on the one hand, the literature interested in financialisation, globalisation and atypical investment behavior and, on the other hand, the growing body of work interested in the rise of economic assets arising from a greater mastery of information and data. This chapter shows the different dynamics displayed by tangible and intangible investment regarding participation in global value chains, market power and intangible intensity for US, UK, French, German and Japanese NFCs. This chapter is based on an article co-authored with Tristan Auvray and Cédric Durand (Université Paris 13).

The thesis concludes by presenting the main consequences of our findings for post-Keynesian and Marxian theory of investment as well as some of the limitations of our work and future research agenda.

Part 1: Financialisation, historical roots and theoretical challenges posed by the profit-investment puzzle

In **Part 1** we set the theoretical and historical foundations of the thesis. Despite the discussions regarding the precise scope and limits of financialisation, it is clear that this phenomenon implies a new set of relations among social classes, regions and countries. It could be argued that this comprehensiveness runs parallel to the number of disciplines engaged in the debate which, as a consequence, gives back a multiplicity of meanings or uses of the 'financialisation'. Our first task in **Chapter 1** is, therefore, to provide a rationale to the term 'financialisation', in general, and 'financialisation of the non-financial corporation', in particular, using innovative techniques. In **Chapter 2** we then study how financialisation influences those interests and choices of NFCs in terms of investment and profits from different theoretical perspectives.

In **Chapter 1** we apply bibliometric techniques to the vast literature on financialisation and find separate blocks, one of which deals with NFCs. The exact scope of the changes involved, even for NFCs, is not uniform either. Therefore, we classify these meanings and locate them historically. By doing this we show how the different connotations given to the financialisation of NFCs were consequences of the challenges and changes faced by NFCs in the last quarter of the XXth century. Moreover, these mutations are intrinsically linked to the relation between profit and investment that will be analysed in Chapter 2.

In **Chapter 2** we explore the links between profit and investment from different theoretical perspectives and how this link is affected during financialisation. We will see here that the move to the maximization of shareholder value as the guiding principle of corporate governance is a prominent explanation. Funds that could be used for investment are now being channelled to shareholders. Without neglecting the relevance of this phenomenon, in this chapter we will show that once we recognise the fact that current investment becomes tomorrow's production facilities, then we have the puzzling question of how such high profit rates can be maintained with decreased investment (what we call the *supply-side* face of the profit-investment puzzle). Therefore, in the chapter we put forward the idea that the explanation focusing on the maximization of shareholder value needs to be linked with others that can explain firms' ability to increase their profitability per unit of investment.

Chapter 1: Financialisation of the economy and the firm

1. Introduction

We start this thesis by reviewing the broader context under which the puzzling relation between investment and profits is happening: the so-called financialisation of the economy. The term *financialisation* is nowadays a buzzword. More than that perhaps, the buzzword of the 2010s, as Christophers (2015) claims. Starting originally in a Marxist tradition (Magdoff & Sweezy, 1987), it has later expanded to broader heterodox economic literature, typically post-Keynesian (Epstein, 2005), economic geography (Christophers, 2012), parts of mainstream sociology (Lin & Tomaskovic-Devey, 2013) and, very recently, it can even be found in mainstream economics (Admati, 2017). Such a wide disciplinary and theoretical usage has come with a lack of precision or, the flip side of this, a multiplicity of approaches.

The different literature reviews on the topic (Epstein, 2015; Lapavitsas, 2013; Powell, 2018; Sawyer, 2014; Van der Zwan, 2014) have found different uses. The novelty we propose in this chapter is to perform a review by doing a bibliometric and semantic analysis. It therefore allows us to avoid possible missing information, as well as to study the way in which these different usages evolved throughout the years.

After we finish this general assessment of financialisation, we will focus on the specificities related to the financialisation of the NFC. In this case we will not perform a bibliometric and semantic analysis given that the amount of literature is restricted. We will anyway identify the different meanings associated with the term and put forward an historical account of the situation faced by NFCs during the 1970s and 1980s in the country where the financialisation of NFCs was first identified: the USA. By doing this, we will be able to provide a rationale for the different phenomena usually associated with the financialisation of the NFC.

The chapter will be organized as follows. Section 2 focuses on financialisation. Section 2.a reviews the studies carried so far on the different dimensions or meanings of financialisation. Section 2.b presents the data and methodology while Section 2.c presents the results and our bibliometric analysis. Section 3 focuses on the financialisation of the NFC. Section 3.a reviews the different ways in which it is defined. Section 3.b studies the historical changes faced by NFCs from the USA. Finally, Section 4 presents some concluding remarks.

2. Financialisation

In this section we present the results of our review on the different meanings given to financialisation by scholars who systematized the literature. We later contrast these meanings with those found by our bibliometric analysis.

a. Different meanings found in the literature

Taking into account the multiplicity of approaches related to financialisation, lately there have been some attempts to identify which are the common patterns or usages. We will focus mainly on those works carrying this type of exercise. The most cited literature review is "Making Sense of Financialization", by Natascha van der Zwan (2014). As it can be clearly observed by the title, it is an attempt to systematize the multiplicity of ways in which the term is used. She finds three: financialisation as a change in everyday life, as a change in corporate behavior and as a regime of accumulation. All of them are identified as starting in the 1970s and 1980s. As a change in everyday life financialisation is related to the transfer of financial risk on retired and employees. As a change in corporate behavior it is related to the ascendancy of shareholder value maximization as guiding principle of corporate behavior. Finally, as a new regime of accumulation, one of the most important characteristics is that finance (in a broad sense) plays a more important role in the economy than it did it before. Two of the most-cited definitions show this: "a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production" (Krippner, 2005, p. 174) as well as the one put forward by Epstein (2005, p. 3) when he mentions the "increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies".

In a similar fashion, Epstein (2015) also finds three main dimensions of financialisation, similar to van der Zwan's (2014). The first is related to the growth of finance (in terms of profits and assets for example) relative to the size of the economy. Second, an increase in the financial activities and financial orientation of non-financial corporations measured in terms of their increased reliance in financial activities, increased indebtedness, the use of stock options and other stock-related pay for top management and the introduction of shareholder-value orientation and short-termism in corporate strategies. Finally he describes the household dimension, related to the increased use of mortgages to buy homes, credit cards and other forms of consumer credit as well as student loans.

Other attempt to encompass the term was carried by Lapavitsas (2013, p. 20) for whom financialisation "amounts to a systemic transformation of advanced capitalist economies pivoting on changes in the underlying conduct of non-financial enterprises, banks, and

households". Even in this class-focused analysis, the changes within each class are similar to the ones we have already exposed.

Finally, Sawyer (2014) finds two, rather than three, broad perspectives on financialisation: the growth of the financial sector in its operations and power; and as a stage of capitalism starting at the beginnings of the 1980s. These two perspectives are also identified by Powell (2018) in his Marxist-oriented review of financialisation. He distinguishes between financialisation as a cyclical process in which interest-bearing and/or fictitious capital increases and financialisation as a new stage of capitalism. The distinctive feature in the latter is the new role played by big multinational NFCs whose financing needs push the increase of international banks and the development of capital markets.

As we can see, with its variants, the reviews carried on financialisation have found three or even four main usages of the term. Financialisation implies changes in a) non-financial corporations (Epstein, 2015; Lapavitsas, 2013; Van der Zwan, 2014), b) households (Epstein, 2015; Lapavitsas, 2013; Van der Zwan, 2014), and the increasing importance of the financial sector, the latter being in some cases considered c) on its own and/or d) as the distinctive feature of a new stage of capitalism (Epstein, 2015; Lapavitsas, 2013; Powell, 2018; Sawyer, 2014; Van der Zwan, 2014). Having presented these reviews, next we will analyze to what extent they reflect the entire set of academic publication, and to what extent they are related to each other.

b. Data and Methodology

In order to carry our analysis, we downloaded from the database "Scopus" papers that have the word 'financialisation' or 'financialization' either in their abstract, title or keywords. This results in 1700 papers approximately. Using CorText platform[9] we first perform a lexical extraction of the 100 most repeated noun phrases with a maximum of 3 words which appear at least 3 times in the abstract and forbidding monograms. By doing this we have a list which is, in fact, larger than 100 terms because CorText groups families of terms assumed to be the same (for example 'price spot' and 'spot prices' are considered the same term). This gives back, however, terms that have to be removed since they are spurious (such as 'article analyses'). Both in order to decide whether a group of terms effectively belong to the same family and whether a term is spurious or not requires the intervention of the researcher and, in our case, this results in different lists of terms. They will be the basis upon which we will construct clusters in order to identify the different usages of financialisation. To make sure that the clusters we find are not biased by term selection, we use three different lists of terms and, from the 100 terms automatically selected by CorText, we go first to 84 terms, then 75 and finally 73 (Table A1.1).

[9] Cortext is an open platform for performing bibliometric and semantic analysis. It can be accessed online, freely, at: https://www.cortext.net/

The links among these terms are studied using co-occurrence maps. The procedure used to draw these maps follows Tancoigne, Barbier, Cointet and Richard (2014) who also use CorText for cluster detection. The procedure done by the software consists in, first, calculating the frequency of each term and groups of terms. Second, it measures proximities by normalizing the occurrences in order to avoid biases. We use the distributional measure proposed by Weeds and Weir (2005) in which the similarity of two nodes is calculated by comparing their entire co-occurrence profile with the other terms identified. Third, in order to identify cohesive sub-groups in the network we used the Louvain algorithm, which is rather standard in the literature (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008). As we said, this exercise is carried for each of the 3 lists of terms in order to assess the robustness of the clusters we find.

Once we have these clusters we will be interested in measuring their evolution through time. In order to perform our dynamic analysis we divided the sample in three periods, each of them containing the same amount of publications. Since research on financialisation has significantly increased in the last years, the first period is longer than the second and third ones. CorText also allows doing overlaps over our 3 periods. This property is particularly useful for our analysis since topics evolve smoothly over time rather than in an abrupt way. Hence, the first set of topics may have co-habited with the second group of most popular topics until the latter became predominant over the former, thus the first group ends. The first period started in 1992 and ends in 2014. The second one goes from 2013 to 2016 and the third one started in 2015 and ends in 2018.

c. Results and analysis

Table 1.1 presents the clusters associated with each list of terms and, as it can be seen, they are robust to these different terms selection. The name of these clusters is given by CorText based on the most repeated terms of each of them. Figure 1.1, one the other hand, presents the network map based on the second list of terms. All lists of terms can be seen in the Appendix (Table A1.1), as well as the two other network maps (Figure A1.1 and A1.2). Our selected list of terms is that containing 75 terms. We prefer this one compared to the list composed of 84 terms because we eliminate broad terms such as ´financial literacy´ or ´social sciences´. We also prefer it over the 3rd one because in the latter it appears a 6th cluster, very small and limited to the first period only.

Table 1.1. Clusters associated with financialisation

	Selected list of terms (75 terms)	Relation to the literature	1st alternative list of terms (84 terms)	2nd alternative list of terms (73 terms)
Cluster 1	Futures Markets & Price Volatility	-	Commodity Prices & Commodity Financialization	Futures Markets & Price Volatility
Cluster 2	Everyday Life & Financial Products	Epstein (2015), Lapavitsas (2013), Van der Zwan (2014), Sawer (2015), Powell (2018)	Everyday Life & Financial Products	Everyday Life & Housing Market
Cluster 3	Financial Inclusion & Financial Services	Epstein (2015), Lapavitsas (2013), Van der Zwan (2014)	Financial Inclusion & Financial Services	Consumer Credit & Financial Services
Cluster 4	Non-financial corporations & Panel Data	Epstein (2015), Lapavitsas (2013), Van der Zwan (2014)	Non-financial corporations & Panel Data	Non-Financial Corporations & Bargaining Power
Cluster 5	Asset Management & Private Equity	Epstein (2015), Lapavitsas (2013), Van der Zwan (2014), Sawer (2015), Powell (2018)	Private Equity & Real Estate	Asset Management & Private Equity
				Credit Crunch & Subprime crises

Figure 1.1. Cluster based on List of Terms 2

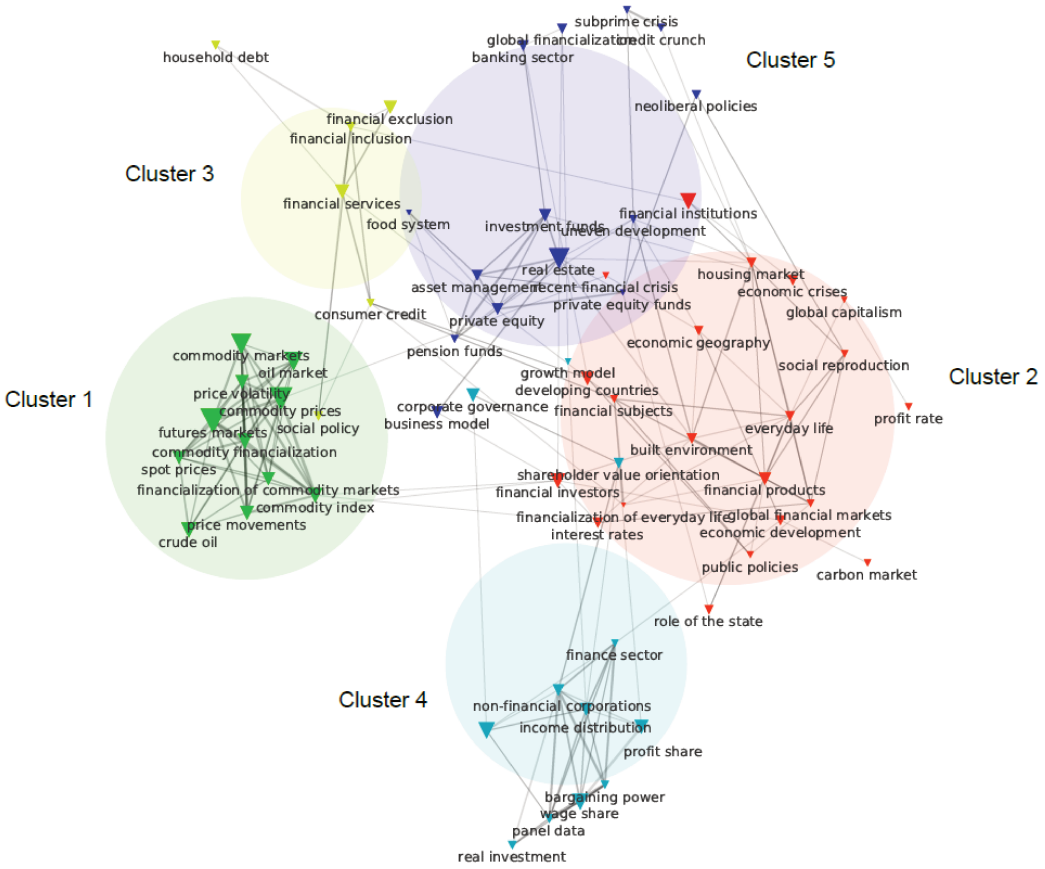


Figure 1.1 shows the different clusters, nodes contained by each of them and their connections. The size of each node is proportional to the number of times each term appears connected with others, allowing therefore to identify 'heavy nodes'. Our bibliometric analysis results in a group of clusters that are, on average, very close to those found in literature reviews. The cluster 'Non-financial corporations & Panel Data' (n°4) can be associated with those changes in corporate

behavior in general and non-financial corporations in particular highlighted by van der Zwan (2014), Lapavitsas (2013) and Epstein (2015), respectively. The most studied phenomena in this cluster seem to be the effects of the introduction of shareholder value orientation in real investment, with panel data techniques being the most relevant to assess those changes. However, this cluster also includes some of the macroeconomic effects of financialisation on income distribution, wage and profit share.

The cluster 'Asset Management & Private Equity' (n°5) can be associated with the increased power of the financial sector highlighted by all scholars. Practically all the terms belonging to this cluster are related either to the financial or the wider finance, insurance and retail sector. One exception is 'neoliberal policies', which is not strictly related as the others, although it is usually pointed out by many scholars as going together with financialisation (see for example Duménil & Lévy, 2004).

The cluster 'Financial Inclusion & Financial Services' (n°3) is related to many of the changes affecting directly households such as consumer credit and household debt although, strictly, 'Everyday Life' belongs to the fourth cluster 'Everyday Life & Financial Products' (n°2). It can be said that this last cluster that concentrates terms from very different dimensions such as the role of the state, growth model or economic geography captures the fact that financialisation is sometimes defined as a new regime of accumulation or stage in capitalism as noticed by van der Zwan (2014), Sawyer (2014) and Powell (2018).

Probably the main difference between our analysis and those carried by other scholars is that we identify another cluster, 'Futures Markets & Price Volatility' (n°1), which is specifically related to commodities. During financialisation they become an instrument for speculation due to their high price fluctuations. Also, producers and buyers increasingly rely on the use of financial instrument to hedge against price changes. Figure 1.1 also indicated that this is the cluster with the fewest number of links with the rest, something that may explain why it has been relatively off-radar from the reviews.

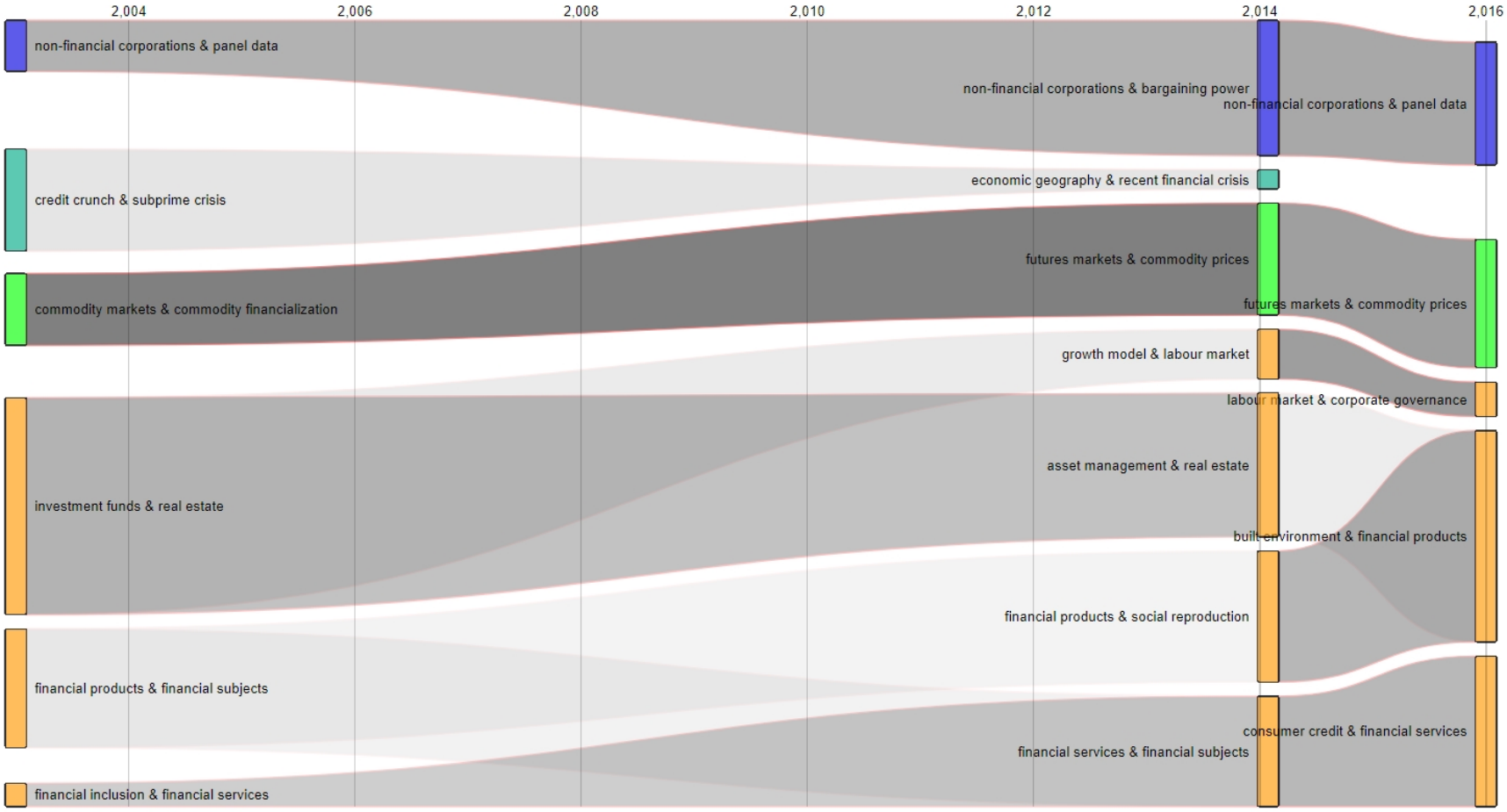
CorText also allows to measure the evolution of these clusters over time. Figure 1.2 indicates various trends. First, it is manifest the decrease in the study of the 'credit crunch & subprime crisis', or at least its decrease associated with financialisation. This cluster is reasonably concentrated in the first period but, according to our analysis, it disappeared during the last three years.[10] In fact, using the 3rd list of terms, 'Credit Crunch & Subprime crises' is a cluster on its own. Second, Figure 1.2 also shows that the clusters 'Non-financial corporations & Panel Data' and 'Futures Markets & Price Volatility' have been relatively increasing over time and had few

[10] This does not mean that no study was carried on the Great Recession since, for example, the Cluster 'Everyday Life & Financial Products' contains the term 'economic crisis'.

exchanges with other clusters. This means they are more cohesive or self-contained clusters (this can also be observed in Figure 1.1). In this sense, it is noticeable that the cluster related to NFCs does not include other activities in which they have been increasingly engaging. Tackling this issue is partly the motivation of this thesis.

The rest of the clusters had more relations among each other, sometimes dividing and others merging. This goes in hand with the fact that the more general cluster, 'Everyday Life & Financial Products' in Figure 1.1, has many terms connected with 'Financial Inclusion & Financial Services' and 'Asset Management & Private Equity'. This can also be interpreted as the simultaneous reference to financialisation as a cyclical phenomenon and new stage of capitalism, using Powell (2018) terminology. The higher connection among these clusters can also be inferred by the fact that some terms belonging to these clusters such as 'everyday life', 'real estate' and 'housing market' are those with higher betweeness centrality (Table A1.1).

Figure 1.2. Dynamic analysis based on List of Terms 2. Periods: 1992-2014, 2013-2016, 2015-2018.



Thanks to the methodology we followed, we were able to identify five clusters or different ways in which the term 'financialisation' is used. This methodology also allowed to find one cluster absent from previous reviews, that specifically connected to commodities. In this thesis, however, we will rather focus on the cluster related to the NFC (n°4). We move next in this direction.

3. Financialisation of the non-financial corporation

In this section we will also make a literature review but on the financialisation of NFCs. We will identify the different meanings given to the term and track their historical evolution in the last quarter of the XXth century.

a. Different meanings found in the literature

In the previous section we identified the different clusters associated with financialisation and how one of them refers specifically to the topic of this thesis, the NFC. However, even when considering a narrower scope, such as the financialisation of the NFC, there is no general agreement on the precise dynamics it involves.

Table 1.2 shows some of the most-cited papers regarding the financialisation of the NFC. On one side it confirms, as in Van der Zwan (2014), that shareholder value orientation and the financialisation of the NFC have been sometimes used as synonyms reflecting the growing relevance of shareholders over the rest of stakeholders of the firm, especially the labour force. On the other hand, it puts a specific dimension for NFCs which is their engagement in financial activities.

The literature has identified two different channels for this engagement. The first is related to the increased transfer of earnings from NFCs to financial markets in various forms such as interest payments, dividend payments, and stock buybacks. This channel is closely linked to the primacy of shareholder value orientation but also reflects the results of increased leverage through interest payment. The second channel is related to the increased acquisition of financial assets from which NFCs derive a growing proportion of financial income. We call this the *financial turn of accumulation* hypothesis and will be the topic of Part 2 of this thesis.

Table 1.2. Financialisation of NFC literature

Paper	Shareholder value orientation	Engagement in Financial Activities		Other*
		Increasing Proportion of Financial Payouts	Financial Acquisitions + Increasing Proportion of Financial Income	
Lazonick & O'Sullivan (2000)	X	X		
Aglietta (2000)	X	X		
Boyer (2000)	X	X	X	
Stockhammer (2004)	X	X	X	
Crotty (2005)			X	
Krippner (2005)			X	
Froud et al (2006)	X	X		
Bellamy Foster (2007)			X	
Orhangazi (2008)	X	X	X	
Milberg (2008)		X	X	
Van Treeck (2008)	X	X	X	
Dallery (2009)	X	X	X	
Demir (2009)			X	
Clévenot, Guy and Mazier (2010)	X	X	X	
Hein & Van Treeck (2010)	X	X		
Onaran et al (2011)	X	X		
Baud & Durand (2012)	X	X	X	X
Lin & Tomaskovic-Devey (2013)			X	
Hetch (2014)	X	X	X	
Kliman & Williams (2015)			X	
Lapavitsas (2013)				X
Epstein (2015)	X	X	X	
Mason (2015b)	X	X		
Tomaskovic-Devey et al. (2015)			X	
Davis (2016)	X	X	X	
Seo et al (2016)	X	X	X	
Barradas (2017)	X	X	X	
Tori & Onaran (2018)	X	X	X	

*The category 'Other', in the case of Lapavitsas (2013), is because in his case the financialisation of NFC is related to the increased independence from banks for financing needs. In Baud and Durand (2012), financialisation also refers to the financial relationships imposed on workers and suppliers.

The remaining of this chapter will provide an historical account of the challenges faced by US NFCs in the 1970s and 1980s, moment in which major shifts start to happen. We will not focus specifically on the different papers presented in Table 1.2, leaving them for the next chapter when we turn to the relation between financialisation and capital expenditures. Rather than doing that, we will next show how the different meanings given to the financialisation of NFCs were outcomes of the challenges and changes faced by NFCs in the last quarter of the XXth century. We will concentration on the US case since it is the country where those changes associated with the financialisation of NFCs started.

b. US NFC during the 1970s and 1980s

i. Increasing international competition

In the beginning of the 1980s the typical big US corporation was a diversified conglomerate (G. F. Davis, Diekmann, & Tinsley, 1994). This type of corporation grew through unrelated lines of business in the 1960s and 1970s, rather than horizontal or vertical product-related acquisitions, due to government opposition to increasing concentration in product lines which resulted in strong antitrust policy -e.g., the Celler-Kefauver Act of 1950 (Fligstein, 1985). Hostile takeovers were also more controlled by the federal government during the 1960s -e.g., Williams Act of 1968 (Hirsch, 1986)- and therefore, acquisitions were usually friendly (Shleifer & Vishny, 1991).

Compared to the "relatively quiet and uncompetitive '60s" (Shleifer & Vishny, 1991, p. 54), US corporations in the beginnings of the 1980s faced a number of major economic challenges: high inflation, high interest rates, low profits and increased foreign competition. Due to inflation, corporations' real assets (i.e., property, plant, equipment) increased in value while high interest rates left corporations undervalued in the stock market (Fligstein & Markowitz, 1993). The stock market valuation suggested that in many cases the individual parts of the corporation were worth more than the combined entity (LeBaron & Speidell, 1987).[11]

Moreover, in the beginning of the 1970s, the USA was no longer in the same dominant economic position that it used to have since the end of WWII. Stein (2010, p. 179) provides a clear image of this:

> After World War II, U.S. GDP was three times larger than the Soviet Union's and six times larger than Great Britain's. The United States was the largest producer of steel, electricity, food, and oil. It held a monopoly on nuclear weapons until 1949 and led the world in new industries like computers and aircraft. Its resources determined the price of oil and sugar...
>
> The U.S. economy in 1976 remained weighty. Its GDP was three times larger than its closest rival, Japan. But its share of global GDP was down to 24.6 percent in 1976 (it had been 34.3 percent in 1950). American wells produced only 15 percent of the world's oil supply, falling from more than 50 percent after the war. Its furnaces produced 20 percent of the world's steel, down from 50 percent. The United States possessed 68 percent of all international financial reserves in 1952; in 1962, reserves fell to 27 percent, and in 1977 to

[11] This has been termed as the "diversification discount" (R. Rajan, Servaes, & Zingales, 2000). However, in the USA, the market did not always react negatively towards diversification as has been reported by Shleifer and Vishcni (1991) for the 1960s and more recently by Arikan and Stulz (2016).

> only 6 percent. After World War II, the United States shipped 32 percent of world exports, and in 1976 only 11 percent. Between 1945 and 1968 the United States experienced a trade surplus thirteen times; there would be just one more trade surplus the rest of the century. Since 1947, its exports grew 7.3 percent a year while imports rose 11.4 percent.

US NFCs were facing an increased competition in both mass-production and high-tech industries specially from Germany and Japan which were able to generate lower-cost and higher-quality products (Brenner, 2006). The number of industries in which US NFCs were challenged, especially by Japanese competition, was substantial: passenger cars, televisions, audio equipment, video equipment, photocopiers, and computers, all industries in which the USA previously dominated (O'Sullivan, 2001, p. 146)

As it is pointed out by Lazonick (2009, p. 9), although low wages and long working hours helped Japanese commodities capture US markets in the 1970s, during the late 1970s and 1980s Japan was still able to extend its competitive advantage and be a powerful competitor without wage differentials[12] but based on its innovative capabilities. Japanese competitive advantages encompassed different dimensions. Its skill base integrated the capabilities of workers with different specialties and responsibilities into learning processes: from shop-floor production workers to managers, including also suppliers and distributors. Other Japanese advantages were based on their vertically related capital-goods industries such as steel, machine tools and semiconductors which supplied the means for their products (O'Sullivan, 2001, p. 147).

In the US setting, shop-floor workers were not usually included in innovation processes, neither suppliers nor distributors (Lazonick & O'Sullivan, 2000, p. 15). In paralel, historical methods associated with Taylorism were no longer able to raise productivity, and rising absenteeism, turnover, and strikes were proofs of increasing discontent among workers with their role in the production process (O'Sullivan, 2001, p. 108). Moreover, during the 1950s, 1960s and part of the 1970s, politico-security objectives were a priority over economic objectives for foreign economic policy, the "American market was the huge carrot that solidified Cold War alliances" as Stein (2010, p. 51) puts it. This meant the USA would allow European and Japanese producers to sell in its market even though those countries protected theirs and discriminated against US products. This situation would eventually start to change in late 1970s, as the economy weakened and the entrepreneurs and unions started to put more pressure. However, the response from, at the time Carter's administration, was not satisfactory due to various reasons: a) even when faced to industrial questions, the implications for inflation were a priority, b) authorities denied that the country was losing its industrial base, c) authorities followed a

[12] Japanese wages per hour went from 1/6 of US in the beginning of the 1970s, to 5/6 at the end of the decade and almost no difference during the 1980s (O'Sullivan, 2001, p. 166).

macroeconomic approach of the situation rather than a micro or mesoeconomic and d) still international alliances and their access to US market played a more relevant role (e.g., getting European help in Afghanistan and Iran) (J. Stein, 2010, pp. 274–288).

Eventually, the situation would reach the point where "[o]ff-shoring was the alternative to industrial policy" (J. Stein, 2010, pp. 287–288). In a similar fashion, from a firm level perspective, O'Sullivan (2001, p. 154) claims that:

> Under these conditions, US corporate managers faced a strategic crossroads: they could find new ways to generate productivity gains on the basis of 'retain and reinvest', or they could capitulate to the new competitive environment through corporate downsizing. Much depended on the abilities and incentives of those who exercised control over corporate resources.

ii. Changes in corporate governance

New institutional dynamics would eventually lean towards the latter option (i.e., downsizing). Returns for shareholders were relatively low in the beginnings of the 1980s (Zey & Camp, 1996). However, contrary to the dispersal which had prevailed in previous decades, shareholders were increasingly organized in the form of pension and investment funds where US households gradually allocated their savings rather than banks and thrifts (O'Sullivan, 2001, p. 155). In this way, they could exert pressure through the board of directors by different means. Firstly, in the end of the 1970s, management felt pressure through leveraged buyouts carried out by corporate raiders. The strategy by these institutions involved issuing speculative-grade junk bonds to help them acquire the company and then use its cash stocks or break it up and sell different divisions. These attacks affected many of the most well-known America's firms at the time such as Walt Disney, MGM/UA, Sotheby's, Singer, Datapoint, RJR Nabisco, Gulf Oil, Phillips Petroleum or Reliance Group (Guttmann, 2016, p. 117). Pension and mutual funds, insurance companies and savings and loans banks benefitted from those deals (Useem, 1996). This increasing 'fluidity' or market short-termism[13] of capital in the USA paradoxically contrasted with the more 'dedicated' investors in Japan and Germany, with a long-term banking relationship, identified by Porter (1992) as one of the keys for their success.

Changes in corporate governance were also fostered by movements in the pension industry. Among them, the change from Defined Benefit (DB) to Defined Contribution (DC) stands out. DB guarantees a pension which is a proportion of workers´ final salary and is ensured by the employer. DC, on the other hand, gives a pension that depends on the sum of money

[13] Mainstream literature also highlighted the risks associated with short-termism. Framed in the theory of asymmetric information between managers and investors, the former can be induced to sacrifice long term investment due to takeover pressure (J. C. Stein, 1988) or simply to signal shareholders they are carrying an optimum investment and payout policy (Miller & Rock, 1985).

accumulated by the worker at the moment he or she retires. Contrary to DB, DC places the risk of a shortage on the employee as the employer is no longer required to back the pension. This latter system became popular in the 1980s and 1990s (Blackburn, 2003, p. 79). Furthermore, under a DC scheme, funds become what Blackburn (2003, p. 121) calls 'grey capital' in the sense that "pension assets represent a large cloud of indefinite, irresponsible and ill-defined property rights. The fund managers are not owners, and do not behave like owners. They are functionaries of the financial services industry. The mechanisms making them responsive to their own shareholders are stronger than those linking them to fund trustees, and far stronger than those linking them to policy holders." Contributors have no control on how their money is managed, they cannot remove trustees or force them to follow certain policies and many plans do not allow for direct representation of employees on the board of trustees. In this context, fund managers look for profitable rather than safer investments. The Employee Retirement Income Security Act (ERISA), introduced in 1974, aligned prudent investments among private pension funds with the conventional wisdom among financial investors (O'Sullivan, 2001, p. 160). Legislation became more flexible in relation to the types of assets in which pension funds could invest so they started buying riskier junk bonds with higher rates of return (Blackburn, 2003, p. 130)

Meanwhile, but especially after the demise of the market for junk bonds in the end of the 1980s, some institutional investors adopted a much more activist position against corporate governance by different means. For example, one of the most important institutional investors, the California State Public Employees Retirement System (CalPERS), began publishing a list of companies that would be targeted in its campaigns for corporate governance reform. By means of this, it played an import role in the removal of some of those companies' CEOs such as in GM, IBM, Westinghouse, and American Express (O'Sullivan, 2001, pp. 175–176).

These changes gave rise to two broad changes in corporate governance regimes: first a move to financial conceptions of the firm, according to which the company is a moldable set of assets, and second an emphasis on shareholder value maximization, which guides management to maximizing short-run returns on those assets (Aglietta & Rebérioux, 2005; Fligstein, 2002; Lazonick & O'Sullivan, 2000). Of course this was not the only option. Aglietta and Rebérioux (2005) distinguish, in fact, three types of corporate governance regimes. In the first, internal control is supported by banks and constrained by debt. In the second, control is exercised by the formation of a majority shareholding group allied with the managers of the company and/or the presence of patient institutional investors. Finally, control can be exercised by the stock market where the dominant strategy is the maximization of market value. The latter is the regime that would end up being imposed.

Lazonick and O'Sullivan (2000) claim that big American corporations eventually replaced the principle followed until the 1980s, of *retain* (profits) *and reinvest* (in physical capital and human resources), with *downsize* and *distribute*. According to the authors, apart from the role played by certain institutional investors (already reviewed), the crisis of that principle was further fostered, first, by the development of the agency theory for which managers, undisciplined by the market, ruled the company not for the benefit of the shareholders but for their own one (Fama & Jensen, 1983; Jensen & Meckling, 1976). This meant, among others things, overinvesting just to get more powerful. The introduction of the maximization of shareholder value was also achieved through an increase in top management payment, especially via stock-based rewards, that aligned managers and shareholders' interests. Dobbin and Zorn (2005) highlight, in fact, that the success of shareholder value as new corporate strategy was due to the alignment of three groups: hostile takeover firms, institutional investors, and securities analysts who managed to impose their will on corporations.

As a consequence of this movement, payouts to shareholders had a major increase since the 1980s. Although corporate dividends increased, in the USA, the way in which corporations have been distributing funds to shareholders is mainly through stock buybacks (Lazonick, 2016). Until 2003, the preference for buybacks was sometimes argued in terms of the tax differential between capital gains (in this case, arising due to share buybacks) and dividends but, since then, tax rates on long-term capital gains and qualified dividends were made the same (Lazonick, 2014). Brav et al (2005) survey CFOs and Treasures and find that, while dividends are associated with long-run sustainable revenues and managers tend to be reluctant to cut them (in order to avoid a punishment by the market), repurchases are seen as more flexible. Hence, the preference for repurchases.

Some regulatory changes were fundamental to allow firms to engage in share repurchases. Davis (2016, pp. 132–133) highlights those happening in 1982, 1991 and 2003. The Securities and Exchange Commission (SEC) issued the Rule 10b-18 in November 1982 which guaranteed that managers would not face charges of stock-price manipulation if the open-market repurchases on a single day did not exceed 25% of average daily trading volume over the preceding four weeks. In 1991, an amendment to Section 16(b) of the SEC Act of 1934 allowed executives to sell a stock option immediately after it is exercised.[14] Finally, in 2003, an update to Rule 10b-18 augmented the safe harbor provisions to repurchases.

[14] Before there was a six-month waiting period.

iii. Downsizing and changes in accumulation

The flip side of this increased distribution to shareholders was an attack on labour conditions. The downsizing affected specially the labour force in the manufacturing sector. While the number of employed people in the economy grew by 377,000 (0.4%) between 1979 and 1983, in manufacturing of durable goods it decreased by 2,032,000 (15.9%). Between 1983 and 1987, 4.6 million workers lost their jobs, almost half of them from the manufacturing sector. Moreover, the rate of job loss in the first half of the 1990s was higher (14%) than in the 1980s (10%). This situation did not affect only blue-collar workers but also white-collar in many of the biggest US corporations. In fact, while the 50 largest US industrial corporations by sales employed 6.4 million people in 1969 (7.5% of labour force), they reduced to 5.2 million in 1991 (4.2% of labour force) (O'Sullivan, 2001, pp. 188–189).

In terms of wages, the average hourly earnings of production and non-supervisory workers fell 5.7% in real terms between 1979 and 1988, 3.3% between 1989 and 1998. Furthermore, while productivity grew by 9% from 1989 to 1997, compensation fell 4.3% in real terms for all workers (O'Sullivan, 2001, p. 198). Collapse of the minimum wage since late 1970s also lowered wages' floor. The 'parted ways' between wages and productivity is, in fact, a structural trend that started in the USA by mid-1970s and has been increasing since then (Lazonick, 2014). Organised working class suffered an attack both by the state and private sector according to Mohun (2005, p. 364) which resulted in a decrease of the proportion of workers covered by unions from 23.3% in 1983 to 14.8% in 2001. Moreover, a little more than 50% of the complaints against corporations of unfair labour practices were upheld in 1984-1985 compared to the 84% of nine years before.

With the *downsize and distribute* principle orienting corporate strategy, many conglomerates being taken over, broke up and refocused on fewer activities, especially their core competences (Prahalad & Hamel, 1990). Large firms were in the 1990s approximately half as diversified as they were in the 1980s (G. F. Davis et al., 1994). For a sample of large acquisitions made between 1971 and 1982, Kaplan and Weisbach (1992) find that by the end of 1989, acquirers had divested almost 44% of the target companies. Contrary to the wave of mergers in the 1960s and 1970s, takeovers in the 1980s tended towards consolidation and specialization. They were characterized in some cases as correctives to the previous wave of mergers (Martynova & Renneboog, 2008; Shleifer & Vishny, 1991). Moreover, this new wave of acquisitions was able to take place because Reagan's antitrust policy allowed practically any type of merger (G. F. Davis et al., 1994).

Given that FCs enjoyed a comparatively better situation over the same period (Krippner 2011), a number of scholars have suggested that one solution adopted by NFCs was a retreat into

finance or what we call the *financial turn of accumulation* hypothesis. This idea can be traced back to the Monopoly Capital thesis. In an economy trapped in a state of stagnation, as characterized by Baran and Sweezy (1966), regular ways of absorbing surpluses such as capitalist consumption and investment become insufficient. Speculation appears as one of the new channels for mopping up surpluses (Magdoff & Sweezy, 1987). Although not necessarily sharing the idea of a stagnant economy, Crotty (2005) and Orhangazi (2008) also state that NFCs started using, in the beginnings of the 1980s, an increased percentage of their internal funds to buy financial assets and financial subsidiaries, or to start new financial arms themselves. For Krippner (2011) the degree of high labor militancy at home and increased international competition abroad that we already made reference to, induced NFCs to withdraw capital from production and divert it to financial markets. Similarly, Davis (2016) states that due to declining profitability, slower global aggregate demand growth and increased exchange rate volatility, NFCs shifted away from fixed capital toward financial assets. In Stockhammer (2004) and Tomaskovic-Devey et al (2015), the emphasis is put on a shift in management preferences caused by the hostile take-over movement and changes in pay structure which aligned their interests with shareholders´. Due to these transformations, NFCs became more rentier-like abandoning growth-oriented priorities and started investing in financial markets.

Increased pressure to maximize shareholder value was also transmitted through the introduction of new technologies, downsizing their workforce and offshoring (Fligstein & Shin, 2007; Milberg & Winkler, 2013). As a consequence, transnational NFCs increasingly redefined their core competences to focus on innovation, product strategy, marketing – in general higher value added activities - while reducing direct ownership of non-core activities (i.e., those associated with lower value added) (Gereffi, Humphrey, & Sturgeon, 2005). Moreover, economic globalisation, technological innovation and deregulation triggered another merger wave in the 1990s, this time global in dimension, with the European and Asian takeover market becoming more important and cross-border transactions growing substantially (Martynova & Renneboog, 2008).

Parallel to this internal reconfigurations, Prechel (2000) indicates that corporations also pushed for major tax breaks. Although, as we have highlighted, there was a lack of industrial policy, NFCs were benefitted by this other type of policy which also ended up playing a major role for some of the phenomenon associated with financialisation.

According to Stein (2010, pp. 220–221), the Revenue Act of 1978 implied a revolutionary change in the way in which government tried to promote business investment. Rather than offering an investment tax credit to those firms which effectively added to the stock of capital

assets, the Treasury reduced tax rate to rich individuals expecting they would invest. It was a benefit for savers rather than investors.

A response to the pressure for tax breaks came partly through the Revenue Act of 1981 which allowed for investment tax credits, reduced capital depreciation periods, and improved corporations' cash flow. However, it did not solve the intransigent problem of low profitability and high bankruptcy rates while, at the same time it compounded a growing fiscal crisis faced by the US government (Prechel, 1997a). In this context, the Tax Reform Act of 1986 and Revenue Act of 1987 sought a reduction in tax benefits but also created a legal framework for tax-free restructuration (Prechel, 1997a).

The latter provided the basis for the transition from the so-called multidivisional form (Chandler, 1990) to what has been called a multisubsidiary (Zey & Swenson, 1999) or multilayered subsidiary (Prechel, 2000). Corporate divisions were allowed to be transformed into legally separated subsidiaries, with the possibility of transferring assets and liabilities among them. Moreover, the new laws also reduced tax penalties for liquidations and the spinning off of corporate units. There were further incentives for corporations to turn divisions into subsidiaries (Prechel, 1997b). First, parent companies could issue shares on subsidiaries (but not divisions as they are part of the same corporation) and use the resulting capital for purposes of their choosing, creating internal capital markets. Second, parent companies were able to reduce financial risk by transferring riskier liabilities to subsidiaries, creating a *liability firewall* which was pierced only in extreme cases (Zey & Swenson, 1999). Third, subsidiaries increased the flexibility to reshape the corporation and its product portfolio. Fourth, subsidiaries were not only controlled by the parent company but also by the market, allowing for additional performance monitoring capacities. A study of the 100 largest industrial firms (Prechel, 1997b, p. 429) showed that between 1981 and 1993 the number of divisions per company went from 8.8 to 4.3 while the number of subsidiaries increased from 23.1 to 50.7.

4. Conclusion

In this chapter we have performed, to the best of our knowledge, the first bibliometric analysis carried on financialisation. Different reviews of the term have been done before and our results go in line with them. These studies have found, on average, between 3 and 4 major uses of the term: related to changes experienced by households, banks, non-financial corporations and, finally, in the whole capitalist system.

Our analysis has identified between 5 and 6 clusters. Four of them could be paired with those found by the literature. Another use, which has not been highlighted by previous reviews, is

what could be defined as the changes in commodity markets brought about by financialisation. The last cluster is associated specifically to the Great Recession but was not robust to the different lists of terms. Studies on this last cluster were, arguably, more concentrated on those years following the 2007/2008 crisis.

After this general assessment, we performed a similar analysis in terms of the different meanings given to the financialisation of the NFCs (but without bibliometric analysis). The term is usually applied to two different phenomena: the primacy of shareholder value orientation and the engagement of NFCs in financial activities. The engagement can be, at the same time, of two types: one related to financial payouts and another related to financial income obtained due to the increased acquisition of financial assets. We provided an historical account in order to understand both types of engagement for the case of the USA.

The financialisation of US NFCs begins in the last quarter of the XXth century when these corporations faced a series of pressures both from inside and outside of the firm. Among the former, we identified the increased pressure from shareholders in order to distribute more value. Along with this pressure from shareholders, corporations were facing higher interest rates, high inflation, lower profitability and increased competition from foreign enterprises.

The financialisation of NFCs should be understood as part of the changes that appeared in this context. The introduction of the maximization of shareholder value as guiding principle for corporate governance was the victory of the movement pushing for that. Part of the engagement in financial markets is related to the increasing transfer of funds to shareholders. The other type of engagement, conversely, is one in which NFCs increasingly profit from financial markets in order to counterbalance the decreased profitability in the productive sector.

This latter type of engagement is what we call the *financial turn of accumulation* and will be empirically analyzed in Part 2. The other type of engagement (i.e., that related to the increased distribution of funds to shareholders) has been said to come at the expense on investment and will be empirically analyzed in Parts 2 and 3. As we have reviewed, the *shareholders revolution* came at a moment of low profitability and in the crisis of big and diversified conglomerates. The fact the investment stagnated or decreased in this moment should come as no surprise considering the expected positive relation as we said in the introduction. However, even when profitability started to recover, investment did not follow.

In this chapter we have also stressed that the move towards the downsize strategy was due to, among other things, globalisation and the new corporate governance focusing on the maximization of shareholder value. It is surprising that this usual story has not been tested so far in all its components. We will do that in Part 3 of the thesis. But before that, next chapter will

focus especially on the relation between capital expenditures and profitability for different theories as well the situation of investment under financialisation.

Appendix of Chapter 1

Table A1.1 Lists of terms

Original	Associated term in CorText	Final List	Betweeness centrality	1st alternative list of terms	2nd alternative list of terms
article analyses	article analyses				
asset management	asset management	asset management	0.0369	asset management	asset management
Asset Management	asset management	asset management	0.0369	asset management	asset management
banking sector	banking sector	banking sector	0.0395	banking sector	banking sector
bargaining power	bargaining power	bargaining power	0.0042	bargaining power	bargaining power
behalf of the Cambridge	behalf of the Cambridge				
built environment	built environment	built environment	0.0869	built environment	built environment
business model	business model	business model	0.0000	business model	business model
business models	business model	business model	0.0000	business model	business model
Cambridge Political Economy	Cambridge Political Economy				
carbon market	carbon market	carbon market	0.0000	carbon market	carbon market
carbon markets	carbon market	carbon market	0.0000	carbon market	carbon market
commodity financialization	commodity financialization	commodity financialization	0.0011	commodity financialization	commodity financialization
commodity futures	commodity futures	futures markets	0.0012	commodity futures	futures markets
commodity futures markets	commodity futures markets	futures markets	0.0012	commodity futures markets	futures markets
commodity futures prices	commodity futures prices	futures markets	0.0012	commodity futures prices	futures markets
commodity index	commodity index	commodity index	0.0442	commodity index	commodity index
commodity indexes	commodity index	commodity index	0.0442	commodity index	commodity index
commodity markets	commodity markets	commodity markets	0.0004	commodity markets	commodity markets
commodity price	commodity prices	commodity prices	0.0078	commodity prices	commodity prices
commodity prices	commodity prices	commodity prices	0.0078	commodity prices	commodity prices
consumer credit	consumer credit	consumer credit	0.0830	consumer credit	consumer credit
corporate governance	corporate governance	corporate governance	0.0001	corporate governance	corporate governance
credit crunch	credit crunch	credit crunch	0.0000	credit crunch	credit crunch
crisis management	crisis management				
crude oil	crude oil	crude oil	0.0002	crude oil	crude oil
debt crisis	debt crisis	debt crisis	0.0000	debt crisis	debt crisis
developed countries	developing countries	developed countries	0.0000	developed countries	developed countries
developing countries	developing countries	developing countries	0.0240	developing countries	developing countries
distribution of income	income distribution	income distribution	0.0142	income distribution	income distribution
economic crises	economic crises	economic crises	0.0041	economic crises	economic crises
economic development	economic development	economic development	0.1097	economic development	economic development
economic	economic	economic	0.1393	economic	economic

geography	geography	geography		geography	geography
economic system	economic system			economic system	
economic systems	economic system			economic system	
economy and society	Economy Society				
Economy Society	Economy Society				
ecosystem services	ecosystem services	ecosystem services	0.0000	ecosystem services	ecosystem services
everyday life	everyday life	everyday life	0.1963	everyday life	everyday life
finance in the sector	finance sector	finance sector	0.0944	finance sector	finance sector
finance sector	finance sector	finance sector	0.0944	finance sector	finance sector
financial exclusion	financial exclusion	financial exclusion	0.0000	financial exclusion	financial exclusion
financial globalization	global financialization	global financialization	0.0072	global financialization	global financialization
financial inclusion	financial inclusion	financial inclusion	0.0294	financial inclusion	financial inclusion
financial institutions	financial institutions	financial institutions	0.0282	financial institutions	financial institutions
financial investors	financial investors	financial investors	0.0739	financial investors	financial investors
financial literacy	financial literacy			financial literacy	
financial products	financial products	financial products	0.0425	financial products	financial products
financial services	financial services	financial services	0.0336	financial services	financial services
financial subjects	financial subjects	financial subjects	0.1154	financial subjects	financial subjects
financialization and globalization	global financialization	financialization and globalization	0.0000	financialization and globalization	financialization and globalization
financialization of commodities	commodity financialization	commodity financialization	0.0011	commodity financialization	commodity financialization
financialization of commodity	commodity financialization	commodity financialization	0.0011	commodity financialization	commodity financialization
financialization of commodity markets	financialization of commodity markets	financialization of commodity markets	0.0010	financialization of commodity markets	financialization of commodity markets
financialization of everyday life	financialization of everyday life	financialization of everyday life	0.0000	financialization of everyday life	financialization of everyday life
financialization of globalization	global financialization				
financialization of the commodity markets	financialization of commodity markets	financialization of commodity markets	0.0010	financialization of commodity markets	financialization of commodity markets
financialization of the everyday life	financialization of everyday life	financialization of everyday life	0.0000	financialization of everyday life	financialization of everyday life
financialized commodity markets	financialization of commodity markets	financialization of commodity markets	0.0010	financialization of commodity markets	financialization of commodity markets
first part	first part				
food system	food system	food system	0.0000	food system	food system
fund investment	investment funds	investment funds	0.0775	investment funds	investment funds
funds for investment	investment funds	investment funds	0.0775	investment funds	investment funding
futures market	futures markets	futures markets	0.0012	futures markets	futures markets
futures markets	futures markets	futures markets	0.0012	futures markets	futures markets

futures price	futures prices	futures markets	0.0012	futures prices	futures markets
futures prices	futures prices	futures markets	0.0012	futures prices	futures markets
global capitalism	global capitalism	global capitalism	0.0000	global capitalism	global capitalism
global financial markets	global financial markets	global financial markets	0.0548	global financial markets	global financial markets
global financialization	global financialization	global financialization	0.0072	global financialization	global financialization
globalization and financialization	global financialization	financialization and globalization	0.0000	financialization and globalization	financialization and globalization
growth model	growth model	growth model	0.0000	growth model	growth model
household debt	household debt	household debt	0.0000	household debt	household debt
housing market	housing market	housing market	0.1395	housing market	housing market
housing markets	housing market	housing market	0.1395	housing market	housing market
income distribution	income distribution	income distribution	0.0142	income distribution	income distribution
index commodity	commodity index	commodity index	0.0442	commodity index	commodity index
interest rate	interest rates	interest rates	0.0166	interest rates	interest rates
interest rates	interest rates	interest rates	0.0166	interest rates	interest rates
investment fund	investment funds	investment funds	0.0775	investment funds	investment funding
investment funds	investment funds	investment funds	0.0775	investment funds	investment funds
labour market	labour market	labour market	0.0000	labour market	labour market
labour markets	labour market	labour market	0.0000	labour market	labour market
last decadelast decades	last decade				
Latin America	Latin America	Latin America	0.0000	Latin America	Latin America
mortgage market		mortgage markets	0.0000	mortgage markets	mortgage markets
mortgage markets	mortgage markets	mortgage markets	0.0000	mortgage markets	mortgage markets
national economies	national economy			national economy	
national economy	national economy			national economy	
national financial systems	national financial systems	national financial systems	0.0000	national financial systems	national financial systems
neoliberal policies	neoliberal policies	neoliberal policies	0.0113	neoliberal policies	neoliberal policies
neoliberal policy	neoliberal policies	neoliberal policies	0.0113	neoliberal policies	neoliberal policies
new form	new forms				
new forms	new forms				
non-financial corporations	non-financial corporations	non-financial corporations	0.0164	non-financial corporations	non-financial corporations
oil futures market	oil futures market	oil futures market	0.0000	oil futures market	oil futures market
oil futures markets	oil futures market	oil futures market	0.0000	oil futures market	oil futures market
oil market	oil market	oil market	0.0005	oil market	oil market
oil markets	oil market	oil market	0.0005	oil market	oil market
oil price	oil prices	oil market	0.0005	oil prices	oil market
oil prices	oil prices	oil market	0.0005	oil prices	oil market
orientation toward shareholder value	shareholder value orientation	shareholder value orientation	0.0106	shareholder value orientation	shareholder value orientation

Oxford University Press	Oxford University Press				
panel data	panel data	panel data	0.0057	panel data	
paper addresses	paper addresses				
past decade	past decade				
pension funds	pension funds	pension funds	0.0013	pension funds	pension funds
Political Economy Society	Political Economy Society				
price and volatility	price volatility	price volatility	0.0006	price volatility	price volatility
price movements	price movements	price movements	0.0340	price movements	price movements
price of oil	oil prices	oil market	0.0005	oil prices	oil market
price volatility	price volatility	price volatility	0.0006	price volatility	price volatility
prices commodity	commodity prices	commodity prices	0.0078	commodity prices	commodity prices
private equity	private equity	private equity	0.0236	private equity	private equity
Private Equity	private equity	private equity	0.0236	private equity	private equity
private equity funds	private equity funds	private equity funds	0.0392	private equity funds	private equity funds
profit rate	profit rate	profit rate	0.0000	profit rate	profit rate
profit rates	profit rate	profit rate	0.0000	profit rate	profit rate
profit share	profit share	profit share	0.0000	profit share	profit share
profit sharing	profit share				
property rights	property rights	property rights	0.0000	property rights	property rights
public policies	public policies	public policies	0.0156	public policies	public policies
public policy	public policies	public policies	0.0156	public policies	public policies
purpose of this paper	purpose of this paper				
rate of profit	profit rate	profit rate	0.0000	profit rate	profit rate
real estate	real estate	real estate	0.1414	real estate	real estate
real investment	real investment	real investment	0.0000	real investment	real investment
recent financial crisis	recent financial crisis	recent financial crisis	0.0087	recent financial crisis	recent financial crisis
research agenda	research agenda	crisis management	0.0000	crisis management	crisis management
Research limitations/implications	Research limitations/implications				
role of the state	role of the state	role of the state	0.0080	role of the state	role of the state
same time	same time				
shareholder value	shareholder value	shareholder value orientation	0.0106	shareholder value orientation	shareholder value orientation
shareholder value orientation	shareholder value orientation	shareholder value orientation	0.0106	shareholder value orientation	shareholder value orientation
sharing wages	wage share				
social policy	social policy	social policy	0.0000	social policy	social policy
social reproduction	social reproduction	social reproduction	0.0239	social reproduction	social reproduction
social sciences	social sciences			social sciences	
society and economy	Economy Society				
Society for the Advancement of Socio-Economics	Society for the Advancement of Socio-Economics				

special issue	special issue				
spot price	spot prices	spot prices	0.0009	spot prices	spot prices
spot prices	spot prices	spot prices	0.0009	spot prices	spot prices
subprime crisis	subprime crisis	subprime crisis	0.0163	subprime crisis	subprime crisis
taking place	taking place				
uneven development	uneven development	uneven development	0.0511	uneven development	uneven development
wage share	wage share	wage share	0.0034	wage share	wage share
wage shares	wage share	wage share	0.0034	wage share	wage share

Figure A1.1. Cluster based on 1st alternative list of terms

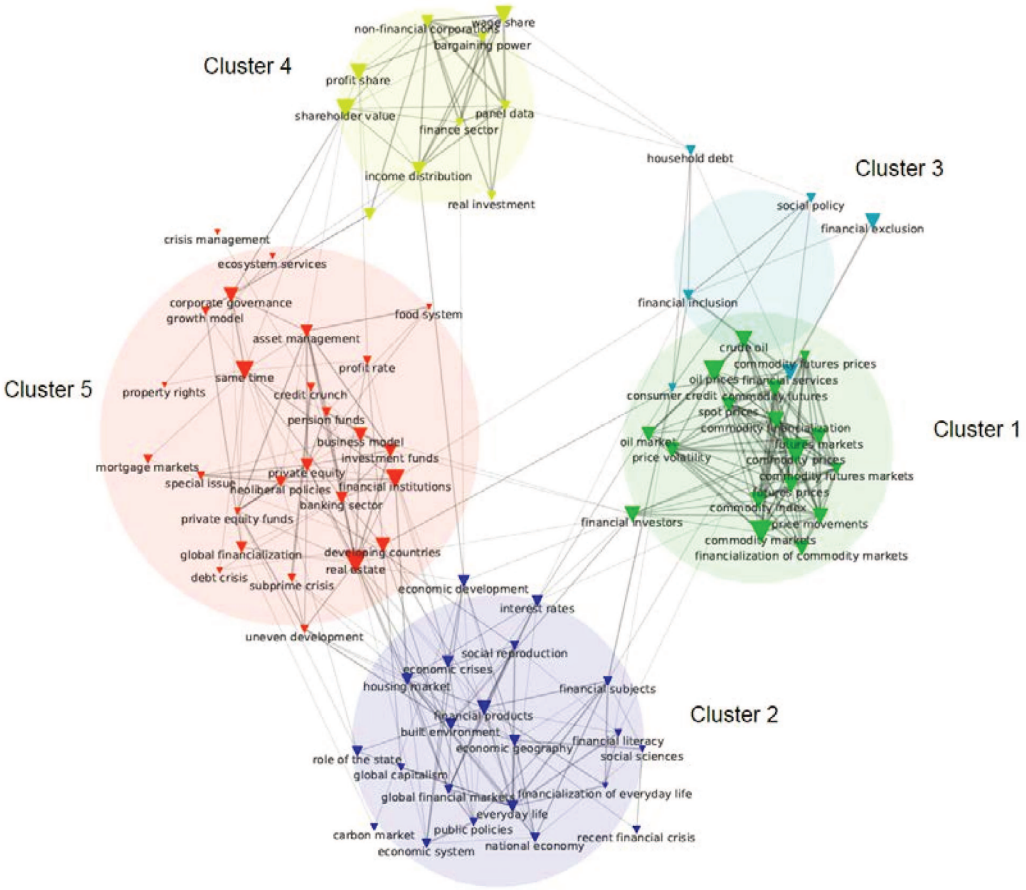
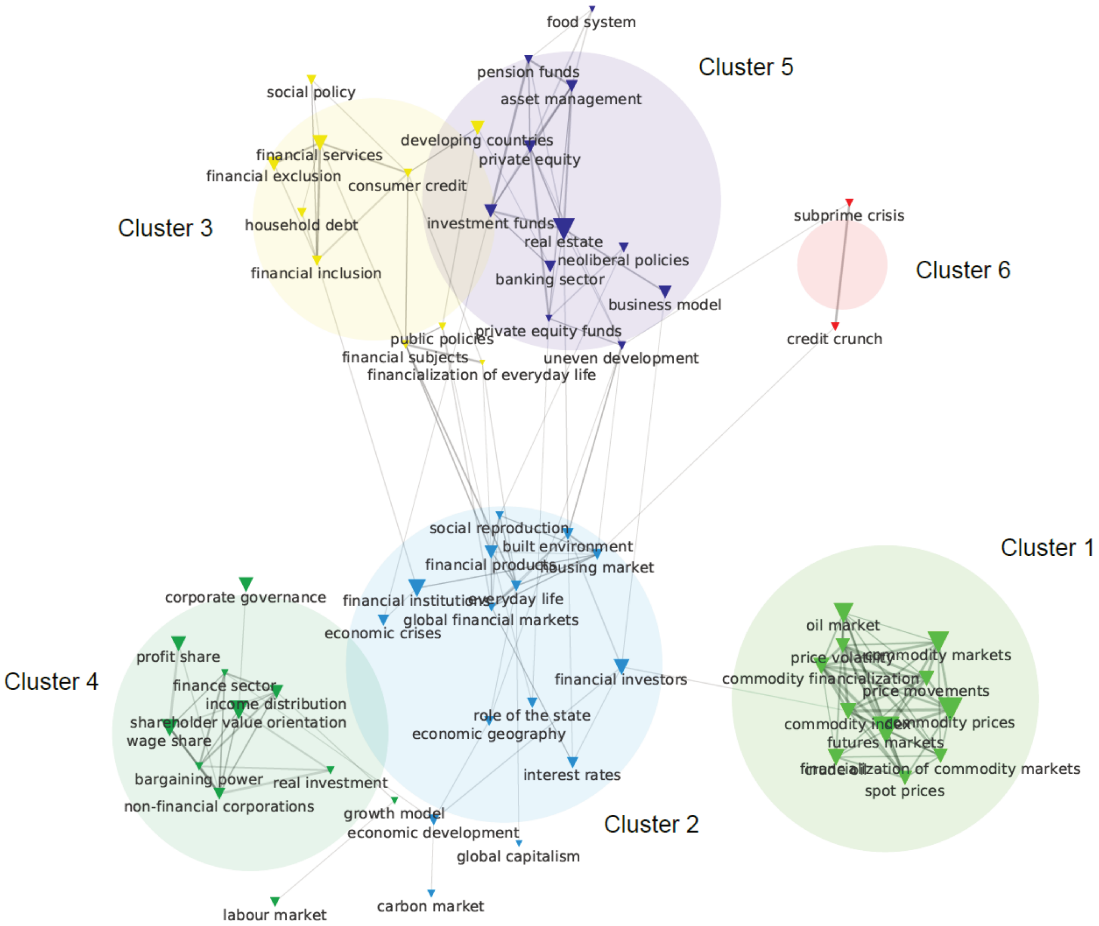


Figure A1.2. Cluster based on 2nd alternative list of terms



Chapter 2: Profit-Investment relations under financialisation

1. Introduction

In Chapter 1 we reviewed the literature on financialisation in general and the financialisation of the non-financial corporation (NFC) in particular, paying special attention to the US historical context in which it appears. In this chapter we will review the relation between profits and investment for different theories -Neoclassical, post-Keynesian and Marxian- while also focusing on the financialisation period, the moment in which the relation starts to depart from the historical one (i.e., starts to be a *puzzle*). Since financialisation has been mainly studied under heterodox economic theories, much of the analysis in terms of its effects will be devoted to the last two theories. We will be looking in these theories the answers for our research questions mentioned in the Introducion, namely, a) why are not firms investing in spite of high profitability?, b) what are they doing with those funds?, c) how can they remain profitable with low levels of investment?

We will start with the Neoclassical or mainstream research program. For it, Tobin's q is the main variable affecting investment decisions allowing to compare future streams of revenues from a stock of capital with its replacement cost. We will review the empirical work done under this paradigm and the different critiques that appeared within Neoclassical theory. Although this thesis is not based on this paradigm (for the reasons that will be discussed later), mainstream empirical analysis provides some clues that will help our research.

As we showed in the previous chapter, the financialisation of the NFC is sometimes defined as those changes in the functioning of the firm due to the introduction of the maximization of shareholder value (MSV) as the guiding principle for corporate governance. This claim has spurred several empirical studies, especially in the post-Keynesian literature, and, to a lesser extent, in the paradigm of asymmetries of information. These studies showed the negative consequences of higher payouts associated with the MSV on real investment (Barradas, 2017; Clévenot et al., 2010; Hecht, 2014; Orhangazi, 2008; Stockhammer, 2004; Tori & Onaran, 2018), or the negative effect of the presence of short term shareholders on investment (Asker, Farre-Mensa, & Ljungqvist, 2014; Brossard, Lavigne, & Sakinç, 2013; Bushee, 1998).

In this chapter, however, we will analytically show that this is only a part of the story. Even though the explanations that rest on the consequences of the MSV are consistent with stylized facts, they provide no clue to the two other questions, relatively missing in the analysis. *First*,

how is it that low investment and high profits (and also high payouts) are sustainable considering that today's firm capital accumulation is a prerequisite for tomorrow's profitability (Arestis & Karakitsos, 2004; Dallery, 2009; Lavoie, 2014; Minsky, 1986)? *Second*, how is it that low investment and high profits (and also high payouts) are sustainable in a context of higher global competition (Carballa Smichowski, 2018)? Crotty (2003) has referred to part of this problem as the 'neoliberal paradox': a permanent pressure from shareholders to increase earnings in a context of intense global competition. Considering that investment is one of the main weapons that firms have in order to face the pressure and survive in global competition, the neoliberal paradox becomes even *more paradoxical*: how could firms increase earnings, not only in a context of global competition but also with a lower use of one of their main weapons?

These two questions combined represent what we call the *supply-side* face of the profit-investment puzzle. While the demand-side of this puzzle has been well studied by the post-Keynesian theory by focusing on the alternative sources of effective demand that compensate the reduction of investment in the macroeconomic level, the issue of the sustainability on the supply-side has been comparatively overlooked by the post-Keynesian literature. One contribution of this chapter is to show how, in this framework, the puzzle can be solved by an increase of profit per unit of investment.

This is also the case for the Marxian literature, although with some nuances. This literature can be divided, first, among those scholars who recognize and do not recognize a role played by financialisation in the decrease of investment. The former indicate an increase in profits but reduced retained earnings as a result of dividends and repurchases. This stance is close to the MSV explanation and, therefore, also affected by the *supply-side* face of the profit-investment puzzle.

Among those who see no role of financialisation in the decrease of investment there are also different groups. Some of them claim that the rate of profit has decreased. For them there is evidently no puzzle. However, as we showed in the introduction of the thesis and will confirm in this chapter, claiming that there has been a decrease in the rate of profit since the 1980s is controvertial.

Other scholars from the Marxian tradition but associated with the *monopoly capitalism* thesis claim, rather than a decrease in the rate of profit, a decrease in profitable investment opportunities. In most of these cases, they identify an increased acquisition of financial assets by NFCs from which they derive more financial income, or what we call the *financial turn of accumulation* hypothesis, as a solution taken to overcome the challenges experienced in the 1970s and 1980s by NFCs. This alternative has the potential to offer a solution to the puzzle.

To sum-up, in this chapter, we intend to prove that the MSV explanation cannot be the complete story for low investment and high profits since it needs to account, not only for the distribution of funds to shareholders *instead of*, but also *in spite of* (not) investing them. Therefore, when questioning the sustainability of the profit-investment disconnection (per se and in a context of global competition), the MSV should be linked to other explanations. In this chapter we will introduce and theoretically justify them and they will be empirically analyzed throughout the thesis. Linking the MSV explanation to others, on the other hand, does not mean *denying* the importance of the MSV as some Marxian scholars do.

The chapter is organized as follows. Section 2 revises the Neoclassical theory and empirical findings. Section 3, the post-Keynesian theory of the firm. Section 4 reviews the Marxian literature. We finally provide some concluding remarks.

2. Neoclassical theory and empirical findings on the decrease of investment

As we said in the introduction, profitability is taken into account in neoclassical economics through Tobin's *q* which is also, according to Erickson and Whited (2012), the most common regressor in corporate finance. The idea behind Tobin's q is that the rate of investment is related to the value of capital relative to its replacement cost: investment will happen when capital has a higher value in the market than what it costs to produce it (Brainard & Tobin, 1968). It is derived from a standard neoclassical model of a perfectly competitive firm that maximizes shareholders' net wealth over multiple periods of time when it faces adjustment costs in changing its capital stock (Hayashi, 1982).

These adjustment costs are the main difference with earlier neoclassical theories of investment (see for example Hall & Jorgenson, 1969; Jorgenson, 1963, 1971). They also start from a firm's optimization behavior: its objective is to maximize the present discounted value of net cash flows subject to technological constraints and exogenous output. A firm invests until the value of the extra output produced by that capital equals the user cost: interest, depreciation rate and capitals gain or loss associated with the change in the price of capital. However, in earlier neoclassical theories, there were no adjustment costs: an expansion of the stock of capital was assumed to be instantaneous.

Although Tobin's theory was formulated in marginal terms (marginal *q*), namely the ratio of the market value of an additional unit of capital relative to its replacement cost, most empirical works use average *q*, the ratio of market value of existing capital relative to its replacement cost (Von Furstenberg, Lovell, & Tobin, 1977). Both of them, besides the conceptual gap, provide a measure related to profitability given by the market value of the firm.

Earlier empirical evidence on the role of *q* on investment is mixed. Schaller (1990) notes that Tobin's *q* performs poorly in times series data and links it to the aggregation of heterogeneous firms with different adjustment costs and imperfect competition. Other problems are the aforementioned measurement –average *q* vs. marginal *q*- (Blundell, Bond, Devereux, & Schiantarelli, 1992), bias in the stock market evaluation arising due to asymmetric information (Stiglitz & Weiss, 1981) and bubbles or noisy trade (Bond & Cummins, 2001), among others.

The last two critiques are, in fact, part of a broader flaw. Abel (1981) and Hayashi (1982) provide a rigorous mathematical foundation of Tobin's *q* where capital markets are assumed to be perfect. Asymmetric information and bubbles show two cases where this assumption is not verified. Moreover, assuming perfect capital markets implies there are no financial constraints: a firm's financial structure is irrelevant to investment since internal capital and external funds are perfect substitutes. Fazzari et al. (1988) early showed that investment *does* depend on such financial factors. Problems of asymmetric information are also the main explanation since they "make it very costly, even impossible, for providers of external finance to evaluate the quality of firms' investment opportunities. As a result, the cost of new debt and equity may differ substantially from the opportunity cost of internal finance generated through cash flow and retained earnings." (Fazzari et al., 1988, p. 142) Their empirical findings corroborate this: investment depends on variables measuring internal liquidity. Later works also confirm this finding (Almeida & Campello, 2007; Blundell et al., 1992; Brown, Fazzari, & Petersen, 2009; Fazzari & Petersen, 1993; Hubbard, 1998). These results would be nevertheless contested by Kaplan and Zingales (1997, 2000) who question the assumption that investment-cash flow sensitivities increase monotonically with the degree of financing constraints. They show that the investment-cash flow sensitivity depends upon the relationship between the curvature of the production function and the curvature of the cost function at the optimal level of investment. As noted by Moyen (2004, p. 2061), the differences in the end "depend crucially on the criterion used to identify whether a firm experiences financing constraints". This is because the wedge between the internal and the external costs of funds is unobservable.

Besides these conceptual critiques, some studies have lately pointed towards other directions in explaining the weak results of Tobin's *q* which are closer to the topics dealt with in this thesis. Gutiérrez and Phillipon (2017) show that investment is weak relative to Tobin's *q* since the early 2000s and propose a broad range of categories explaining them: financial frictions, measurement error (intangible assets and globalisation), lack of competition and tighter governance. Studying these effects at the industrial and firm level, they find intangibles and globalization to be significant at the industry level while lack of competition and short-term shareholders at both levels. The latter are related to those changes in corporate governance that promote buybacks instead of investment, an argument close to that exposed by the

financialisation literature. Similarly, Lee, Shin and Stulz (2016) show that high q firms are investing less after mid-1990s and using those funds to repurchase shares.

These findings seem to be an important departure from traditional mainstream positions related to the effects of financial markets on investment. In their widely cited paper, Rajan and Zingales (1998) find a positive relation between economic growth and financial development arguing that the latter reduces transaction costs of saving and investing and also that it helps firms overcoming moral hazard and adverse selection problems. As shown by Tori and Onaran (2018), the mainstream literature most of the time finds that the development of financial markets has the positive effect of relaxing firms' financial constraints.

The role of intangible assets has also been followed by other mainstream scholars. In their seminal work on intangible investment, Corrado, Hulten and Sichel (2005) grouped the different items that belong to the knowledge capital of the firm into three categories: 'Computerized information', 'Scientific and creative property' and 'Economic competences'. The rise in intangibles along with the distinction among different types fostered new empirical and theoretical papers in order to assess their impact. Peters and Taylor (2017, p. 252) include intangibles, along with tangibles when assessing the validity of Tobin's q. According to their estimations, when physical and intangible investments are taken together, the q is a better predictor. Gutiérrez and Phillipon (2017) find that industries with higher share of intangibles exhibit lower physical investment. Alexander and Eberly (2018) show the sectoral shifts in investment: it has remained stronger in non-tradeable industries that cannot be off-shored while in other growing sectors, with skill-biased technological change, physical investment was substituted by intangible investments. Döttling et al. (2017) find weak investment in Europe and the USA. While in the case of the former, investment follows Tobin's q, in the case of the latter investment decreased in those sectors with lower competition while high intangible firms invest less than low intangible ones.

Although in this thesis we will go in the direction pointed by many of these last studies, we will not follow the mainstream theoretical framework for various reasons. In a more general stance, we agree with Lavoie (2014, Chapter 1) when characterizing the neoclassical research program as being based on rational expectations, methodological individualism and confidence in markets as efficient resource allocators with the latter being more an ideological device (Lavoie, 2014, p. 26). As highlighted by Levin (2003), the privileged position of this research program does not seem to be related to its scientific merits but rather to its political role in current society. Nevertheless, we believe there is an important caveat that has to be made, as noted by Mason (2018):

> [M]any producers of this kind of model actually have a quite realistic understanding of the behavior of real economies, often informed by firsthand experience in government. The combination of real insight and tight genre constraints leads to a strange style of theorizing, where the goal is to produce a model that satisfies the methodological conventions of the discipline while arriving at a conclusion that you've already reached by other means.
>
> … The creativity in mainstream empirical work has not yet been matched by any effort to find an alternative framework for thinking of the economy as a whole. For people coming from non-mainstream paradigms — Marxist or Keynesian — there is now plenty of useful material in mainstream empirical macroeconomics to draw on.

We believe that this distinction between the theoretical foundations and the empirical findings is relevant in general as well as in the specific topic of this thesis. Many of the motives reviewed by mainstream economists such as the effects of funds distributed to shareholders, the offshoring of production and the role played by intangibles along with the methodological tools developed, for example, in terms of intangibles measurement, will be beneficial for our study. Nevertheless, we will not be following Tobin's *q* theory of investment.

This is not so much due to the empirical problems we reviewed. Some of these problems are related to the feeble link between profitability and investment that affects all theories. We will not follow Tobin's *q* for theoretical reasons. That theory depends on a set of assumptions such as no financial constraints, constant returns to scale and perfect competition (Döttling et al., 2017, p. 24) which present significant deviations from reality as we have already reviewed.

Moreover, as claimed by Hein (2008), during financialisation, increases in *q* might be triggered in fact by share buybacks and dividends that artificially inflate the market value of the company. This is far from the original Tobin's idea and it is not clear why it should lead to an increase in investment (Onaran et al., 2011). Causality, in fact, seems to be inverted: while the rise in stock prices should provide more funds in order to invest, nowadays those funds are used to raise stock prices.

As we mentioned before, we believe these are all symptoms of more profound theoretical issues. As Crotty (1990, pp. 527–528) puts it[15]:

> Tobin begins his analysis with the assumption that stockholders and managers have the same objective, namely the maximization of the market value of the firm's common stock. He immediately joins this assumption to another, that the best judge of whether investment will or will not increase

[15] Tobin gave an answer to these points in the same issue where Crotty's critique appeared.

> the market value of the common shares is the market itself. In place of Keynes' irrational "casino," Tobin substitutes "well organized and efficient" markets for corporate securities (1977, p.237). Tobin's stable and efficient financial markets provide "a continuing market valuation of the enterprise and thus indirectly of the productive assets of the company" (p.237) …
>
> Tobin's model is a neoclassical general equilibrium model. All agents in this model have identical information and form identical, conditionally correct expectations of the future. Since enterprise management and the firm's stockholders also have the same objectives, there is nothing that management knows, expects, or desires that is not simultaneously known, expected, and desired by the stockholders. There is a complete conflation of ownership and management.

What we need is a theoretical framework that starts with the acknowledgement of the differences and conflicts between managers and owners (workers as well) which, rather than being based on asymmetries of information and computable probabilities, relies on the fundamental uncertainty involved in economic decisions and instability of the financial sector, among others. All of these, furthermore, are core features of financialisation. Most of the neoclassical discussions related to Tobin's q are based on the validity of indicators (measures of financial constraints, of Tobin's q itself) rather than tackling those conceptual issues. For these reasons, in this thesis we will be following different (non-neoclassical) frameworks such as the post-Keynesian or Marxian. We revise them next.

3. Post-Keynesian theory

This section starts by reviewing the post-Keynesian theory of the firm and the model used to represent investment decisions in the context of the conflict between managers and shareholders. Second, we discuss how empirical findings fit with its predictions and later we develop our critique, or the puzzle that still needs to be accounted for. We finally discuss different conditions that have to be met in order to solve it and update the theory based on them.

a. Theory of the firm and its investment decisions under different regimes of accumulation

The general framework for the post-Keynesian theory of the firm and its decision regarding investment was synthetized by Lavoie (2014) based on the works of previous post-Keynesians and Institutionalists (Penrose, 1959; Sylos-Labini, 1971; Wood, 1975), providing an accessible, two-curve graphical analysis: the finance frontier (FF) and the expansion frontier (EF).

The first represents the finance constrain of the firm and shows which is the maximum level of investment that can be achieved with certain amount of profits or, in the other way, the minimum amount of profit needed to carry out an investment project. It is, basically, an accounting identity[16]:

$$s_f(\Pi - iD) + x_s I + x_d I = I + x_f I \tag{1}$$

The left side of equation (1) represents the sources of funds where s_f is the retention ratio, Π firm's profits, i the interest rate, D issued debt, I net physical investment and x_s and x_d are, respectively, net new equity and net new debt, expressed as a ratio of net physical investment. Internal funds have a more relevant role for post-Keynesian theory *vis-à-vis* neoclassical. Contrary to the Modigliani-Miller (1958) principle of capital structure irrelevance for which investment decisions are independent of financial factors, we already discussed Fazzari et al. (1988) findings who show the importance of financing constrains and, specially, the internal cash flow for investment decisions.

The right side of equation (1) represents the uses of funds where, apart from net physical investment, x_f represents net financial investment as a ratio of net physical investment.[17] Equation (2) is obtained by dividing everything by the stock of capital and rearranging terms, which gives the equation of the FF:

$$r = g\left(\frac{1 + x_f - x_s - x_d}{s_f}\right) + id \tag{2}$$

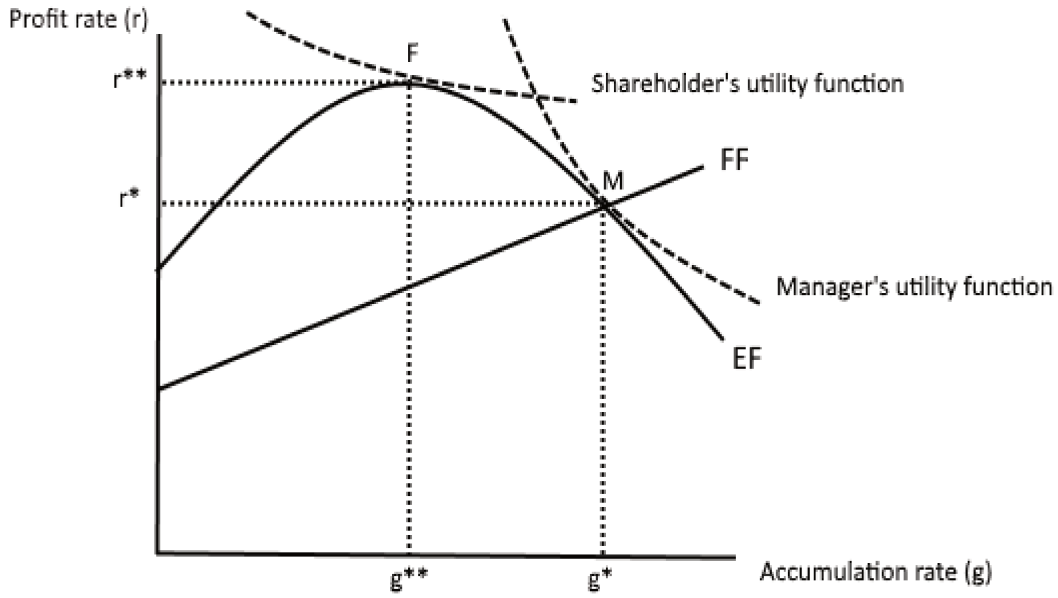
Where r = Π /K, g = I/K and d = D/K. The other constituent of the theory of the firm is the EF which gives the maximum rate of profit that can be expected at a certain level of accumulation. The concave shape indicates the fact that, up to a certain point there is a positive relation between expected profits and accumulation. However, beyond that point a negative relation arises because of two reasons. First, due to the limitations of management regarding their ability to handle the speed of expansion (the Penrose effect). Second, due to the fact that the firm would expect reduced profit rates if it wants to grow at higher rates and compete for market share with other firms. It is usually assumed that the firm decides in the segment of the curve where the trade-off exists since, before that point, it can achieve higher rates of growth and profit at the same time.

[16] We follow Dallery's (2009) notation.

[17] This right side is useful to illustrate the idea of the *financial turn of accumulation* by showing the decision involving one type of investment or the other. As it is shown in equation (2), a higher x_f will imply a lower g at given r.

Figure 2.1 illustrates both curves and the broad different equilibriums that might appear under two regimes of accumulation: M (for Managerial Capitalism) and F (for Financialisation). This distinction recognizes the changes brought about by financialisation in the relations among different groups within the firm which motivated further developments in the post-Keynesian theory of the firm (Dallery, 2009; Dallery & Van Treeck, 2011; Hein & Van Treeck, 2010; Stockhammer, 2004, 2005).

Figure 2.1. Post-Keynesian Firm under Managerial Capitalism and Financialisation

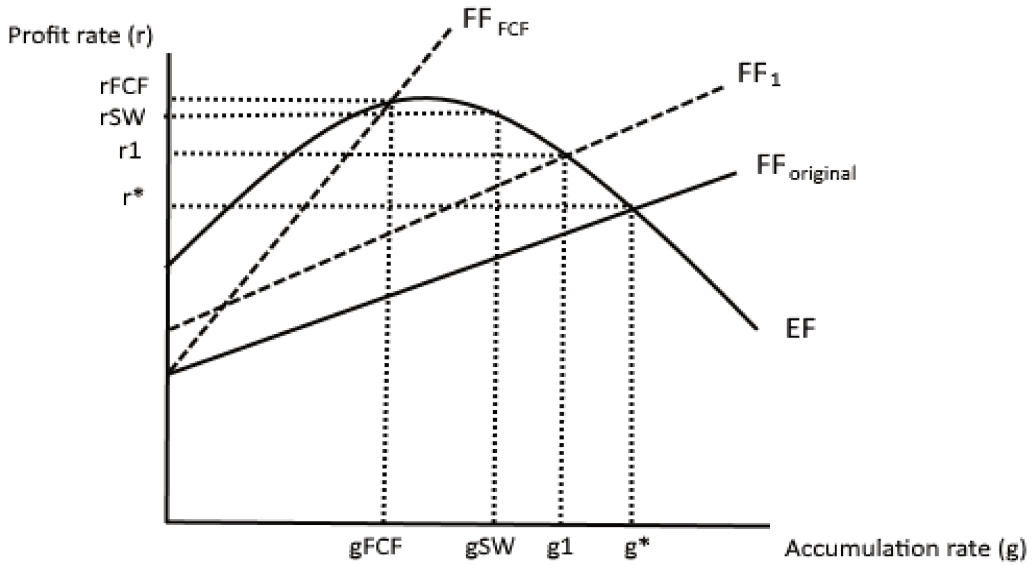


Ending in M or F depends on the power struggle between shareholders and managers according to Stockhammer (2004). He assumes that while the former focus on profit, the latter prefer growth. The equilibrium M associated with r^* and g^* belongs to the so called managerial capitalism, where managers have a higher degree of freedom from shareholders in order to pursue growth strategies. Consequently, they may choose (g^*, r^*) that maximizes the rate of growth of the firm given the finance constrain. On the contrary, when shareholders become more powerful, that is, under the MSV orientation, they can force managers to follow a lower growth strategy, g^{**} associated with a higher rate of profit, r^{**}.

However, as noted by Dallery (2009), financialisation has further implications for the firm and parameters in equation (2) (Figure 2.2). Shareholders do not necessarily consider the profit rate, or the whole amount of profits earned by the firm, as their main objective but, rather, the part of those profits that can be claimed by them, the free cash flows (FCF). It is important to have this distinction in mind (i.e., the difference between a preference for profit vs. a preference for

payouts) because, theoretically, payouts may be funded completely out of debt.[18] Graphically, the maximization of FCF (g_{FCF}, r_{FCF}) implies maximizing the gap between the FF and the EF, determining the retention ratio (s_f) as a residual. Without reaching that extreme point, shareholders might push for higher dividends (lower s_f), lower issuance of net new equity (lower x_s) or greater indebtedness (higher d). All in all, these different alternatives will shift the FF upwards with the associated (g_1, r_1). Finally, shareholders might also be interested in maximizing the firm's value on the market. In this case, due to the fact that firm's value has a positive relation with its growth, shareholders also have to take into account capital accumulation. Considering that the maximization of firm's value implies calculations over an infinite spam of time and the absence of relevant knowledge in order to do such thing, firms follow rules of thumb such as the well-know 15% return on equity (Dallery, 2009, p. 511). The result of this strategy of maximizing shareholder's wealth (SW) might imply the combination (g_{SW}, r_{SW}), being $g_{SW} > g_{FCF}$ and $r_{SW} < r_{FCF}$.

Figure 2.2. Post-Keynesian Firm under different scenarios in Financialisation



After presenting the post-Keynesian theory of the firm and its investment decisions under financialisation, the next section will revise the empirical literature that deals with the effect of the MSV on investment.

b. Empirical findings under financialisation

Table 2.1 revises the literature on the effects of financialisation on investment. It includes both econometric and non-econometric studies and in most of the cases, the studies conclude that

[18] In fact, Bignon, Biondi and Ragot (2009, p. 6) note that "fair-value accounting of assets incorporates profits that are only virtual, latent or simply future, and can become a means to accelerate the recognition of revenues, at the risk of normalizing the distribution of ficticious dividends and instituting Ponzistyle accounting schemes."

financialisation negatively affects investment. As it is presented in Equation (1), the literature recognizes two broad channels by which investment is affected. The first, what Fiebiger (2016) calls the drain side of financialisation, has implied a heightened transfer of earnings from non-financial corporations to financial markets through stock buybacks, interest and dividend payments. The MSV is basically represented by this channel. The second channel, what Fiebiger (2016) calls the pull side of financialisation and we have defined as the *financial turn of accumulation* hypothesis, has implied an enlarged acquisition of financial assets from which NFCs derive a growing proportion of financial income. The idea is that both channels have a negative impact since financial payouts, including interest expenses, represent a drain of resources that could be used for investment purposes while financial income is obtained from financial investment which crowds out real investment. Another financialisation-related variable that is usually included is a measure of debt, such as long term debt, to indicate the extent of financial fragility of the firm.

Table 2.1. Review of financialisation and investment in post-Keynesian literature

Paper	Period	Data	Type of Analysis	Financialisation Variables	Effect on Investment
Lazonick and O'Sullivan (2000)	Post WWII	Aggregate data from the USA	Non-econometric, focus on financial payouts channel	DIV+STK REP	Negative
Stockhammer (2004)	1963 - 1997	Aggregate data from Germany, France, UK and USA	Econometric	(INT INC + DIV INC)/VA	Negative but nonsignificant for France and the USA. Positive but nonsignificant for Germany and UK
				(INT+DIV)/VA	Negative but nonsignificant for Germany, France and UK. Positive for the USA
Krippner (2005)	1950-2001	Aggregate data from the USA	Non-econometric, focus on financiall income channel	INT INC+DIV INC+CAPITAL GAINS	Negative
Milberg (2008)	1960-2006	Aggregate and firm level data from the USA	Non-econometric, focus on financial payouts channel	DIV+STK REP	Demand for domestic investment is reduced due to the international activities of NFC. Profits are therefore distributed rather than invested
Orhangazi (2008)	1973-2003	Panel of US non-financial firms	Econometric	(INT INC+DIV INC)/K	Positive but nonsignificant for all and small NFC. Negative and significant for large NFC
				(INT+DIV+STK REP)/K	Negative and significant for all, large and small NFC
				LT DEBT/K	Negative and significant for all, large and small

					NFC
Van Treeck (2008)	1965-2004	Aggregate data from the USA	Econometric	(INT – INT INC)/K	Negative and significant
				(DIV – DIV INC)/K	Negative and significant
Demir (2009)	1991-2003	Panel of Argentinian, Mexican and Turkish non-financial firms	Econometric	(INT INC + DIV INC)/FA	Negative and significant
Clévenot, Guy and Mazier (2010)	1978 - 2003	Aggregate data from France	Econometric	(DIV+CAPITAL GAIN)/FA	Negative and significant
				ΔFA/FA	Negative and significant
Onaran et al (2011)	1962-2007	Aggregate data from the USA	Econometric	(INT + DIV – INT INC – DIV INC)/VA	Negative and nonsignificant
Hecht (2014)	1998 - 2008	Panel of Chinese, French, German, British, Indian, Japanese and US non-financial firms (results for the financialisation specification, for the whole sample)	Econometric	(STK ISSUE-STK REP)/K	Positive and significant.
				LT DEBT/K	Positive and significant.
				(INT INC+DIV INC)/K	Negative but non-significant.
				INT/K	Negative and significant.
				DIV/SALES	Positive but non-significant.
				FA, INT INC, DIV INC, CAPITAL GAINS	No effect. Decrease in investment is due to a decrease in the profit rate.
Schoder (2014)	1970-2007	Panel of US non-financial firms	Econometric	DEBT/A	Varied results
				DIV/π	Negative and significant for 1971–1985, positive and nonsignificant for 1986–2007
				DIV/MARKET VALUE	Positive and significant for 1971–1985, negative and nonsignificant for 1986–2007
				(DIV+STK REP)/K	Positive and significant for 1971–1985 and 1986–2007
				NON OPERATING INC/π	Positive and significant for 1971–1985, positive and nonsignificant for 1986–2007
Tomaskovic-Devey et al. (2015)[1]	1970-2008	Panel of US non-financial industries	Econometric	FA/A	Negative and significant
Mason (2015a)	1971-2012	Aggregate data from the USA	Non-econometric, focus on financial payouts channel	DIV, STK REP	Negative
Fiebiger (2016)	1946-2014	Aggregate data from the USA	Non-econometric, focus on both channels	DIV, STK REP	Not necessarily affect investment because financial payouts were financed through borrowing.
				FA, INT INC, DIV INC, CAPITAL GAINS	FA have been overestimates by including other types of assets (FDI, intangibles). DIV INC is not necessarily financial

Sea et al (2016)	1990-2010	Panel of Korean firms	Econometric	DEBT/K	Negative and significant
				(DIV INC + INT INC)/K	Positive and non significant
				(DIV + INT)/K	Negative and non significant
Barradas (2017)	1995-2013	Panel of European countries	Econometric	(INT INC + DIV INC)/GDP	Positive and significant
				(INT + DIV)/VA	Negative and significant
				DEBT/VA	Positive and nonsignificant
Davis (2017)	1971-2013	Panel of US non-financial firms	Econometric	NON OPERATING INC/FA	Negative and nonsignificant for all firms. Positive and significant for large firms
				INT/DEBT	Positive and non significant for all firms. Negative and significant for large firms
				FA/A	Positive and significant for all firms and quartiles
				DEBT/A	Negative and significant for all firms and quartiles
				STK REP/EQUITY	Negative and significant for all and large firms
Tori and Onaran (2018)	1983 - 2013	Panel of UK non-financial firms	Econometric	DIV/K	Negative and significant
				INT/K	Negative and significant
				(INT INC + DIV INC)/K	Negative and significant. Positive and significant for lower 25 percentile
				FA/K	Negative and significant

Note: INT = interest, DIV = dividend, INC=income, VA=gross value added, K = stock of capital (net property plant and equipment), STK = stock, REP= repurchase, LT = long term, FA = financial assets, A=assets, π = profit.

Table 2.1 indicates, as it was noticed by Dallery (2009), that the impact of the MSV on investment is related to payouts rather than profit -as originally put by Stockhammer (2004). The table also shows that most studies find at least one channel that negatively affects investment, although the negative effect of financial payments is more persistent.

The financial income channel has been lately challenged in some papers, at least for the US case. Fiebiger (2016) asserts that, for the USA, FDI is classified as a financial asset in the national accounts and therefore used as evidence for the financial income channel when its increase would rather support the thesis of an internationalization of the NFC. Davis' (2017) econometric results show a positive relation of financial assets and the financial profit rate with investment. She interprets them, respectively, as due to the greater flexibility provided by liquid financial assets in order to support real investment, and the possible complementarities between the financial and non-financial components of their business (for example, store-issued credit cards supporting the sales of non-financial products). Taking into account that the measure of financial assets used by Davis (2017) contains `cash and short-term investments', the result is not surprising and rather standard since Fazarri et al. (1988) show, empirically, the importance of internal cash to smooth investment when firms are financially constrained. This result also

goes in line with Post Keynesian models of accumulation which stress the importance of internal finance for investment (Eichner, 1976; Galbraith, 1968). Nevertheless, we will scrutinize this channel in Part 2.

In the next subsection we will show that even if we were focused only on the channel related to the MSV, which has more empirical support, it would still be only a part of the whole story. As it is clear both from the theoretical and empirical review, during financialisation, *all changes taken into account seem to be limited to the FF*. But, are there any implications for the EF?

c. Still a puzzle: the *supply-side* face of the profit-investment puzzle

In spite of the various empirical findings that confirm the trade-off between payouts and investment exposed previously, in this subsection it will be shown that other theoretical problems arise and have been surprisingly under-studied.

As Dallery (2009, pp. 500–501) correctly puts it: "it seems that the trade-off is not between profits and investment, or between profit rate and accumulation rate. The trade-off under study may be between today's profitability and tomorrow's profitability. Considering this trade-off raises the puzzling question of shareholders preferences in terms of accumulation, because tomorrow's profitability depends on today's accumulation". Similarly, Lavoie (2014, p. 136) also states that "[p]rofitability and expansion are thus tightly related. Firms can grow because they make profits that allow them to finance their expansion. But, reciprocally, the growth of firms allows them to be profitable."[19] This idea of a circular, virtuous relation between profits and accumulation goes at least to Classical economists. However, as the data shows, under financialisation the relation seems to be broken.

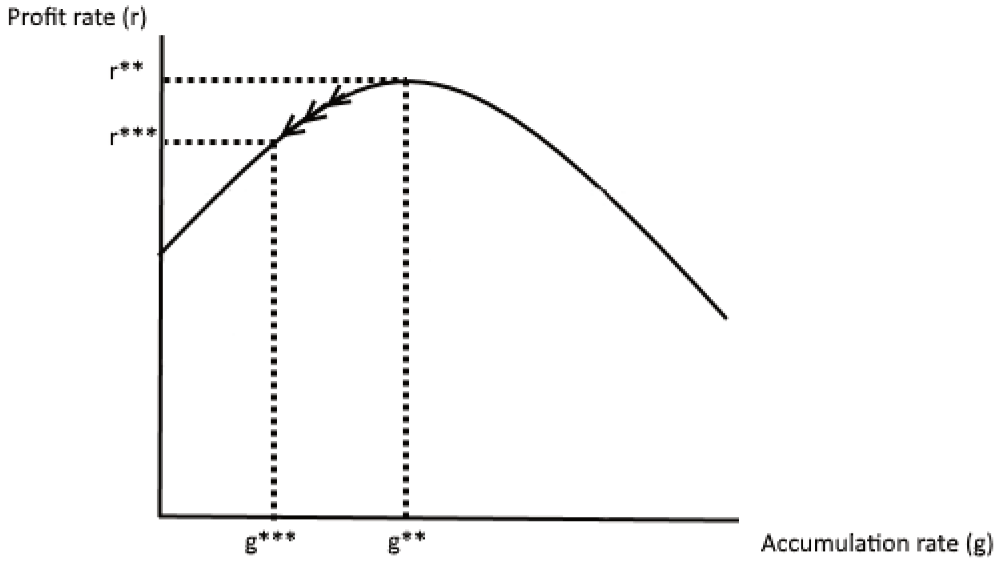
The little attention paid to this puzzle is probably related to the fact that it points towards the 'supply-side' face of investment rather than its 'demand-side' which is, traditionally, the core of post-Keynesian economics. This may explain why studies focusing on the mechanisms that allow profits to remain high, despite low levels of investment, have relied on the alternative sources of effective demand that compensate the reduction of investment in the macroeconomic level, such as the increase in capitalists' consumption (Cordonnier, 2006), expenditures cascades (Behringer & Van Treeck, 2013; R. H. Frank, Levine, & Dijk, 2014) or government deficits and external surpluses (Van Treeck, 2009).

Although those are necessary conditions at the macroeconomic level, from a 'supply-side' point of view, the maintenance of high profits with low investment is still puzzling considering that today's investment becomes future production facilities. Therefore, a permanent reduction in the

[19] The dependence of future profits on current investment has also been highlighted, among others, by Arestis and Karakitsos (2004) and Misnky (1986).

firm's own productive facilities will eventually endanger its capacity to produce those commodities from which profits are obtained. This outcome is basically represented by the upward sloped segment of the EF. The fact that not only accumulation has continued to decrease since the formulations of the model under financialisation by Stockhammer (2004) and Dallery (2009) but also that some of the sharpest decreases happened after the Great Recession puts forward the puzzling question of how firms avoided a situation like Figure 2.3.[20]

Figure 2.3. Post-Keynesian firm under permanent reduction in the rate of accumulation



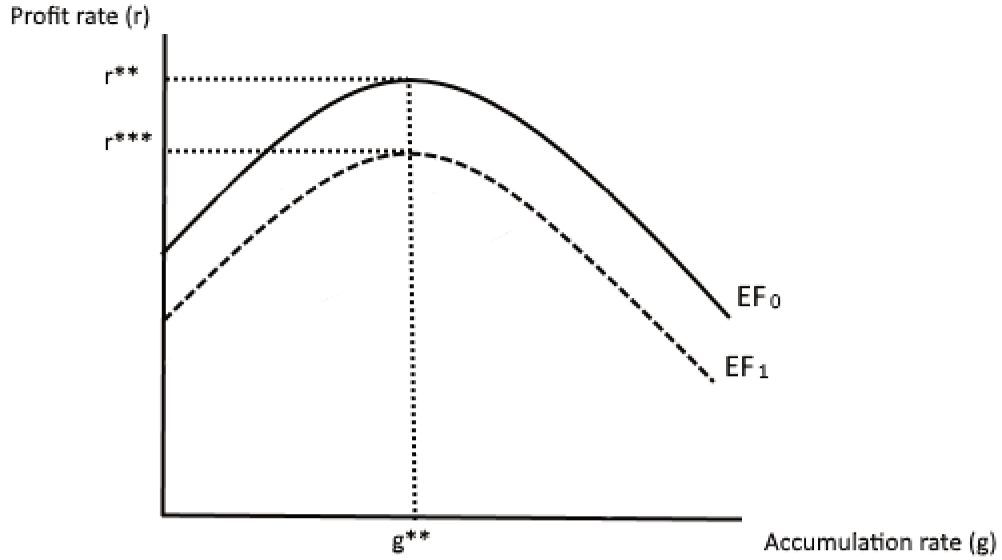
Moreover, the situation is aggravated once we consider that the high profit rate with low accumulation is coincidental with the period of increasing international competition and globalisation to which we made reference in Chapter 1 because one of the main weapons for firms in contexts of high competition is, in fact, investment in cost-cutting technical change.[21] The effect of increased international competition is represented in Figure 2.4: for a given rate of accumulation the expected profit rate should be lower, basically the EF will shift downwards.

In order to sustain high levels of profitability (and also payouts) with low levels of accumulation under increased international competition we should look for a combination of three elements: **an increase in production and/or an increase in the price and/or a decrease in costs per unit of investment, basically an increase in profitability per unit of investment**. Graphically, this implies an upward shift in the EF.

[20] It could be argued that, by the time Stockhammer (2004) and Dallery (2009) wrote their papers, the rate of accumulation was not g** but a higher one and, since that moment, it has been decreasing towards g**. But then the question should be why firms didn't chose g** in the first place.

[21] Following this idea can also downplay the preference for growth that managers allegedly have. High rates of investment during the 70s may have been more associated to an obligation in order to survive rather than manager's ambition to grow.

Figure 2.4. Post-Keynesian firm under increased international competition



One alternative provided by the financialisation literature is a higher proportion of financial profits generated by NFCs due to their investment in financial assets (L. E. Davis, 2016; Krippner, 2005), what we call the *financial turn of accumulation* hypothesis. Translating this hypothesis into the model, the idea would be that financial accumulation does not only affect the FF but also the EF. We will evaluate the empirical validity of the hypothesis in Part 2.

It might also be argued that, given the fact that the trade-off pointed by the literature is between payouts and investment, rather than profits and investment, payouts could be funded out of debt rather than profits. However, the level of debt is usually assumed to be in proportion to that of profits, following Kalecki's principle of increasing risk (Lavoie, 2014, p. 138). Therefore, theoretically, the alternative of distributing money to shareholders only out of debt, over long periods, should also be ruled out without an explanation for sustained profits.

Dallery (2009) claims that the EF can be shifted upwards by a higher utilization of the productive capacity and worsening labor conditions. While the former has a physical limit, the latter has played and still plays a relevant role as we reviewed in the previous chapter. In fact, distributive changes are one of the salient features associated with financialisation (Hein & Vogel, 2008; Onaran & Galanis, 2014; Onaran et al., 2011; Stockhammer, 2008; Stockhammer, Onaran, & Ederer, 2009) and labor flexibility is one of the main characteristics of the downsize and distribute strategy as we reviewed in the previous chapter. However, this is not the only explanation as Table 2.1 indicates: other dimensions coming from the productive sphere might have allowed NFCs both to avoid entering in the upward sloped part of the EF and counterbalance the downward shift of the EF due to increased international competition.

The pioneering works of Milberg (2008) and Milberg and Winkler (2009, 2013) were the first to point towards the relation between offshoring of production and financialisation. Further work in this direction has been done later by Fiebiger (2016). We will focus on it in Chapter 5. More recently, the role played by intangible investment and its relation both with financialisation and offshoring has been put in the spotlight by Durand and Milberg (2018) and Orhangazi (2018). This will be the topic of Chapter 6. Both alternatives offer a solution to the *supply-side* face of the puzzle. Offshoring allows firms to increase production and decrease costs per unit of investment, while intangible investment is usually associated with monopoly rents increasing therefore prices. We next show how these solutions can be incorporated into the model.

d. The post-Keynesian model of the firm and its investment decision redefined

As we have already indicated, the conflict between managers and shareholders is more related to the trade-off between payouts and investment rather than investment and profits, that is, more related to the FF than the EF. For example, in Figure 2.2 all the new equilibrium points were achieved by shifting the FF. However, by its current graphical representation with the profit rate in one axis and the accumulation rate in the other, the FF can be misleading. It can give the impression that the profit rate is determined endogenously, which is not the case. In fact, what firms decide in the period 't' is, in a broad sense, the level of investment, payouts and debt for a given level of profit. Therefore, by rearranging Equation (1), we have the following:

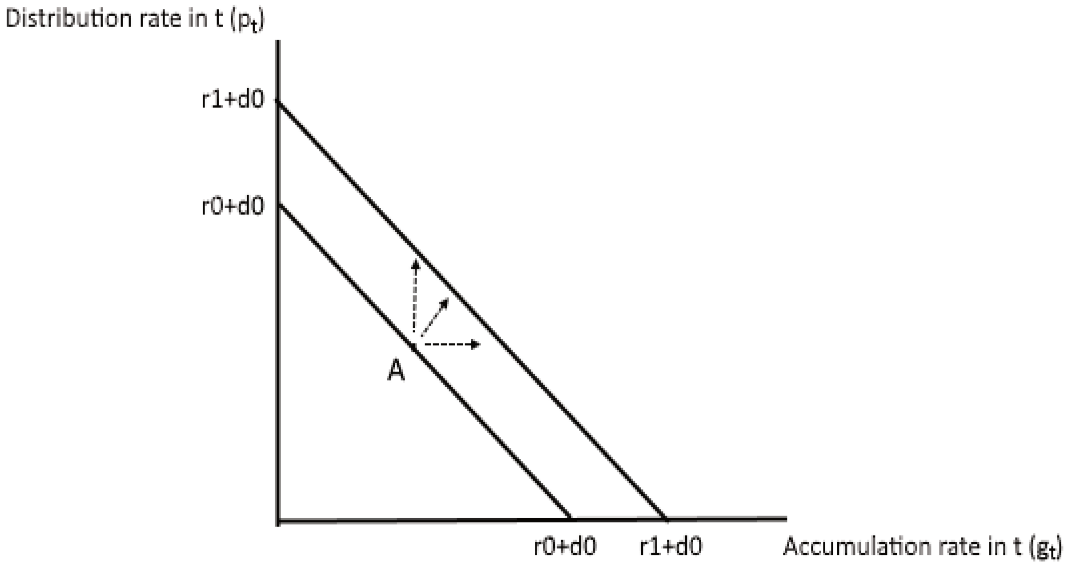
$$\overline{\Pi_t}(A_t, \pi_t, I_{t-n}) + D_t = I_t + P_t \tag{3}$$

Equation (3) is basically the same as Equation (1), with sources of funds on the left side (Π_t firm's profits and D_t flow is issued debt) and uses in the right one (I_t is net physical investment and P_t groups all net payouts[22]). The difference is that we take profits as given, leaving the other variables as the decisions of the firm. Hence, instead of putting the rate of profit and rate of accumulation in one axis we put the latter and what may be defined as the rate of distribution (dividing both sides by the stock of capital). By doing this, we clearly illustrate the payout-investment trade-off and the fact that, given an increase in profit (but also in debt), the firm might either increase accumulation or the rate of distribution, or both, as noted in Figure 2.5. Equation (3) also indicates that current profits depend, among other things, on aggregate demand (A_t), the profit margin (π_t)[23] and previous accumulation (I_{t-n}). Therefore if the firm maintains a constant low level of investment, ceteris paribus, current profits will decrease along with current payouts and investment.

[22] Financial investments could be included as well in this category and be named "net payouts and financial investments", still reflecting the choice between real investment and other financial applications. For simplicity, but also based on results of Table 2.1 and anticipating our results from Part 2, we will focus only on payouts.

[23] Dallery (2009, p. 497) already linked the FF with the profit margin and pricing behavior of the firm.

Figure 2.5. The FF redefined as the investment-payout trade-off



In the case of the EF, to the best of our knowledge, even though the different papers assume a concave shape, no one has provided a functional form of it. We propose one simple possibility, already dividing by the stock of capital, which is:

$$r^e_{t+1} = -\omega_t.(g_t - \mu_t)^2 + \beta_{(a^e_{t+1}, \pi^e_{t+1}, g_{t-n})} \quad (4)$$

The equation follows the definition of the expansion frontier -the maximum level of profit that can be *expected* by the firm at a given rate of investment- and its concave shape. Therefore, the dependent variable is r^e_{t+1} rather than r_t. We introduce different time scopes in order to capture the dynamic relation between the variables: ω_t represents the sensitivity of the expected profit rate to the current rate of accumulation, μ_t is the current rate of accumulation that maximizes the expected rate of profit while $\beta_{(a^e_{t+1}, \pi^e_{t+1}, g_{t-n})}$ captures how other variables affect the expected profit rate (the same as in equation (3)).

Dallery (2009) already indicated that the expansion frontier can be shifted upwards due to wage contraction. By explicitly including the profit margin we are able to incorporate the broader spectrum of options we discussed: financial accumulation, offshoring and intangible accumulation. While financial accumulation represents new sources of profits, offshoring increases the amount of production and decreases costs per unit of investment and intangible accumulation is associated with monopoly rents that increase prices per unit of investment. As a result, in both cases, the EF is shifted upwards but also 1) their expected profit rate is less related to current accumulation (lower ω_t which flatters the EF) and 2) they are able to maximize their expected profit rate with a lower rate of current accumulation (lower μ_t). Figure 2.6 illustrates these changes.

Figure 2.6. The new EF under financial accumulation, offshoring and new sources of monopoly rents

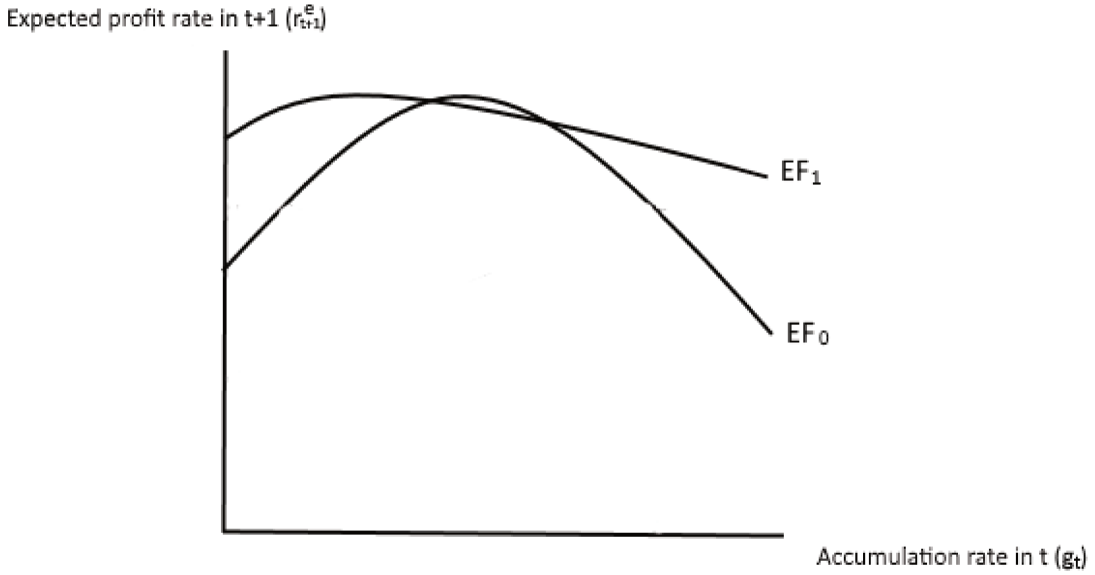
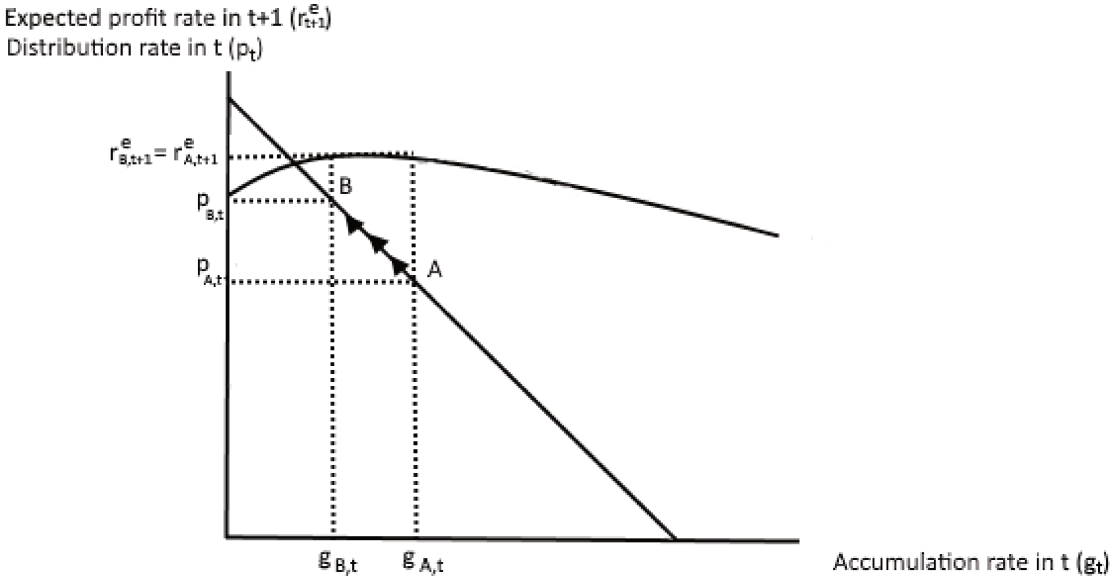


Figure 2.7 shows the redefined FF and the EF alltogether. Contrary to Figure 2.5, the vertical axis does not have r anymore but r^e_{t+1} along with p_t. Since the FF includes indebtedness, when $g_t = 0$, FF>EF. In opposition to the original model, the intersection of both curves does not represent a stable equilibrium since a distribution rate which equals the expected profit rate might be dangerously high.

Figure 2.7. The model redefined



This Figure also illustrates the case in which a firm increases payouts to shareholders and reduces investment. Starting from a specific accumulation and distribution rate (g_A, p_A) the firm decides to outsource part of its previous production, using a higher proportion of funds for distribution and less for accumulation, going therefore to (g_B, p_B). Given the current way in

which global production is organized, the firm is able to carry out this decision without threatening its expected rate of profit and, therefore, $r^e_{A,t+1} = r^e_{B,t+1}$[24]. After providing what we believe is the solution to the *supply-side* face of the profit-investment puzzle, we move to the review of the Marxian literature.

4. Marxian theory

This section starts by presenting a brief discussion of accumulation and the role played by the profit rate in Marxian theory. We later introduce different interpretations of whether financialisation played or not a role during the last decades and we finish by showing how this theory is still subject to the *supply-side* face of the puzzle and other issues.

a. Capital, accumulation and the rate of profit

In Part 2, Volume I of Das Kapital, Marx (1887) discusses the transformation of money into capital. The basic form is M-C-M' or the transformation of money (M) into commodities (C) and the change back of commodities into money (M'): buying in order to sell. The goal of this circuit is the quantitative increase, or surplus-value, defined as M' = M + ΔM. When capital is used for production, the cycle becomes rather M-C-Pr-C'-M'. What is highlighted here is the production (Pr) of new commodities (C') in order to obtain a surplus. The key for capital is, always, this expansion: "[v]alue, therefore, being the active factor in such a process, and assuming at one time the form of money, at another that of commodities, but through all these changes preserving itself and expanding" (Marx, 1887, p. 107).

So rather than referring exclusively to the means of production, Marx refers to a broader scope of items. One part is the constant capital that includes both means of production (fixed capital) and intermediate inputs (circulation capital) which transfer a part and all their value, respectively, to the new commodity. The other part is the labour force, or variable capital, the only commodity that is able to create more value than the one necessary to reproduce itself. That difference is the surplus-value. The repetition of this process, using part of the surplus-value to increase the magnitude of capital is defined as accumulation, or reproduction in extended scale in Volume II. Therefore, contrary to the common usage of the term, *capital accumulation* in the Marxian framework includes not only the part of capital used to increase gross fixed capital but also hiring labour force and buying materials.

According to the type of use values produced, different capitals will have different organic compositions (relation between constant and variable capital) and velocity of rotation (a higher

[24] As it is clear from Figure C, these results are entirely dependent on the new shape of the EF.

velocity allows a higher valorization since it allows the appropriation of more surplus-value in a certain amount of time) that will translate into diverse magnitudes of surplus-value and therefore of amount and rate of profit. The latter is defined as the relation between surplus value and total capital (variable and constant) and is key for the accumulation process.[25] As it is put by Shaikh (2016, p. 66), "[t]he profit rate is central to accumulation because profits is the very purpose of capitalist investment, and the profit rate is the ultimate measure of its success." Most recent Marxian literature agrees on this point (Duménil & Lévy, 2004, 2011; Iñigo Carrera, 2016; Kliman, 2012; Shaikh, 2016).

James Crotty (1993, 2017), on the contrary, proposes a framework -formalized in Crotty and Goldstein (1992) and Goldstein (2009)- that articulates the profit rate with other insights, especially from Minsky (1986). In response to a scenario consisting of higher competition, lower profit rates, lower domestic and international growth, and higher interest rates, some NFCs underwent major cost-cutting investment projects in the 1970s and part of the 1980s. This, according to him, seemed counterintuitive since:

> [M]ost formulations of Marx's theory of accumulation accept the proposition that a falling profit rate inevitably lowers investment. What was needed, it seemed to me, was a reformulation of Marx's theory of competition which could address the question of whether "Accumulate, Accumulate!" is indeed a universal imperative and, if not, to establish the conditions under which competitive pressure can simultaneously reduce the profit rate and raise cost-cutting investment. (Crotty, 1993, p. 2)

Crotty shows how the theory of investment in Marx´s Capital evolves throughout the different volumes, depending on the assumptions of each of them. According to Crotty, in Volume 1 the fundamental assumption for the theory of investment is the non-existence of financial markets and the absence of realization problems. The latter is based on the fact that the intensity of competitive pressure coerces firms to invest as much as they can which, in the absence of financial markets, is limited to internally generated profits. Moreover, firms are run by their owners who are constrained to survive as capitalists. The illiquidity of capital is fundamental for the coerced investment: "a firm with liquid physical capital is not threatened by the unknowability of the future" (Crotty, 1993, p. 10). Crotty further distinguishes two modes of accumulation: capital widening and capital deepening. The latter implies a fratricidal labor-saving technical change while the former focuses on expanding capacity with fixed technical

[25] We will not make reference to the process of equalization of profit rates. If commodities were sold by its individual values, capital of the same magnitude would be realizing different profit rates. The transformation of values into production prices implies an equalization of the rate of profit among capital according to their magnitude. The simplest way in which this general rate of profit is generated is by the competition among capitals.

composition, a fraternal and noncoercive competitive environment. Both modes generate maximum investment in Volume I.

The two assumptions are lifted in Volumes II and III with different implications. Managers start to take the decisions regarding accumulation; capacity and rate of utilization becomes uncertain and financial markets foster instability and crisis but also can help accelerate accumulation and postpone realization problems. Competition also becomes more complex as it creates forces trying to cancel it through corespective relations that shift away price competition. Moreover, the premise "accumulate, accumulate" seems no longer valid as investing all the funds available to the firm would imply an increase of interests and higher short-term risk: there is a *growth-safety trade-off*. This trade-off becomes fundamental: "the growth objective embodies the drive to accumulate, the security or safety objective embodies the firm´s determination to reproduce itself" (Crotty, 1993, p. 10). In the growth-safety trade-off investment model, management seeks growth and safety, being positively and negatively associated with investment respectively. The negative relation with safety is because investment has to be financed and, eventually, management's autonomy and/or the survival of the firm can be threatened by shareholders or creditors. However, and this is how the investments carried in the 1970s are explained by Crotty, if the intensity of competition reaches a point in which the results are not minimally acceptable, a managerial firm does not decrease investment. This is because the firm has an imperative to survive and will therefore engage in "a coercive invest-or-die model [that] replaces the "free choice" of the unconstrained growth-safety trade-off" (Crotty, 1993, p. 16).

As we indicated in this section, in Marxian economics a higher profit rate has been traditionally linked to higher investment and vice versa. We find Crotty's discussion interesting because he introduces some nuances to this relation between the rate of profit and investment. When the anarchic competition appears, even when rate of profit is decreasing, firms are coerced to invest. However, this does not seem to be what happened since the 1980s. In the next section, we review the explanations offered by different groups of Marxian scholars to explain the poor performance of investment.

b. Different roles played by financialisation

In this section we group the different explanations we find in the Marxian literature.[26] Broadly speaking, one can clearly identify first a group who see financialisation (either payouts or financial accumulation) as a *cause* for the decrease in investment. For another group, financialisation (understood mainly in the form of financial accumulation) is more a *consequence* of the decrease in investment which they associate to other causes.

[26] We also include the regulationist school in this section for simplicity.

These causes can be distinguished into two sub-groups: those linked to the monopolist capitalism thesis (for whom there is a tendency of the surplus to rise, but a lack of profitable investment opportunities) and those following the more traditional thesis of the tendency of the rate of profit to fall. Besides these differences, as we said, they both share the idea that financialisation manifests itself mainly in the accumulation of financial assets as a result of problems in the productive sphere. They also have in common the idea that the shrinking of the financial sphere would not solve these problems.

Table 2.2. **Review of financialisation and investment in Marxian literature**

Paper	Period	Data	Type of Analysis	Financialisation Variables	Effect on Investment
Magdoff and Sweezy (1987)	Post WWII	Aggregate data from the USA	Non-econometric, focus on financial income channel	FA	No effect. Decrease in investment is due to fewer profitable investment opportunities.
Boyer (2000)	Post WWII	Aggregate data from the USA, UK, Canada, Japan, Germany and France	Non-econometric, focus on financial income channel	Financial norm: profitability dictated by financial markets	Negative direct effect but, in a profit-led demand regime, a positive indirect effect because it also decreases wages
Crotty (2005)	Post WWII	Aggregate data from the USA	Non-econometric, focus on both channels	INT, DIV, STK REP	Negative
				FA, INT INC, DIV INC, CAPITAL GAINS	Negative
Brenner (2006)	Post WWII	Aggregate data from the USA	Non-econometric, focus on financial income channel	FA	No effect. Decrease in investment is due to a decrease in the profit rate.
Bellamy Foster (2007)	Post WWII	Aggregate data from the USA	Non-econometric, focus on financial income channel	FA	No effect. Decrease in investment is due to fewer profitable investment opportunities.
Serfati (2008)	Post 1970s	Aggregate data from different countries	Non-econometric	DIV, STK REP, FA	Decrease in investment due to a shift to financial and intangible investment
Duménil and Lévy (2011)	Post WWII	Aggregate data from the USA	Non-econometric, focus on financial payouts channel	INT, DIV, STK REP	Negative
Giacché (2011)	Post WWII	Aggregate data from the USA	Non-econometric, focus on financial income channel	FA	No effect. Decrease in investment is due to a decrease in the profit rate.
Freeman (2012)	Post WWII	Aggregate data from the USA and UK	Non-econometric, focus on financial income channel	FA	No effect. Decrease in investment is due to a decrease in the profit rate.
Husson (2013)	Post WWII	Aggregate data from France	Non-econometric, focus on financial payouts channel	DIV, Financial nor	Decrease in investment is due to reduced profitable investment opportunities compared to “financial norm”.
Powell (2013)	1988-2011	Panel of Mexican non-financial firms	Non-econometric, focus on both channels and bond issuance	DIV, FA, BOND ISSUE	Negative

Lapavitsas (2013)	Post WWII	Aggregate data from the USA, UK, Germany nad Japan	Non-econometric, focus on the turn away from bank finance and towards bond issuance	BOND ISSUE	Investment increasingly financed through external funds
Kliman and Williams (2015)	1947-2007	Aggregate data from the USA	Econometric and non-econometric, focus on both channels	INT, DIV, STK REP	No effect. Decrease in investment is due to a decrease in the profit rate.
				FA, INT INC, DIV INC, CAPITAL GAINS	No effect. Decrease in investment is due to a decrease in the profit rate.

Note: INT = interest, DIV = dividend, INC=income, VA=gross value added, K = stock of capital (net property plant and equipment), STK = stock, REP= repurchase, BOND ISSUE = bond issuance, FA = financial assets, A=assets, π = profit.

i. Financialisation *does* play a role

Table 2.2 shows that financialisation plays, on average, a less important role for these scholars compared to post-Keynesians. One of the exceptions is Duménil and Lévy (2011) who agree with the importance of the payout channel in terms of the decrease in investment. In their analysis, it is claimed that under neoliberalism a class alliance between managers and the upper classes biased corporate governance towards financial management, especially to the maximization of shareholder value generating capital income and improving stock-market performance. The profit rate and the crisis of profitability played a relevant role in the emergence of this alliance in the 1970s by undermining the basis of the so called "postwar compromise", the alliance of popular classes with managers that contained capitalist interests, and creating the conditions for the imposition of neoliberalism. The new alliance that arose under neoliberalism between managers and the upper classes did not challenge the position of management but shifted corporate governance towards the maximization of shareholders' value. As a result, it is not the rate of profit that decreases but raher the "rate of retained profit" (Duménil & Lévy, 2004, p. 75). Accumulation of fixed capital followed closely this rate. Crotty (2005) himself recognizes both channels in the explanation of the decrease in investment. One the one hand, he claims that NFCs started using, in the beginnings of the 1980s, an increased percentage of their internal funds to buy financial assets and financial subsidiaries, or to start new financial arms themselves. On the other, he also highlights the increasing distribution of funds to shareholders.

Husson (2013, p. 900) also emphasizes, for the specific case of France, the role of shareholders who set standards of hyper-rentability limiting therefore the space for profitable investments. This idea is close to that of Boyer's (2000) "financial norm" that sets a minimum profitability level to carry any type of investment projects and it is fixed by the financial markets. It is interesting to highlight that this norm can be translated into both of our channels since it may be the case that the NFC is carrying the financial investment or the shareholders who, once they have the funds, invest them in the financial market. From a regulationist perspective, Boyer

(2000) highlights that in a finance-led growth regime, the financial norm has a negative direct effect on investment but a positive indirect effect as well because it also decreases wages. The pervasive role of financialisation is also highlighted by other scholars of the regulationist school such as Aglietta (2000), Aglietta and Rebérioux (2005), Lamarche and Bodet (2018) and Petit (2018).

As we mentioned in the introduction, this stance is close to the MSV explanation like in the case of the post-Keynesian theory. As we will see next, this is not representative of all Marxian scholarly.

ii. Financialisation *does not* play a role

It is noteworthy that in what is probably the most comprehensive Marxian theoretical book that came out in the last years "Capitalism. Competition, Conflict, Crises" by Anwar Shaikh, the word 'financialization' appears only three times in its 979 pages, 'buyback' does not appear and 'dividends' are only mentioned in the context of a theory of the rate of return on equity and the correspondence between flow of income and demand. In other cases, rather than ignoring financialisation, other Marxian scholars have engaged in the discussion by explicitly denying the role of financialisation in the decrease of investment. We revise them next.

I. Decrease in accumulation as a result of monopoly capitalism and its lack of profitable opportunities

While for Husson (2013) the reduction of profitable investments is due to the standards set by shareholders, the core idea of a lack of investment opportunities is also shared by a group of Marxian scholars belonging to the *monopoly capitalism* tradition. The interest on monopoly has a long tradition in Marxian economic thought. Lenin (1917/1999) and Hilferding (1912/1985) tried to update Marx's writings claiming that the *quantitative* tendencies towards concentration and centralization in the beginning of the XXth century had turned into a *qualitative* change of capitalism. The lower the number of individual capitalists, the easier it would be to reach some kind of agreement regarding different variables such as prices. The resulting above-normal profits or a "surplus of capital" (Lenin, 1917/1999, p. 70) was linked by these authors to imperialism: "the need to export capital arises from the fact that in a few countries capitalism has become 'overripe' and … capital cannot find a field for 'profitable' investment" (Lenin, 1917/1999, p. 71). By mid-century, scholars such as Steindl (1952) or Baran and Sweezy (1966) put monopolisation again in the center of their analysis. For Baran and Sweezy (1966),

> [U]nder monopoly capitalism, declining costs imply continuously widening profit margins. And continuously widening profit margins in turn imply aggregate profits which rise not only absolutely but as a share of national

> product. If we provisionally equate aggregate profits with society's economic surplus, we can formulate as a law of monopoly capitalism that the surplus tends to rise both absolutely and relatively as the system develops. (Baran & Sweezy, 1966, pp. 71–72)[27].

Normal or previous ways of absorption of surpluses such as capitalist consumption and investment are incapable of absorbing the increased surplus so both authors look for the new ways that appeared. Rather than exporting capital to developing countries, as in the case of Lenin and Hilferding in the beginning of the XXth century, Baran and Sweezy (1966) claim that sales effort and civil government appear as the new channels for mopping up surpluses. Surprisingly enough, as Sweezy later recognized (Magdoff & Sweezy, 1987, p. 101), they didn't include finance in those channels. However, it would only take a couple of years until this happened.

Sweezy and Magdoff (1987) followed this line.[28] If stagnation is the normal state of a monopoly economy, first of all they ask why this was not the case in the 25 years after WW2 in the US. The answers they found were the existence of a big potential demand for goods and services which decreased during the war, a big purchasing power accumulated during the war and civilian spinoffs from military technology, among others (Magdoff & Sweezy, 1987, p. 35). However, all these items were self-limiting and by the 1970s, wartime damage was repaired, new industries were already built and only needed to be maintained (which requires less investment), and the expansion of industrial capacity ended up creating overcapacity. In that context, the move to finance was straightforward:

> Since capitalists use their profits in order to make more profits, they will invest only if at the end of the investment process they can sell the final goods. Unable to sell all the goods produced (or, as Marx would put it, to realize all of the surplus value), capitalists slow down or reduce their investment. Profits are hoarded or used for speculation. (ibid., p. 52)

Therefore, unable to find profitable businesses in the real sphere, capital flew to the financial sphere which offered higher profits. When characterizing the relation between the two spheres, Foster (2007, p.7) provides three main characteristics: a) the stagnant economy makes capitalists more dependent on the growth of finance to increase their capital, b) financial superstructure is not able to expand entirely independent from underlying production so

[27] Moreover, going from a competitive system to a monopolist one implies the substitution of the falling tendency of the rate of profit by the aforementioned law.

[28] While sales effort and civil government spending have a clear effect on aggregate demand, increase in finance has a "real" effect of fostering luxury consumption and investment in office buildings, transportation and communications equipment, business machines (Magdoff & Sweezy, 1987, p. 148).

bursting bubbles are a recurrent problem, c) financialisation could never overcome stagnation within production.

According to Lapavitsas (2013, p. 22), financialisation is presented within this stream of thought as a "flight, or escape by capital from the malfunctioning productive sector". Hence, the group of scholars associated with *monopoly capitalism* does not see any causal relation between the decrease in investment and the financialisation of NFCs. Magdoff and Sweezy (1987, p.149) put it in a clear way:

> Does the casino society in fact channel far too much talent and energy into financial shell games? Yes, of course. No sensible person could deny it. Does it do so at the expense of producing real goods and services? Absolutely not. There is no reason whatever to assume that if you could deflate the financial structure, the talent and energy now employed there would move into productive pursuits. They would simply become unemployed and add to the country's already huge reservoir of idle human and material resources.

Also from a theoretical stance close to the thesis of the Monopolist Capital, Pagano (2014) puts the attention in knowledge which, once it becomes a privately owned asset (approximately since mid-1990s), creates a particular type of monopoly capital. Compared to traditional monopoly capital, an *intellectual* monopoly capital "is not simply based on the market power due to the concentration of skills in machines and management; it becomes also a legal monopoly over some items of knowledge, which extends well beyond national boundaries" (Pagano, 2014, p. 1411). This international protection of intellectual property rights restricts artificially productive opportunities squeezing global capital expenditures.

It is clear therefore, that what we call the *financial turn of accumulation* is only a consequence of deeper problems located in the productive sphere for scholars belonging to monopolist capitalism.[29] It is interesting to highlight that other group of Marxian scholars also see the *financial turn of accumulation* as a response to problems in the productive sphere, although explained completely differently (and practically opposite).[30] We analyze them in the next section.

[29] We emphasize "for scholars belonging to monopolist capitalism" because, as it will be clear in next chapter, what we define as the *financial turn of accumulation* hypothesis makes abstraction of the causes behind the turn to financial accumulation focusing only on whether the turn actually happened or not.

[30] These contradictory stories in terms of (the lack of) competition correspond, according to Durand and Gueuder (2018) to different periods. The financial turn of accumulation is consistent with the aftermath of the 1979 increase in the interest rate in the USA, The competitive pressure became more relevant later, while trends towards monopolization kicked in by mid-1990s.

II. Decrease in accumulation as a result of the tendency of the rate of profit to fall

While for monopoly capitalism the normal state of the economy is to be overwhelmed by surplus, other Marxian scholars such as Brenner (2006), would rather emphasize the decrease in the rate of profit arising specially due to competitive pressures. US enterprises started to face, soon after WW2, the competition from lower-cost, lower-price goods first from Germany and Japan, and in the 1970s from East Asian countries. This intercapitalist competition led to over-capacity, over-production and falling profitability because advanced economies were unable to relocate capital in the presence of big sunk costs. For higher-cost firms, it made sense to maintain their market share by reducing prices if it allowed them to achieve an average rate of return on their circulating capital. The low returns eventually discouraged long-term investment in new plant and equipment and fostered investment in finance, speculation and luxury consumption.

Other cases mentioned in Table 2.2 also focus on the decrease in the rate of profit such as Freeman (2012) and Kliman and Williams (2015) and in both cases financialisation is mainly an outcome, but not only that. Kliman and Williams (2015) have undertaken probably the most extensive effort in order to show that financialisation hasn't depressed investment (the name of the article is "Why 'financialisation' hasn't depressed US productive investment"). According to them, "the post-World War II period as a whole, the fall in the rate of profit accounts for the entire fall in the rate of accumulation" (Kliman & Williams, 2015, p. 87). Given the topic of this thesis, we are especially interested in this paper. They define diversion of investment by financial purchases and payments "to occur if and only if the increases in financial purchases and payments depress the share of profit that is invested in production. An equivalent way of stating this condition is that the percentage growth rate of financial purchases and payments in excess of new borrowing is greater than the percentage growth rate of profit" (Kliman & Williams, 2015, p. 71). The claim is essentially empirical and can be put in the following way. Considering that:

$$\dot{P} + \dot{FA} + \dot{I} = \dot{\Pi} + \dot{D}$$

Where $\dot{P},\ \dot{FA},\ \dot{D},\ \dot{\Pi}$ and $\dot{I}$ are the growth rates of net financial payouts, purchases of financial assets, debt, profit and investment respectively. Then:

$$\dot{P} + \dot{FA} - \dot{D} = \dot{\Pi} - \dot{I}$$

According to the previous quote, diversion happens[31] when:

$$\dot{P} + \dot{FA} - \dot{D} > 0 \rightarrow \dot{\Pi} - \dot{I} > 0 \rightarrow 1 > \frac{\dot{I}}{\dot{\Pi}} \quad (5)$$

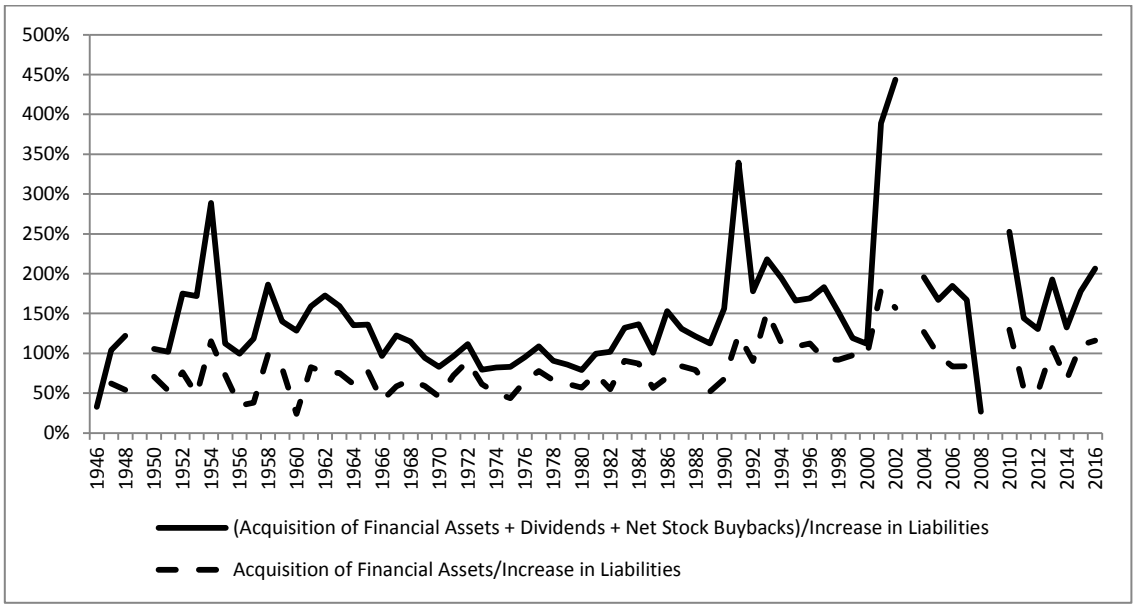
First of all, we consider this as an artificially restrictive claim. If we take into account that borrowing has been traditionally used as a way to finance investment (Mason, 2015a), when firms start to use external finance as a way to distribute money to shareholders rather than investing, they are effectively diverting part of the total funds available for the firm. In fact, as shown by Hecht (2014, p. 1178) the difference between capital expenditures and internal funds (what he calls the financing gap) is about 10% of capital expenditures over the 1980-2012 periode.

Second, even when considering the restrictive definition provided by the authors, financial purchases and payments *do* exceed borrowing in practically all the financialisation period. Kliman and William's Figure 7 (2015, p. 77) compares the net change in financial liabilities only with the net acquisition of financial assets without taking into account also dividends and share buybacks. Figure 2.8 presents both measures and shows that, for almost all the financialisation period, investment was diverted –following Kliman and William's definition- due to financial purchases and payments (basically those years in which the trend was higher than 100%[32]). Moreover, the negative relation between payout and investment is maintained even after controlling for debt issue as it will be shown in Chapter 5.

[31] In fact, the quote is ambiguous. While the first part follows equation (5), the second part could be understood as diversion happening when $\dot{P} + \dot{FA} - \dot{D} > \dot{\Pi}$ but this can only happen if $\dot{I} < 0$ which is much more extreme than equation (5) and does not go in the spirit of Kliman and Williams' argument. We follow definition (5).

[32] Even in the lower trend there are some year in which the value is higher than 1. This can also be seen in Kliman and William's Figure 7 although less clearly because the authors chose to divide both measures by GDP rather than dividing one by the other as we do.

Figure 2.8. Acquisition of Financial Assets, Dividends and Net Stock Buybacks calculated as a proportion of the Increase in Liabilities, 1946-2016.



Note: Author's calculations. Variables calculated as a proportion of the increase in liabilities. Those years with extremely high or negative values are erased in order to facilitate the presentation of the Figure.

Source: Financial Accounts of the USA (FED).

The denial or overlooking of the effects of the MSV is puzzling taking into account Marx's totally up-to-day claim of the Faustian conflict between the passion for accumulation and the desire for enjoyment that lays in capitalist's breast:

> While the capitalist of the classical type brands individual consumption as a sin against his function, and as "abstinence" from accumulating, the modernised capitalist is capable of looking upon accumulation as "abstinence" from pleasure.
>
> "Two souls, alas, do dwell with in his breast; The one is ever parting from the other."
>
> At the historical dawn of capitalist production, – and every capitalist upstart has personally to go through this historical stage – avarice, and desire to get rich, are the ruling passions. But the progress of capitalist production not only creates a world of delights; it lays open, in speculation and the credit system, a thousand sources of sudden enrichment. When a certain stage of development has been reached, a conventional degree of prodigality, which is also an exhibition of wealth, and consequently a source of credit, becomes a business necessity to the "unfortunate" capitalist. Luxury enters into capital's expenses of representation (Marx, 1887, pp. 417–418)

Although we share with the Marxian literature the fact that the effects of the MSV on investment cannot be the complete story for the decrease in investment, saying that there must be other explanations is different from denying the trade-off. Instead of rejecting it, we believe that a more relevant question is that of its *sustainability*, something that necessarily points toward other causes. Moreover, acknowledging the effects of financialisation poses, in our opinion, some further questions for Marxian theory.

iii. Still some puzzles

We find two problematic issues. First, the rate of profit does not seem to have decreased since the 1980s. In a paper dedicated exclusively to discuss trends, measurement and drivers of the rate of profit, Basu and Vasudevan (2012) confirm this. Using information from different US aggregate data sources (Bureau of Economic Analysis and the Federal Reserve Board of Governors) and calculating different measures of profit[33] and stock of capital,[34] Basu and Vasudevan show that, except in one measure, there was a break in the declining trend in profitability in the early 1980s followed either by an increasing or trendless period. Other Marxian scholars have also agreed with the claim that there was a rise in the rate of profit during the period associated with financialisation (Duménil & Lévy, 2011, p. 58; Mohun, 2005; Shaikh, 2016, p. 735).

The question, therefore, is why investment (as well as other components of accumulation) did not react to this, why there is low investment in spite of high rate of profit. Crotty's (1993) explanation does not seem to fit either since he focused on the determinants of high investment with low profits but, as we discussed, the current situation is the opposite. Baragar and Chernosmas (2012) note this:

> The high profits that have been realized by nonfinancial corporations following the recession of 2001 have not been matched by a strong upwards surge in fixed capital formation. Thus, notwithstanding the presence of high profits, a co-respective regime with strong, capital-widening investment is not descriptive of the twenty-first-century U.S. economy. With high profits, low interest rates, and large quantities of retained corporate earnings, firms are clearly not financially constrained from undertaking additional investment projects. Substantial positive net savings by these corporations also suggest internally determined investment restraint, rather than the

[33] They start by the broadest, net value added less the compensation of employees, including inventory valuation and capital consumption adjustments. Then, they calculate net operating surplus by subtracting production and import taxes to the broad measure. They further remove net interest payments and net business transfer payment to get the before-tax profits and, after removing taxes on corporate income they get the after-tax profits.

[34] They take fixed assets measured a) with and without depreciation, b) historical and replacement cost c) net of financial liabilities to give the net worth and d) deflating by the capacity utilisation to arrive at a 'normal capacity' measure of the capital stock.

> coercively induced investment maximum implied by the onset of an anarchistic regime. In short, Crotty's dual classification appears inapplicable to the recent conjuncture.

Second, we believe that what we defined as the *supply-side* face of the puzzle still needs to be accounted for in Marxian literature. Basically, which mechanisms allow firms to remain profitable relying less in their own internal capacity. We already made reference to the *financial turn of accumulation*. We believe, nevertheless, that this solution is problematic from a Marxian position considering that surplus is originated in productive activities while financial profits represent a reallocation of that surplus.

The increased distribution of funds to shareholders also seems problematic, at least in some streams of Marxian literature, when we consider that:

> Capital is a particular social form of wealth driven by the profit motive. With this incentive comes a corresponding drive for expansion, for the conversion of capital into more capital, of profit into more profit. Each individual capital operates under this imperative, colliding with others trying to do the same, sometimes succeeding, sometimes just surviving, and sometimes failing altogether. This is real competition, antagonistic by nature and turbulent in operation. It is as different from so-called perfect competition as war is from ballet. (Shaikh, 2016, p. 259)

References to competition as warfare are permanent in Shaikh's book. The question would be, then, how firms can allow themselves to lose such valuable resources in a war.[35] We say the question about "wasting" resources is fundamental to Marxian economics, rather than post-Keynesian, given the different role played within competition. While post-Keynesian theory is based on oligolopistic competition (Lavoie, 2014, p. 124), in some streams of Marxian literature such as Shaikh, more intense competition prevails. Investment plays different roles in these contexts. Baragar and Chernosmas (2012, p. 30)[36] put a nice analogy by distinguishing between views (such as post-Keynesian we would say) for which "[t]he overall treatment of investment with the introduction of technical progress, however, remains one of essentially viewing technical progress as a "carrot" that offers potentially higher profits" from those (Marxian we would say) for which the introduction of technical progress is "a "stick" that threatens the firm's existence."

[35] Additionally, if firms are in a permanent competitive war, we could ask the same question as Crotty (1993, p. 19): "[if] profit-augmenting, cost-saving investment projects were available, why didn't firms undertake them before the increase in competitive pressure?"

[36] Although not specifically referring to Marxian versus post-Keynesian theory.

A simple answer to this question would be that the increased distribution, even in a war context, is a norm that has to be respected. Another answer that will be explored in the thesis is that those material changes associated with the new productive and core activities performed by big NFCs impose a new logic to investment that alters the traditional circuit exposed in the beggining of this section.

The role played by the offshoring of production has also been highlighted by this literature (Baud & Durand, 2012; Christophers, 2012; Ivanova, 2015; Smith, 2016) with the pioneering work of Chesnais (1997, 2016) who early pointed towards financial accumulation and globalisation as the countervailing factors to the fall in the profitability of productive capital. Essentially, the relation between financialisation and offshoring would be that surplus value extracted from exploited workers in low wage countries is the source of those funds distributed to shareholders. Complementary to the delocalization of production, different scholars have also emphasized how intangible investments and the increasing monopolistic power associated with them allow big NFCs to coordinate global value chains (Durand & Gueuder, 2018; Durand & Milberg, 2018; Orhangazi, 2018; Pagano, 2014; Rikap, 2018; Serfati, 2008). Both claims will be explored in Part 3.

5. Conclusion

In this chapter we provided the theoretical foundations that will guide the rest of the thesis in order to solve our research questions: a) why are not firms investing in spite of high profitability?, b) what are they doing with those funds?, c) how can they remain profitable with low levels of investment? We started by reviewing the mainstream literature on the topic centered on Tobin's *q*. Besides the more general critiques of the Neoclassical paradigm, in an era characterized by inflated financial markets, it is not clear that firms might rely on the *q* for their investment decisions.

In the case of the post-Keynesian theory, we have highlighted one contradiction, or puzzle. The preponderance of the narrative of the maximisation of shareholder and its associated increased distribution of funds that lowers investment is able to answer questions a), and b) but provides no answer (and goes against) question c). Basically, under the current state of the theory, it cannot be explained how high profits and payouts have been maintained along with low investment in a context of increased international competition. We called this the *supply-side* face of the profit-investment puzzle. The puzzle can be solved and, therefore, the MSV be sustainable, by recognizing that nowadays big NFCs' profits depend heavily on other variables

apart from their own accumulation. These variables must allow firms to increase profitability per unit of investment either by increasing the output and/or price and/or decreasing costs.

We found two types of answers that will be empirically studied in each of the remaining parts of the thesis. Both of them are able to answer questions a), b) and c). Part 2 focuses on one response that we denominate the *financial turn of accumulation* hypothesis. The solution to the puzzle in this case might be simple: a shift in the activities of NFCs to financial accumulation and profits. Part 3 of the thesis moves away from financial accumulation and will be dedicated, rather, to (some of) those changes arising in the productive sphere: offshoring and intangible investment. There is already some research done in both type of answers and this thesis will thoroughly examine them.

Beyond their empirical pertinence, in this chapter we incorporated these changes in the post-Keynesian theory of the firm by indicating how they affect the shape of the expansion frontier. Basically, they a) shif it upwards, b) flatter it (the expected profit rate is less related to current accumulation) and c) lower the rate of current accumulation at which firms are able to maximize their expected profit rate.

Moreover, just as we intend to show that MSV has to be coupled with other type of strategies in the case of post-Keynesian theory, we insisted that it also seems problematic to consider those other strategies the sole responsible for the decrease in investment as in the case of some Marxian scholars. The argument we will push forward leaves us in the middle of two extremes we believe, trying to synthesize them. One extreme would be something following this line:

> Imagine that anti-financialisation reforms can successfully curtail financial uses of funds. What would the effects be? … our analysis suggests that in the absence of increases in expected rates of return on productive investment, the main effect of the reforms might merely be to curtail business borrowing. (Kliman & Williams, 2015, p. 72)

This position tends to dismiss the trade-off between payouts and investment. Although in this chapter we showed that the MSV has to be linked to other explanations when assessing the high payouts-low investment, this does not mean to deny the MSV as an explanation for low investment. Far from this. Even if we consider that the profit rate has been falling –something we showed most studies do not agree with-, both monopolization and the decrease in the rate of profit have been experienced in other historical moments (typically part of the 1950s and 1960s in the USA) without the low levels of accumulation we see nowadays.

To put it more clearly, our claims is that the diverse changes experienced in the productive sphere should be understood as *necessary* but not *sufficient* conditions for a change in

accumulation. Therefore, we would not discard that an anti-financialisation reform may have a positive effect on investment. In any case, we will evaluate this possibility throughout the thesis and come back to it in our general conclusions.

For other Marxian scholars who do not characterize current capitalism as monopolist but rather insist in the fundamental role that competition still has, the MSV also poses some difficulties. Essentially, the increased distribution of funds to shareholders represents fundamental resources that could be used to defeat other firms.

After finishing with the literature review and identifying the answers for our research questions, we now move to their empirical study. The topic of our next part is the *financial turn of accumulation* hypothesis.

Conclusions of Part 1

In **Part 1** we reviewed the literature on financialisation in general and financialisation of the non-financial corporation in particular (**Chapter 1**) as well as the effect of financialisation on the relation between profits and investment from different theoretical perspectives (**Chapter 2**). Nowadays, this relation has been weakened and different theories offered explanations that leave some blind spots. These will be the core of the rest of this thesis.

In **Chapter 1** we used novel techniques that allowed us to identify the different connotations given to financialisation using all published papers and books related to the topic. These diverse meanings are, broadly speaking, related to changes experienced by 1) commodity markets, 2) households, 3) banks, 4) the whole capitalist system and also 5) non-financial corporations. The thesis focuses on the latter, which can also be associated with different phenomena affecting NFCs: 1) the primacy of shareholder value orientation and 2) the engagement of NFCs in financial activities which, at the same time, can be divided into a) financial payouts and b) financial income obtained due to the increased acquisition of financial assets.

In the specific case of the USA, the financialisation of NFCs begins in the last quarter of the XXth century when these corporations started to face lower profitability and increased competition from foreign enterprises but also increased pressure from certain shareholders in order to distribute more value. Taking this into account, the introduction of the maximization of shareholder value as guiding principle for corporate governance and higher payouts has to be understood as the victory of these groups of shareholders in their struggle with other constituents of the firm. On the other hand, NFCs' engagement in financial activites in order to obtain financial profits can be understood as an answer for the decreased profitability in the productive sector.

In **Chapter 2** we reviewed that, both for post-Keynesian and some Marxian scholars, the decrease in investment under financialisation is associated with distributive pressures from shareholders. The core of our critique was that, without neglecting the effect of these pressures in terms of the decrease in investment, this explanation cannot be the complete story for low investment and high profits since it needs to account, not only for the distribution of funds to shareholders *instead of*, but also *in spite of* (not) investing them. Basically, under the current state of the theory, it cannot be explained how high profits and payouts have been maintained along with low investment in a context of increased international competition. We called this the *supply-side* face of the profit-investment puzzle. The reminder of this thesis will be very much focused on solving it and empirically assessing the answers found in the literature.

The puzzle can be solved and, therefore, the increased distribution to shareholders be sustainable from the perspective of the firm, by recognizing that nowadays big NFCs' profits and revenues depend heavily on other variables apart from its own accumulation. We group them, schematically, in two categories: those related to *financial* and *real* accumulation which will be analyzed in **Part 2** and **Part 3** respectively.

Part 2: The weak answer to the puzzle: the *financial turn of accumulation*

In **Part 1** we set the theoretical foundations of this thesis along with the research questions that will be tackled throughout it: a) why are not firms investing in spite of high profitability?, b) what are they doing with those funds?, c) how can they remain profitable with low levels of investment? **Part 2** groups two chapters that examine one type of answer, present in the literature reviewed in **Part 1**, that we denominate the *financial turn of accumulation* hypothesis. We define this hypothesis as the contention that there has been an aggregate trend in which NFCs are increasingly acquiring financial assets in order to obtain a higher proportion of their income out of them. To underscore, we are concerned here with the general trend, whilst understanding that there could be significant variation in particular firms. The strength of the *financial turn of accumulation* hypothesis is that it can offer answers to questions a), b) and c). Both chapters, hence, offer an empirical analysis, although following different strategies and focusing on different regions. In both cases, as the title of this section indicates, our findings do not support the hypothesis.

In **Chapter 3** we focus on the US case and the main pieces of evidence that have been adduced in support of the *financial turn of accumulation*: the increase in financial assets held by NFCs and the increase in financial income received by NFCs. In order to perform our analysis, we make use of three different and complementary databases that enable us to analyze the hypothesis from different perspectives: aggregate and disaggregate, domestic and international, with listed and nonlisted firms.

In **Chapter 4** the emphasis is shifted to the Latin American case. Although the thesis is mainly focused on developed countries and, specially, the US economy, in the context of the analysis of the *financial turn of accumulation* the choice of emerging markets has a reason. It could be argued that *financial turn of accumulation* hypothesis is more relevant in the case of emerging market economies considering that in these countries there are higher possibilities to carry trade and speculate with national currencies. In this chapter we evaluate this idea by studying whether the evolution of liquid financial assets is related to the financial income received by NFCs.

Chapter 3: The financialisation of US NFCs. A critique to the *financial turn of accumulation* hypothesis

1. Introduction

In Part 1 we presented the literature related to financialisation in general, the financialisation of the NFC in particular along with the challenges posed to different theories by the declining relation between profits and investment. In Part 2 and this chapter, we will start the empirical analysis of the possible answers to it.

In Section 2.b.iii, Chapter 1, we reviewed that one of the solutions followed by NFCs facing increased competition and problems in the productive sphere was a movement to financial activities. In fact, many of the papers that present such movement claim that the involvement in financial activities has been dramatic: the ratio of financial assets to non-financial assets has gone from 40% in 1950 to 120% in 2001 (Orhangazi, 2008, p. 866) -95% if we update to 2017-, while the ratio of portfolio income has gone from less than 10% in 1950 to 40% in 2001 (Krippner, 2005, p. 185) –20% if we update to 2013, last information available. Hence, according to Krippner (2005, p.181), financialisation implies the fact that both at the macroeconomic level and for NFCs, "profit-making occurs increasingly through financial channels rather than trade and commodity production". In a similar fashion, Davis (2016, p. 138) states that there has been a "shift in NFC activities toward banking activities".

However, in this chapter we will scrutinize the empirical evidence used to support those types of claims, or what we define as the *financial turn of accumulation* hypothesis. We define this hypothesis following the meaning given in Table 1.2 in Chapter 1 that is, as the contention that there has been an aggregate trend in which NFCs are increasingly acquiring financial assets in order to obtain a higher proportion of their income out of them.[37] To underscore, we are concerned here with the general trend, whilst understanding that there could be significant variation in particular firms, as cases studies have shown (Froud et al., 2006) and we will confirm.

We will focus on the main pieces of evidence that have been adduced: the increase in financial assets held by NFCs and the increase in financial income received by NFCs, while also

[37] Durand and Gueuder (2018, p. 128) propose the term "financial turn of accumulation" to define the narrative that "suggests a substitution of financial investments at the expense of real investments as the strategy of lead firms shifted towards higher short-term profitability through financial incomes at the expense of productive investment." We follow the definition closely although without focusing on the substitution of one type of investment for another but rather studying financial investment and financial income on their own.

analyzing their cash flow statements. We will concentrate on the United States of America (USA) between 1950 and 2016 since this is where most of the literature is focused.

In order to perform our analysis, we make use of three different and complementary databases. The Federal Reserve's Financial Accounts of the USA (FAUSA) and the Statistics of Income (SOI) from the Internal Revenue Service (IRS) provide aggregate, domestic information for all corporations. Moreover, the latter present information disaggregated by size of assets. The third database is Compustat firm-level information for listed US corporations that presents consolidated data for the parent company along with its national and international subsidiaries. This provides an approximate notion of the worldwide activity of those firms. Additionally, Compustat allows us to present a novel analysis of NFC's total sources and uses of cash based on their Cash Flow Statement.

The main contribution of this chapter is to show that financial accumulation was not a significant strategy verified in aggregate terms for NFCs. Some of the assets taken into account to support the *financial turn of accumulation* hypothesis are, in fact, intangibles and FDI which point, rather, towards the explanations that will be analyzed in Part 3. In terms of income, financial income has increased in the last decades but remained around 2.5% of total income since 1980, even decreasing in the last years. As stated by Fiebiger (2016), if NFCs are specializing in financial activities in order to make profits outs of them, it seems that the result has not been positive overall. These results also hold when we distinguish among different sizes of enterprises.

The rest of the chapter is organized as follows. Section 2 presents the data and Section 3, the methodology. Section 4 shows, separately, the results from the empirical analysis of asset, income and cash flow composition. Section 5 focuses on differences by size while Section 6 discusses the results. We finally give some concluding remarks in Section 7.

2. Data

One of the novelties of this chapter is to deal, simultaneously, with three different and complementary databases. Table 3.1 provides a summary of the information used in this chapter contained by each of them. In all cases we are dealing with corporations, i.e., we do not take into account the noncorporate sector. The FAUSA and SOI provide aggregate and separate information for financial and non-financial corporations. In both cases the distinction is based on the main activity reported by the firm following the Standard Industrial Classification (SIC) used in years prior to 1998 and the North American Industry Classification System (NAICS) after 1998. Compustat provides firm level information for listed companies which we aggregate

and also organize according to the SIC code of each corporation excluding financial firms identified by the primary codes from 6000 to 6799.

Table 3.1. Summary of data

		Financial Accounts of the USA - Tables B.103 and L.103	Statistics of Income - Corporation Income Tax Returns	Compustat
Non-financial Corporations		All	All	Listed Corporations
Consolidated		Yes	Yes	Yes
Geographical scope		Domestic	Domestic	Domestic and International
Dissagregation by size		None	Up to 15 categories	Firm level information
Assets[a]	Financial	8 items	2 items	4 items
	Non-financial	-	2 items	4 items
	Non-Identifiable	1 item	2 items	1 item
Sources of financial income[a]		-	4/6 items[b]	2 items
Cash Flow[a]		-	-	15 items

[a] Categories used in this chapter, [b] Depending on whether dividends are included or not

All the information we use from these databases is standardized and consolidated. The latter represents an advantage since we are including information from financial subsidiaries. In the case of the SOI and FAUSA, the consolidation is done at the domestic level while in Compustat it is domestic and international. The latter also allows to identify firms individually while the SOI cover up to 15 different asset sizes (updated over the years). By means of this we are able to study the different dynamics involved in small and medium corporations compared to that of listed ones which are usually the biggest of the economy. For example, in 2013, only 4,955 listed corporations held 69% of the assets of 4,943,231 corporations reported in the SOI.

For the asset analysis, we will use the three databases although focusing on the FAUSA and Compustat since the former presents the most disaggregated list of assets while the latter is the only one that allows to identify a particularly important asset for our argument, 'goodwill'. The SOI will be used to analyze the differences in terms of asset size. Finally, the FAUSA allow to distinguish those assets held outside the USA in the form of Foreign Direct Investment (FDI).

For the sources of income we will base our study on the SOI and Compustat. While the former has the largest number of items and many of them are different types of financial income, the latter allows to identify another type of financial income: that belonging to the financial divisions of some NFCs.

For the Cash Flow Statement we will only focus on Compustat. The FAUSA also have this kind of data but the information is presented in more detail in Compustat. For instance, while Compustat presents issuance and share buybacks or issuance and reduction of long-term debt

separately, the FAUSA only show net information. The complete list of items used in Figures and Tables is available in Table A3.1.[38]

3. Methodology

The methodological discussion, both for asset and income composition, is related to two broad topics: what is considered as a financial asset/income and how its evolution is measured. For the asset analysis, the first question is relevant since, as Crotty (2005) and Orhangazi (2008) recognize, practically the entire increase in financial assets over total assets is due to a residual variable, 'unidentified miscellaneous assets', which is considered as financial by the FAUSA. Identifying individually the assets it contains, with the help of Compustat, will be fundamental to assess whether or not there has been such an increase in financial assets.

The second question relates to measurement. With a very similar aim as ours, Davis (2016) carries out an exhaustive analysis of NFCs' balance sheet considering four categories of financial assets in Compustat –'cash and short-term investments', 'total current receivables', 'other investments and advances', and 'other financial assets'. In her case, those categories are normalized by sales in order "to avoid possible biases stemming from the fact that an increase in financial assets relative to assets requires by definition a decline in non-financial assets relative to assets" (Davis, 2016, p. 118). However, if we are telling a story about how NFCs become more *intensive* in financial assets, by definition, this is compared to other types of assets. Normalizing by sales fails to capture this dimension because, a priori, all types of assets could be able to increase. Therefore, we chose to normalize by total assets.[39]

In terms of sources of income, using different datasets Krippner (2005, p. 185) -SOI-, Crotty (2005, p. 107) -SOI-, Orhangazi (2008, p. 866) -FAUSA- and Davis (2016, p. 135) -Compustat- arrive at similar conclusions: basically, that financial income has become a significant source of income for NFCs. The measurement discussion is relevant because, although Orhangazi (2008, p. 865) intends to show that NFCs are "deriving an increasing share of their income from financial sources", and Krippner (2005, p. 182), the "growing importance of 'portfolio income' … relative to revenue generated by productive activities", in practice they do not measure NFCs' financial income relative to total income. Instead, they measure financial income relative

[38] In terms of overlapping among categories, the comparisons we carry for assets (FAUSA vs. Compustat) and income (SOI vs. Compustat) in all cases suffer from different geographical scope which makes an exact matching impossible. Nevertheless, as we mentioned before, we see this as an advantage rather than a flaw considering the different types of dynamics they show and that the results are consistent for all the performed analyses.

[39] Results do not change nevertheless if we normalize by sales. See Section 4.a and Figure A3.1.

to some measure close to profits. For Krippner, it is gross profits plus depreciation allowances, while for Orhaganzi it is operating surplus.

As shown in the mathematical Appendix, this type of ratio can give meaningless results in which the cost of financial activities is increasing (so profit is decreasing) and, *ceteris paribus,* the ratio of portfolio income is increasing. As Crotty himself (2005, p. 105) notes: "caution is required in interpreting the meaning of this time series because the numerator does not deduct the cost of acquiring and holding financial assets, while the denominator includes profit, which is a net revenue concept. This gives an upward bias to this series that could be substantial". Krippner (2005, p. 183) also acknowledges this fact and that is why she takes into account depreciation allowances, although she recognizes that "even augmented by depreciation allowances, corporate cash flow is still a net-of-cost measure". Therefore, the overestimation problem still persists.

The best way to compute the importance of financial activities for NFCs would be to calculate financial profit as a percentage of total profit. Accurate information to do so, however, is not available. Although there are various items related to income from financial activities, the associated costs which are exclusive to financial activities are impossible to gauge with existing information which, in most of the cases, is limited to financial expenses. Computing all financial expenses would overestimate the cost of acquiring and holding financial assets since, for example, financial expenses include interest from debt taken to finance productive activities. Available information can only provide a rough idea of the financial position of NFCs. Therefore, we opt for a second best in terms of measurement which is to compute financial income as a percentage of total income. By doing so, we eliminate all possible bias arising from comparing a pure revenues stream with a net-of-cost measure.

Regarding the components of financial income, Kripner (2005, p. 182) and Crotty (2005, p. 105) consider income from interest payments, dividends and capital gains from investment while Orhangazi (2008, p. 866), interests and dividend income. The selection of these items can pose two shortcomings: one of overestimation and other of underestimation. The former is related to including dividends from domestic and foreign corporations as part of financial income since they may perfectly be related to non-financial activities held by subsidiaries. Conversely, the possibility of underestimating financial income is due to the way in which corporations fill their annual reports. Those corporations with a strong financial activity usually present income statements from their industrial and financial divisions consolidated.[40] Therefore, an important proportion of financial income appears as part of total revenue in

[40] See for example Ford Annual Report (2015, p. 106) , Volvo Annual Report (2015, p. 80) or General Electric Annual Report (2014, p. 128).

aggregate statistics. It is only with CCM (CRSP-Compustat Merged database) that we are able to identify income from the financial division although starting in 2010.

Finally, for the Cash Flow Statement we compute the evolution of total sources and uses of funds. This analysis will allow to verify that of the asset and income structure.

4. Results

a. Asset structure

Table 3.2 confirms that the most important change in terms of assets, using the FAUSA, has been the dramatic increase of 'unidentified miscellaneous assets'. .

Table 3.2. Composition of assets, NFCs, 1950-2015.

	50-59	60-69	70-79	80-89	90-99	00-09	10-15
Non-Financial Assets	0.778	0.754	0.74	0.693	0.6	0.536	0.53
Financial assets less unidentified miscellaneous assets	0.221	0.242	0.227	0.21	0.23	0.236	0.263
Unidentified miscellaneous assets	0.001	0.003	0.033	0.097	0.171	0.228	0.207

Note: Financial assets measured as a proportion of total assets. See additional details on variable definitions in Table A3.1.

Source: Table B.103 and L.103, FAUSA.

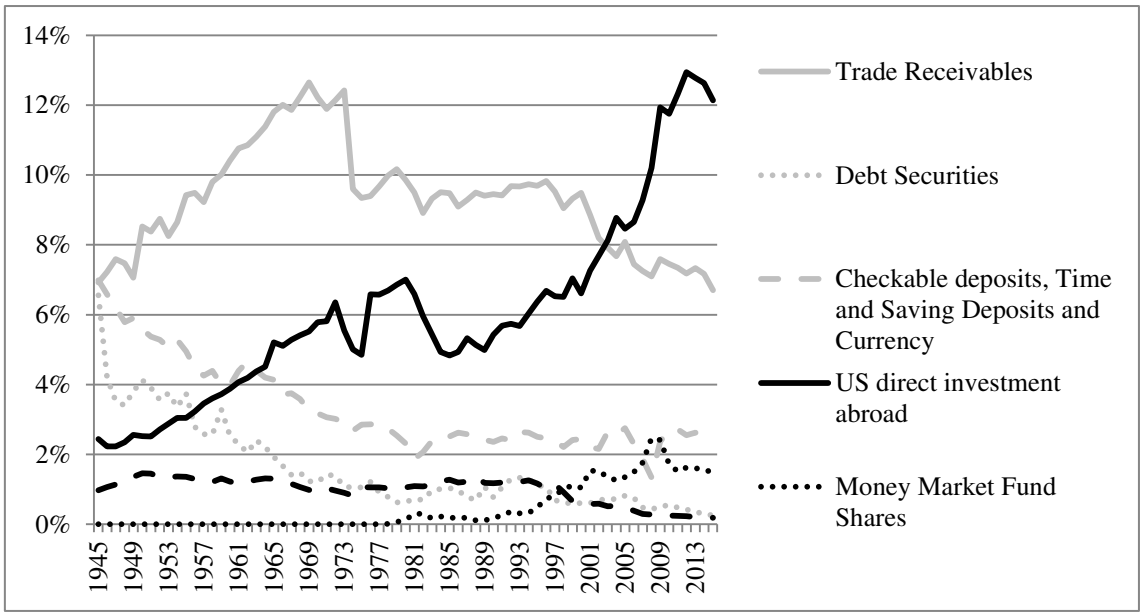
Until 2010, the total financial assets not including miscellaneous items have, in fact, remained lower as a proportion of total assets than the decade of the 1960s. Figure 3.1 analyzes the evolution of those assets. While 'money market fund shares' display a small rise, it can be clearly observed that the major increase in 'financial assets less unidentified miscellaneous assets' in fact derives from direct investment abroad which goes from 2% in 1946 to 12% in 2015. The question is, then, about the ultimate goal of that FDI.

Cross-border investment is considered as direct investment in international statistics when the ownership stake is at least of 10 per cent. With that threshold it is assumed a lasting interest with the intention to exercise control over the enterprise. This is how it is distinguished from foreign portfolio investment, much more related to short-term holding or speculation on foreign equity market. Financial studies also consider that threshold as an indication of exercising control over the company (see for example La Porta, Lopez-de-Silanes, & Shleifer, 1999; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2002). Moreover, 84.7% of all US foreign affiliates are majority owned (Fiebiger, 2016, p. 358) and scholars who discuss the drivers of FDI usually characterize them either as market-seeking, efficiency-seeking or resource-seeking (Milberg & Winkler, 2013, p. 132); clearly more related to real or regular activities of the firm

rather than financial purposes. In a nutshell, this indicates that financial speculation does not seem to be behind the increase in FDI.

On the other hand, not speculating on foreign equity market does not mean that other types of financial income might not be pursued. As it is indicated in Figure 3.2, once we take into account the destination al FDI, especially in the last couple of years, it is clear that tax havens have been featuring prominently. Although the motives are usually associated with tax avoidance (Desai, Foley, & Hines Jr, 2006) we will later evaluate in Section 4.b if some source of financial income is also at stake.

Figure 3.1. Selected financial assets, NFCs, 1946-2015.



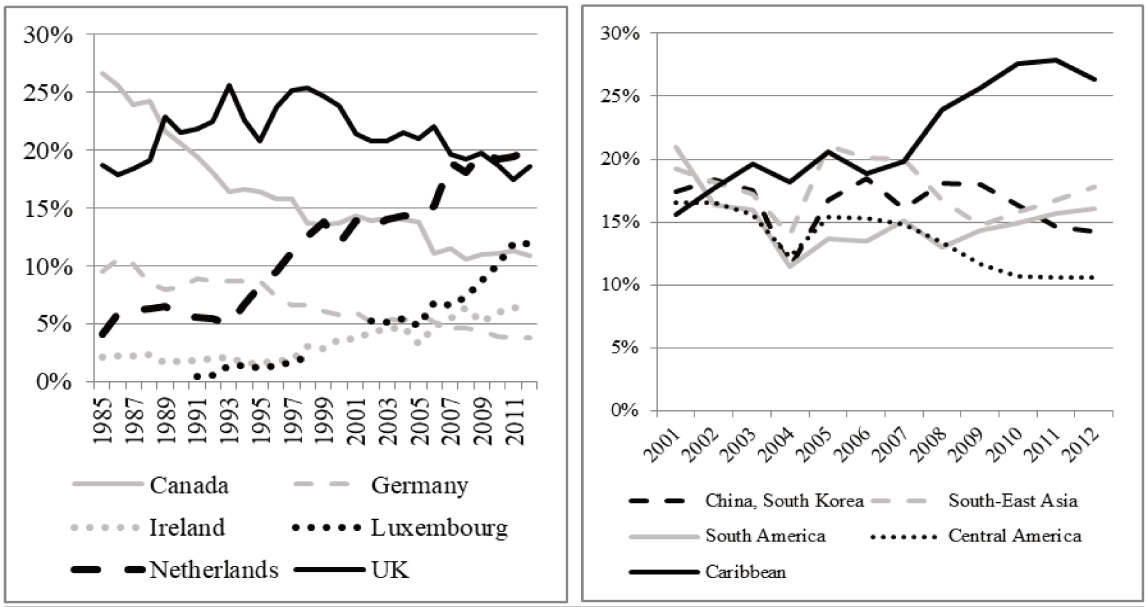
Note: Financial assets measured as a proportion of total assets. See additional details on variable definitions in Table A3.1.

Source: Table B.103 and L.103, FAUSA.

We now move to 'unidentified miscellaneous assets'. Crotty (2005, p. 104) stated that, at the time of his research, even Federal Reserve economists didn't know which kind of assets were in that category or even if they were financial at all. The FED (2017) later clarified the definition:

> Unidentified miscellaneous assets, which is calculated residually, may include such items as deferred charges and prepaid expenses, goodwill, other intangible assets, and intercorporate holdings of corporate equity. Intangibles can include such items as copyrights, patents, distribution rights and agreements, easements (gas, water, and mineral rights), franchises and franchise fees, trademarks, and client lists.

Figure 3.2. US FDI stock in selected OECD countries, 1985-2011 (left) and selected developing countries, 2001-2012 (right)



Note: Percentages calculated as a proportion of total stock in OECD countries (left), and total stock in developing countries (right).

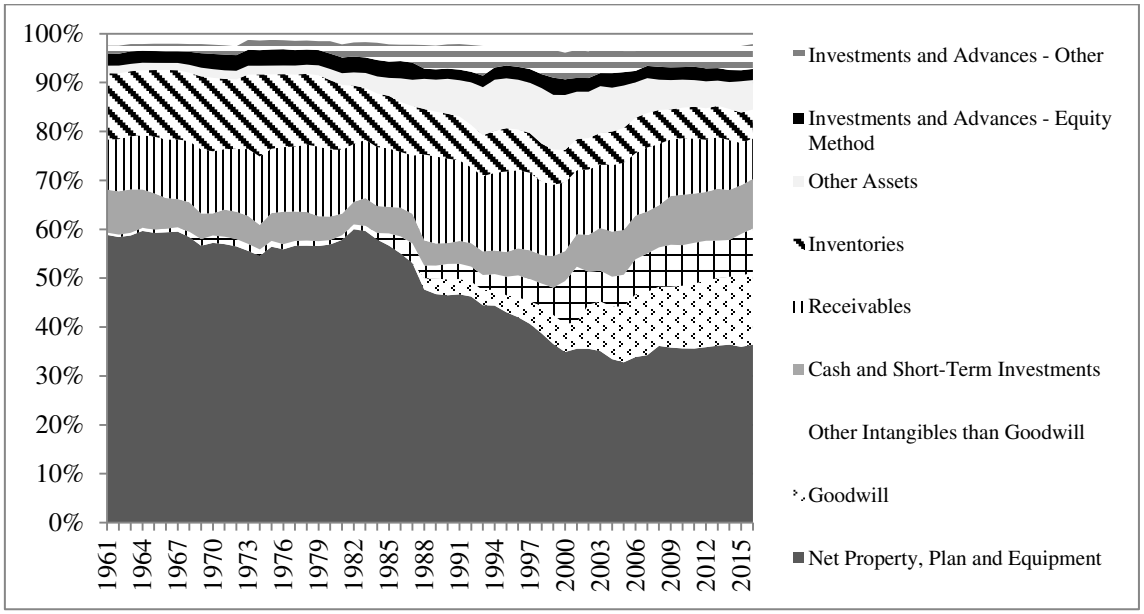
Source: OECD and UNCTAD

It is worth noting that almost all these assets are intangibles rather than financial.[41] Consequently, sometimes they have been excluded from the broader list of financial assets (Doepke & Schneider, 2006). Among unidentified miscellaneous assets, goodwill has a relevant preponderance (Davis, 2016, p. 117). This asset is defined as the amount that an acquiring company pays for a target company over the target's book value (IFRS 3 — Business Combinations). Theoretically, it is explained by the routines, procedures, cultures, etc. which are not individually identifiable but add to company's value. In practice, given the difficulties to measure such items, the amount of goodwill depends on the fluctuations of the stock market, especially on the bull process verified in the weeks preceding M&A (Serfati, 2008). Nevertheless, the fact that goodwill has increased as a proportion of total assets has to be interpreted cautiously. This is due to the fact that goodwill is valued through impairment (IAS 36 — Impairment of Assets). Contrary to amortization, by which assets' value is reduced according to a specific schedule, impairment implies that the value of an asset, in this case goodwill, is decided by a test that compares the total profit expected to be generated by that asset with its book value. Therefore, goodwill does not necessarily disappear from the accounts throughout time.

[41] "Financial assets are entities over which ownership rights are enforced by institutional units, individually or collectively, and from which economic benefits may be derived by their owners by holding them, or using them over a period of time; they differ from other assets in the System of National Accounts in that there is a counterpart liability on the part of another institutional unit (except for monetary gold and Special Drawing Rights (SDRs)" (Organisation for Economic Co-operation and Development, 2001).

We confirm the more relevant role of intangibles using Compustat. Figure 3.3 shows that the most prominent change in the asset structure of NFCs is the increase in intangibles ('goodwill' + 'other intangibles') which, starting from less than 0.5% in 1961 reaches around 25% in 2015. Since it started to be computed, 'goodwill' has been, in most of the years, around 50% of total intangibles (and closer to 60% since 2002). The remaining intangibles are defined by Compustat as 'other intangibles' which, as in the case of 'goodwill', have also little to do with financial assets. Most of the assets from 'unidentified miscellaneous assets' besides goodwill, such as patents, copyrights and licenses, are included in 'other intangibles'.

Figure 3.3. Selected assets, NFCs, 1961-2016.



Note: Assets measured as a proportion of total assets. See additional details on variable definitions in Table A3.1.

Source: Compustat

However, the figure still portrays an increase in some financial assets. 'Cash and short-term investments' display a U-shaped curve starting in 10% of total assets in 1961, then falling to 5% in the beginning of the 1980s before increasing back to 10% in the 1990s where they have since remained. 'Other assets' have also increased, although this is a residual category that includes different types of assets.[42] 'Other investments and advances' have also increased from 2% in 1961 to 5% in the present. 'Receivables' present a discrete jump in 1988, from 11.8% to 17.5% not due to a change in NFCs' strategies but because of a change in regulation. In October 1987, the Financial Accounting Standards Board issued its Statement No. 94 which tried to reduce the

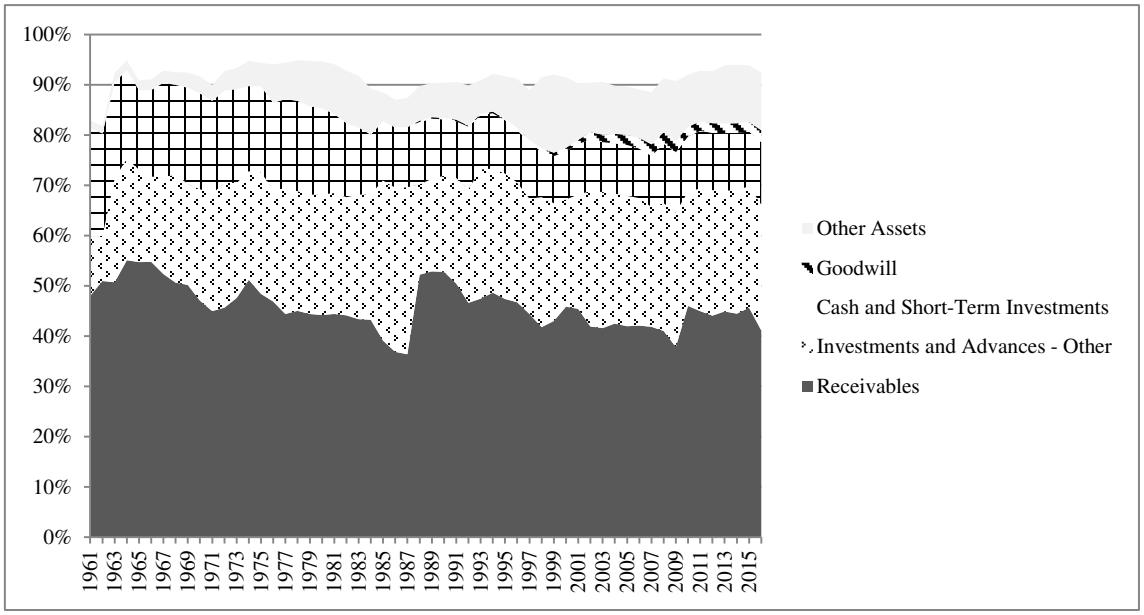
[42] Although normalizing by sales, Davis (2016) also shows that the financial assets that increase are 'cash and short-term investments' and another asset that she defines as 'other financial assets'. However, as shown in her appendix, 'other financial assets' are 'other current assets' (Compustat item 68) + 'other assets' (Compustat item 69). These are not necessarily financial assets. In Figure A3.1 in our Appendix we also normalize by sales and the patter displayed by different assets is the same as normalizing by assets.

off-balance sheet financing by requiring the consolidation of all majority owned subsidiaries in financial statements (Wiedman & Wier, 1999). Parent companies had off-balance subsidiaries in order to transfer corporate receivables and leases, reporting only their net asset position in their own balance sheet improving their debt/equity, return on investment and receivables turnover ratios (Cormier, Andre, & Charles-Cargnello, 2004). Nevertheless, the proportion of 'receivables' has been decreasing since the discrete change.

It is also important to remark that Compustat presents consolidated information and therefore we are not able to distinguish between parent and subsidiary information (i.e., it is not possible to assess the stock of FDI like we did in Figure 3.1). Being consolidated, on the other hand, implies that all subsidiaries are included, even the financial ones.

On the other hand, if we compare the asset structure of NFCs and financial corporations (FCs) we can see in Figure 3.4 that for the latter: (1) the amount of 'cash and short-term investments' has decreased, instead of increased, over practically the whole period; (2) the main component is 'receivables' - more than 40%[43]; (3) 'Other investments and advances' comprise a higher proportion of assets.

Figure 3.4. Selected assets, FCs, 1961-2016.



Note: Assets measured as a proportion of total assets. See additional details on variable definitions in Table A3.1.

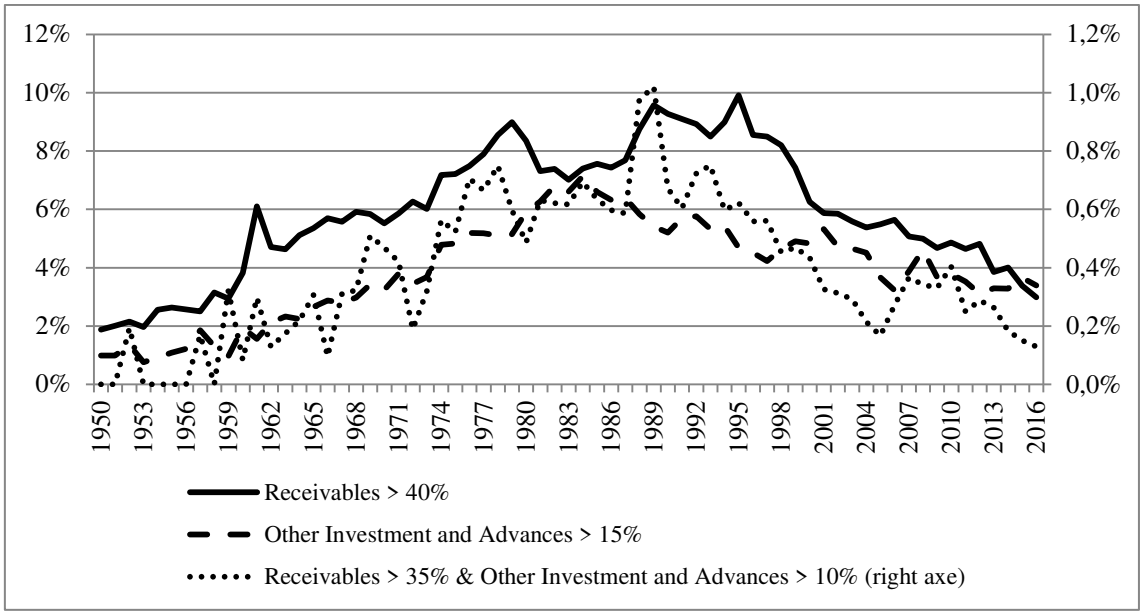
Source: Compustat

Figure 3.4 also allows to calculate a rough benchmark in order to identify which NFCs resemble more the structure of FCs. Their two most important assets are 'receivables' and 'other

[43] And it also presents a discrete jump in 1988, which confirms the fact that, both for FC and NFC, the increase was due to the aforementioned change in regulation.

investments and advances', which average 46% and 23% of total assets respectively. The former is a particularly important asset in the *financial turn of accumulation* hypothesis since it represents the monetary obligations owed to a company by its debtors or customers. We take an arbitrary lower percentage for NFCs and identify three cases which resemble the structure of FCs: a) NFCs with more than 40% of 'receivables' over total assets, b) NFCs with more than 15% of 'other investment and advances' over total assets and c) NFCs with more than 35% of 'receivables' over total assets and 10% of 'other investment and advances' over total assets. Figure 3.5 shows the results: since the 1980s, an average of 7% and 5% of listed NFCs accomplish criteria a) and b) respectively, although with a clear lower trend. Moreover, only an average of 27 NFCs since 1980 meets criteria c) -less than 1%. In the case of FCs, 50%, 58% and 28% respectively accomplish those criteria since the 1980s.

Figure 3.5. NFCs with significant proportion of Receivables and Other Investment and Advances, 1950-2016.



Note: Assets measured as a proportion of total assets. See additional details on variable definitions in Table A3.1.

Source: Compustat

In a nutshell, we consider that the validity of the *financial turn of accumulation* hypothesis is weakened once we take into account that: a) some of the alleged financial assets which also showed the highest growth are, in fact, FDI, goodwill and other intangibles, b) the most important financial asset for FCs, 'receivables', has been decreasing for NFCs at least since 1988 and c) the number of NFCs with a significant proportion of the two most important assets for FCs is less than 1% and has been decreasing since the beginning of the 1990s. Moreover, even though some clear financial assets have increased, as in the case of 'cash and short-term

investments',[44] it does not necessarily mean that NFCs are making profits out of them. The same claim can be applied to less clear cases such as FDI. To effectively sustain this kind of argument we would need evidence showing to what extent financial income has displaced more 'traditional' sources of income. This requires, in other words, to examine the income statement of NFCs – the topic we analyze next.

b. Sources of income

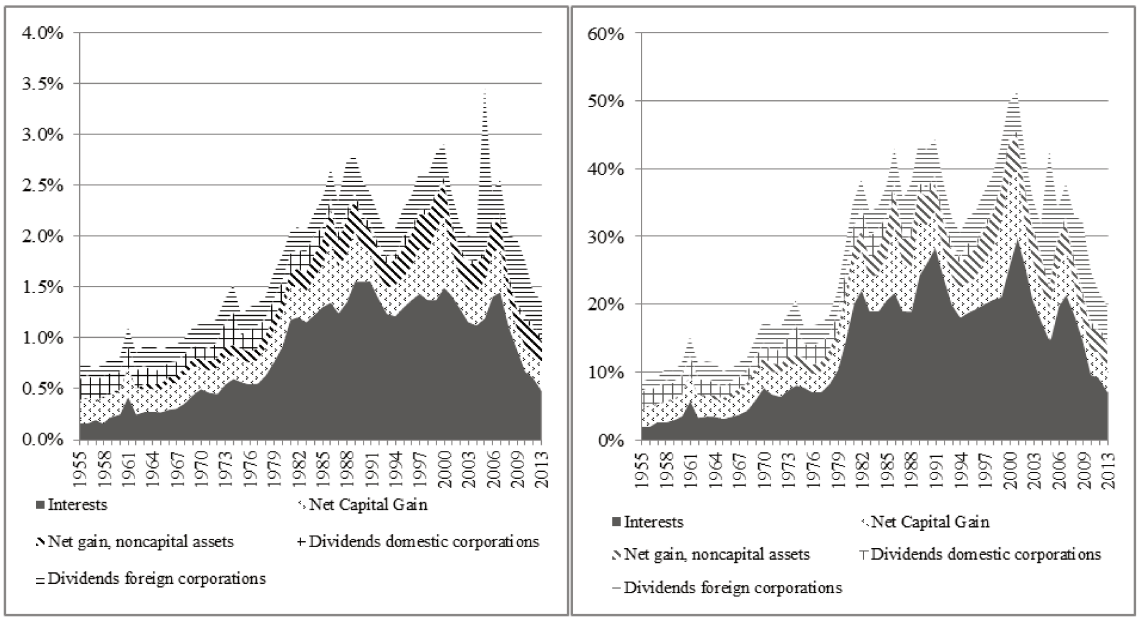
Figure 3.6 illustrates the dramatic differences that arise depending on the denominator chosen to measure the relevance of financial income. On the right side we follow Krippner's methodology and use cash flows (profits + depreciation allowances), on the left side we use revenues. It confirms the overestimation bias due to comparing a pure revenue stream with a net-of-cost measure. In Figure A3.2, in the Appendix, we compare two net-of-cost measures: financial profitability over total profitability. Although results are telling in Figure A3.2 (the ratios tends to be negative for the whole period and worsens since the 1980s), they have to be interpreted cautiously since we compute all financial costs rather than those related only to financial activities.

We will rather focus on the left side of Figure 3.6 which still tells a completely different story than the *financial turn of accumulation* hypothesis regarding the importance of that type of revenues on the general income structure of NFCs. Even after including dividends from foreign and domestic corporations (which are not necessarily financial), this type of income is usually below 2.5% and only in 2005 it surpassed the barrier of 3% due to a tax holiday on repatriated profits. If we only take gains on capital and noncapital assets and interests, the aggregate is usually below 2%. Moreover, financial income presents a clear upward trend until the beginnings of the 1990s, oscillates until 2005 and then dramatically declines (this also happens using Krippner's methodology). The last two facts, but especially the decline are contradictory with the fact that the whole period belongs to what has been regarded a finance-led capitalism (Guttmann, 2016).

The main component of financial income is always interest income. Fiebiger (2016, p. 364) shows that both interests received and paid share practically the same trend, which is also similar to the evolution of the interest rate. Therefore, the evolution of the main component of financial income seems to be more a by-product of monetary policy rather than an active speculative activity carried by NFCs.

[44] The increase in money market funds shares we saw in Figure 3.1 is included in this broader category.

Figure 3.6. Components of financial income relative to total income (left) and cash flow (right), NFCs, 1955-2012.



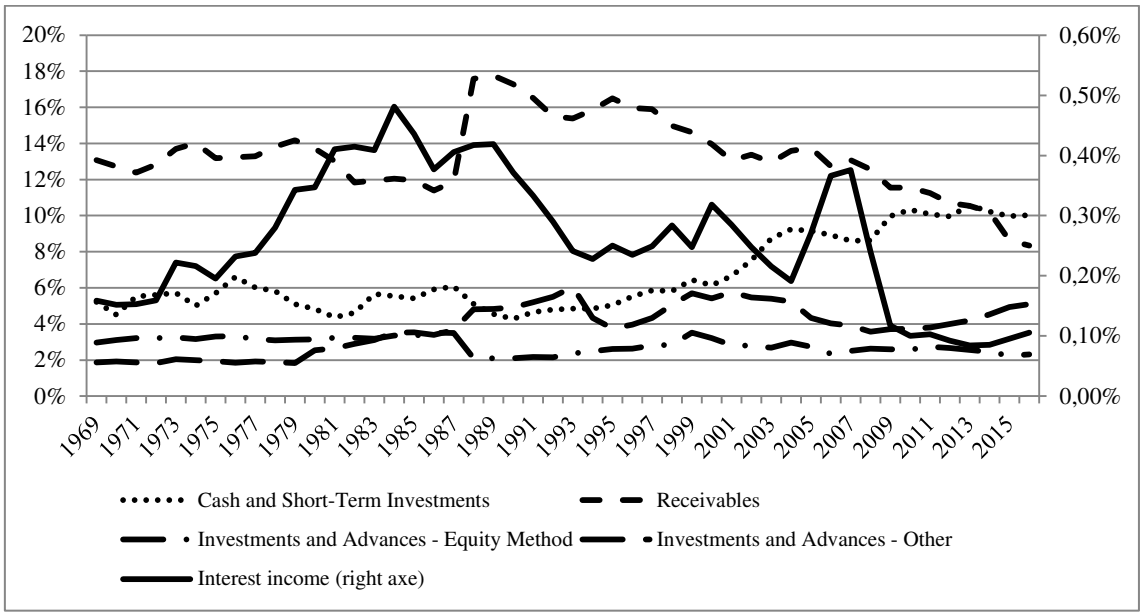
Note: Cash flow calculated as profits + depreciation allowances, following Krippner's (2005) methodology. See additional details on variable definitions in Table A3.1.

Source: SOI.

Figure 3.7 shows the joint evolution of financial income and financial assets using Compustat in order to study whether or not there is any link among them. We measure the evolution of financial income using interest income and this is partly why the percentage is lower than in the SOI. Compustat does not provide consistent information on capital gains and we are not computing dividend income due to the reasons provided in Section 4 (basically, that there is no reason to consider it as financial income). In any case, even if we take into account dividends, the percentage does not surpass the 1% threshold in any year. Regarding capital gains, in Figure 3.6 we saw they play a minor role being interest income the most important. Taking all of this into account makes it valid to focus on interest income.[45] Figure 3.7 points out, firstly, the fact that interest income is decreasing simultaneously with 'cash and short-term investments' increase which is a clear indication that the growth in the latter should not be linked to the quest for financial profits. Second, both types of investments and advances have remained fairly constant whereas financial income was decreasing. Only receivables display a clear downward trend as well.

[45] In any case, in Figure A3.3 in the Appendix, we show that the evolution of financial income in SOI and Compustat, with and without dividends, is very much alike.

Figure 3.7. Interest income and financial assets, NFCs, 1969-2016.



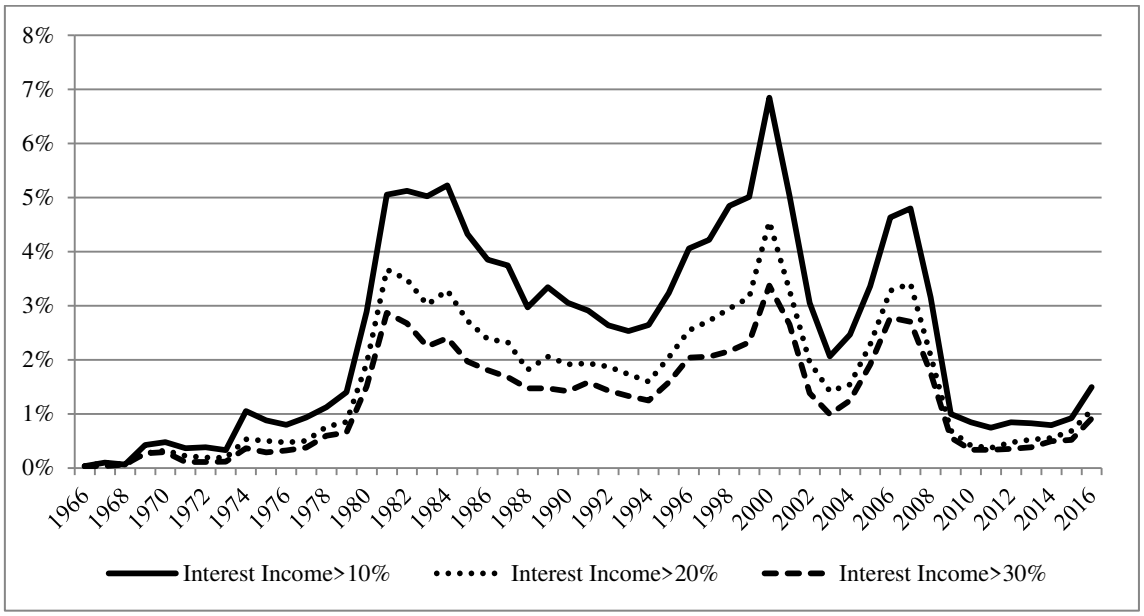
Note: Assets measured as a proportion of total assets and interest income measured as a proportion of total income. See additional details on variable definitions in Table A3.1.

Source: Compustat

Moreover, also using Compustat, we are able to identify the number of firms for which interest income represents a significative source of income (Figure 3.8). We take three arbitrary thresholds: 10%, 20% and 30%. The fact that, since the 1980s, only an average of 2.1% and 1.6% of firms surpass the last two thresholds supports the fact that, if valid, the *financial turn of accumulation* hypothesis only applies to a small number of firms which is also decreasing in the last two decades.

Despite the evidence we have provided in order to reject the *financial turn of accumulation* hypothesis, there is a certain probability that an important proportion of financial income might not be specified as such due to the fact that firms with a financial division consolidate their information with regular income. We face this potential issue using CCM database which has a specific item for it ('finance division revenue'). When we compute income from financial divisions we obtain an average of 0.5% of revenues for the whole sample. Although the number is minor, it is nevertheless impressive considering that only 34 corporations report income from financial divisions. It is in many of these cases (but not in all of them) where financial income represents a significant proportion of total income (Table 3.3). Moreover, all these NFCs are big: in 2010, 90% of them were in the upper quartile, 62% in the upper decile, 38% in the top 5% and 24% in the top 1%.

Figure 3.8. NFCs with significant proportion of Interest Income, 1966-2016.



Note: Interest income measured as a proportion of total income. See additional details on variable definitions in Table A3.1.

Source: Compustat

Table 3.3. Corporations with reported income from financial divisions and its proportion over total income.

	2010	2011	2012	2013	2014	2015	2016	Average
Alliance Data Systems Corp	0.497	0.469	0.476	0.471	0.452	0.462	0.498	0.475
Altria Group Inc.	0.047	0.025	0.079					0.050
Boeing Co	0.014	0.013	0.010	0.009	0.009	0.008	0.008	0.010
Cabelas Inc	0.138	0.140	0.132	0.133	0.151	0.161	0.179	0.148
Calatlantic Group Inc	0.095	0.141	0.124	0.090	0.072	0.061	0.050	0.090
Carmax Inc	0.045	0.043	0.043	0.042	0.041	0.043	0.046	0.043
Caterpillar Inc	0.055	0.028	0.035	0.035	0.038	0.035	0.046	0.039
Cavco Industries Inc		0.085	0.101	0.092	0.097	0.083		0.092
D R Horton Inc	0.045	0.051	0.054	0.058	0.062	0.043	0.039	0.050
Eplus Inc	0.044	0.040	0.041	0.042	0.030	0.029		0.038
Ford Motor Co	0.079	0.072	0.073	0.068	0.070	0.082	0.091	0.076
General Electric Co	0.337	0.348	0.327	0.316	0.297	0.090	0.083	0.257
General Motors Co	0.022	0.028	0.032	0.036	0.050	0.061	0.074	0.043
Greenbrier Companies Inc	0.042	0.028	0.031	0.038	0.037	0.035	0.099	0.044
Harley-davidson Inc	0.142	0.124	0.116	0.110	0.107	0.116	0.122	0.119
Hovnanian Entrprs Inc	0.004	0.005	0.026	0.026	0.026	0.035	0.019	0.020
Hp Inc	0.003	0.005	0.004	0.002	0.001	0.000		0.003
Intl Business Machines Corp	0.036	0.031	0.034	0.032	0.034	0.040	0.040	0.035
Kb Home	0.041	0.013	0.049	0.047	0.063	0.059	0.052	0.046
Lennar Corp	0.137	0.130	0.125	0.114	0.130	0.132	0.118	0.126
Lithia Motors Inc	0.025	0.032	0.035	0.035	0.036			0.032
Mdc Holdings Inc			0.096	0.084	0.077	0.055	0.053	0.073
Meritage Homes Corp.							0.033	0.033
Navistar International Corp	0.018	0.014	0.009	0.017	0.014	0.014	0.022	0.015
Nvr Inc	0.022	0.020	0.022	0.020	0.017	0.020	0.021	0.020
Paccar Inc	0.074	0.054	0.057	0.061	0.057	0.056	0.063	0.060
Pitney Bowes Inc	0.118	0.115	0.101	0.120	0.114	0.114	0.107	0.113
Pultegroup Inc	0.087	0.077	0.074	0.054	0.046	0.048	0.046	0.062
Snap-on Inc	0.025	0.043	0.053	0.055	0.061	0.067	0.076	0.054

Sotheby's	0.019	0.015	0.029	0.031	0.040	0.058	0.075	0.038
Textron Inc	0.021	0.009	0.018	0.011	0.007	0.006	0.006	0.011
TRI Pointe Group Inc.						0.027	0.031	0.029
Xerox Corp	0.034	0.033	0.032	0.033	0.029	0.027		0.031
TOTAL	0.078	0.074	0.079	0.076	0.076	0.069	0.078	0.072

Note: Income from financial divisions measured as a proportion of total income. See additional details on variable definitions in Table A3.1.

Source: Compustat and CCM.

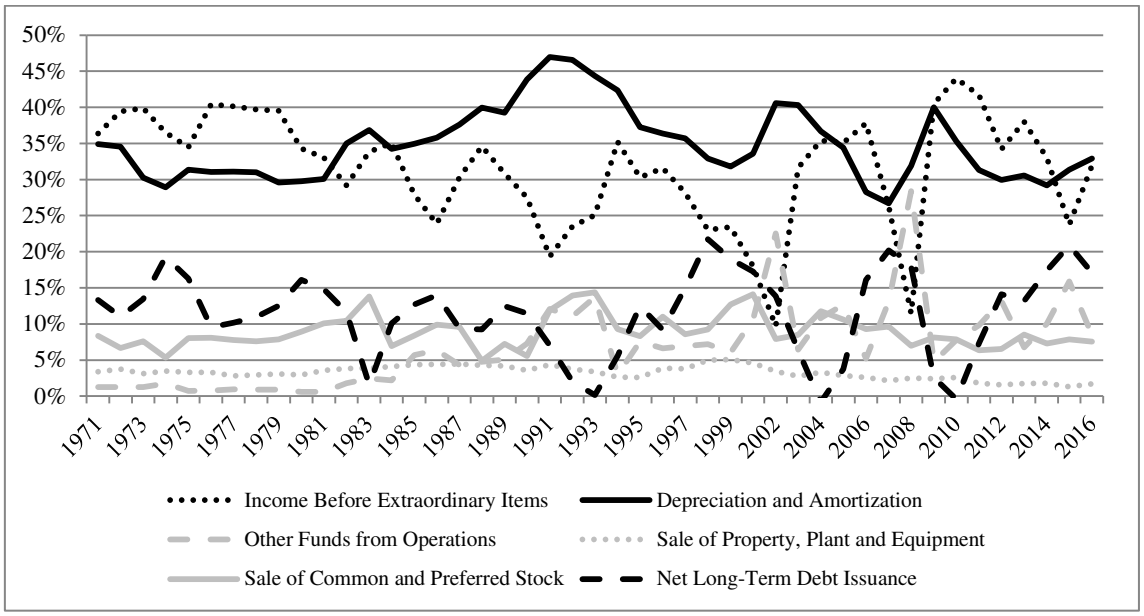
Having analyzed the income structure of NFCs we have presented data that, as in the case of the asset structure, tend to deny the *financial turn of accumulation* hypothesis. In particular we showed that: (1) financial income is a small part of the aggregate income structure of NFCs, even after adding income from finance divisions; (2) financial income has stopped increasing and even declined in a period characterized as financialized; and, finally, (3) financial income represents a significant income for a small and decreasing number of firms since the beginnings of the 2000s. In the next section, we study the remaining financial statement: the cash flow statement of NFCs.

c. Cash Flow Structure

The cash flow statement is a useful tool for assessing the sources (Figure 3.9) and uses (Figure 3.10) of funds. In terms of the sources, 'net increase in long term debt' has been maintained as a permanent positive source of funds, growing especially in moments of lower income from regular operations. This last item, until 2002, had a negative trend as a source of income, increasing later. The category 'other funds from operations' has also increased during the period.

Regarding the uses of funds, one of the most prominent changes is the decrease in capital expenditure across the period from 77% of total funds in 1977 to 34% in 2016. This decline was matched, as a counterpart, by an increase in the purchase of common and preferred stock from 1.5% in the beginnings of the 1970s to 20% in 2016 (and a reduction in the relative importance of dividends as a mean of distributing value to shareholders) along with acquisitions averaging 13.3% of total funds since mid 1980s.

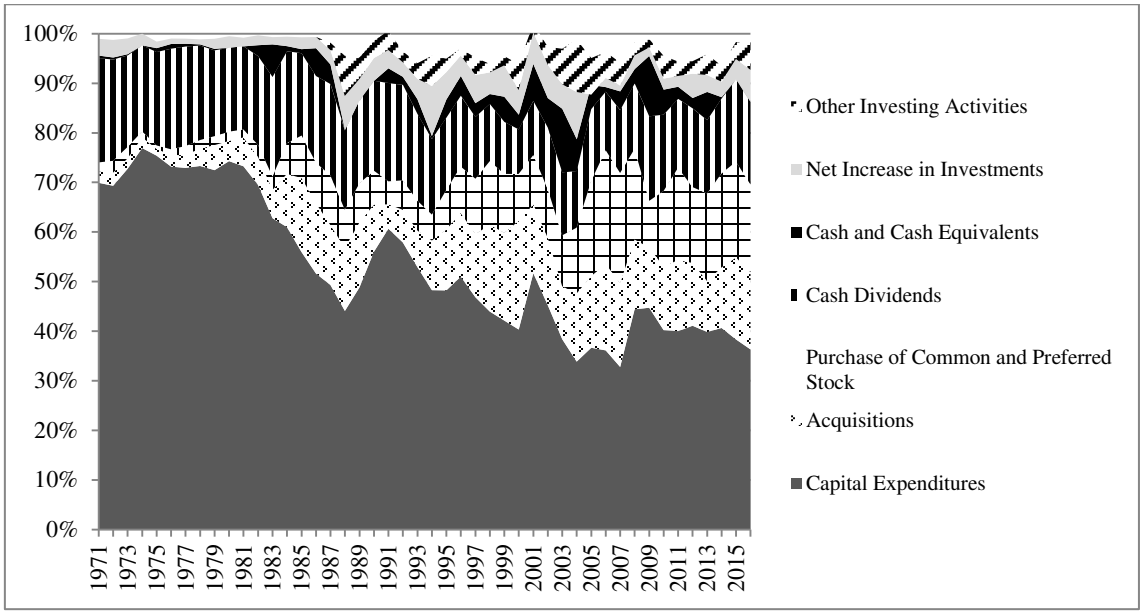
Figure 3.9. Selected sources of funds, NFCs, 1971-2016.



Note: Sources of funds measured as a proportion of an estimated aggregation of sources of funds. See additional details on variable definitions in Table A3.1.

Source: Compustat

Figure 3.10. Selected uses of funds, NFCs, 1971-2016.



Note: Uses of funds measured as a proportion of an estimated aggregation of uses of funds. See additional details on variable definitions in Table A3.1.

Source: Compustat.

Regarding financial investments, their proportion is low: (1) 'net increases in investments'[46] has an average of 3.7% (and started the sample with 3.5%), (2) 'other investing activities' displays an average of 2.5% and, finally, (3) 'changes in cash and cash equivalents' alternated positive and negative values with an average of 2.6% and a period of systematic higher values (1996-2005) in which it reached 13% in 2003. Therefore, Figure 3.10 does not show NFCs actively engaging in financial investments.

To conclude, this section confirms the trends we found above. Firstly, increases in acquisitions match increases in goodwill. Decreases in capital expenditure explain the decrease in net property, plant and equipment and positive sustained values for some financial categories might explain the increase in cash and short-term investments. Moreover, the fact that financial investments are not a major use of funds is conformant with the low proportion of financial income relative to total income. Finally, permanent positive values for net long-term debt issuance explains the increase in the liabilities of NFCs as pointed by Davis (2016, p. 128).

So far, we have presented comprehensive evidence pointing towards the rejection of the *financial turn of accumulation* hypothesis as an aggregate trend among NFCs. However, there might still be the case that the aggregate data we presented hides significant variation across firm size and sector. In the next section we perform the same analysis we have done so far, this time for different sizes of NFCs.

5. Size analysis

In order to analyze size differences we use the SOI and Compustat. Figure 3.11 shows the asset structure of different sizes of firms.[47] A couple of trends can be clearly distinguished. Starting from the lowest percentiles, all firm sizes show a clear increase in 'cash, government obligations and other current assets' met mainly by a decrease in 'notes and accounts receivables less reserves for bad debts' and also 'inventories'. In these segments, 'depreciable assets less accumulated depreciations', 'other capital assets less reserves' (which includes intangibles) and 'other investments and loans' have remained fairly constant.

This picture changes dramatically for the upper percentiles, especially within the top 1%. Firstly, the decrease in 'depreciable assets' as a percentage of total assets is concentrated in the

[46] We take the net value (difference between 'increase in investment' and 'sale of investments') because, due to the Statement No. 94 in 1988, the values of each them rise separately but the difference remains constant. 'Increase in investments' goes from 4.7% in 1987 to 25.6% in 1988 while 'sale of investments' jumps from 2.6% to 24.4%. 'Net increase in investments' includes increase in long-term receivables, increase in investments in unconsolidated subsidiaries and long-term investments combined with short-term investments.

[47] The percentiles are not arbitrary but based on how the SOI provides information (i.e., almost fixed categories for asset size during the whole period). Although it is not possible to distinguish percentiles in the lower 60%, it presents a great versatility for the upper ones.

upper segment of the distribution, mainly in the upper 0.1% but especially in the upper 0.05%. This group also presents other interesting features. It is the only one in which there is no increase in 'cash, government obligation and other current assets'. Moreover, it is also the only where we verify an increase in 'other investments and loans'. This category is defined by the SOI as generally including:

> Long-term nongovernment investments and certain investments for which no distinction could be made as to their current or long-term nature. Examples of non-government investments included stocks, bonds, loans to subsidiaries, treasury stock reported as assets, and other types of financial securities. (Internal Revenue Service, 2013)

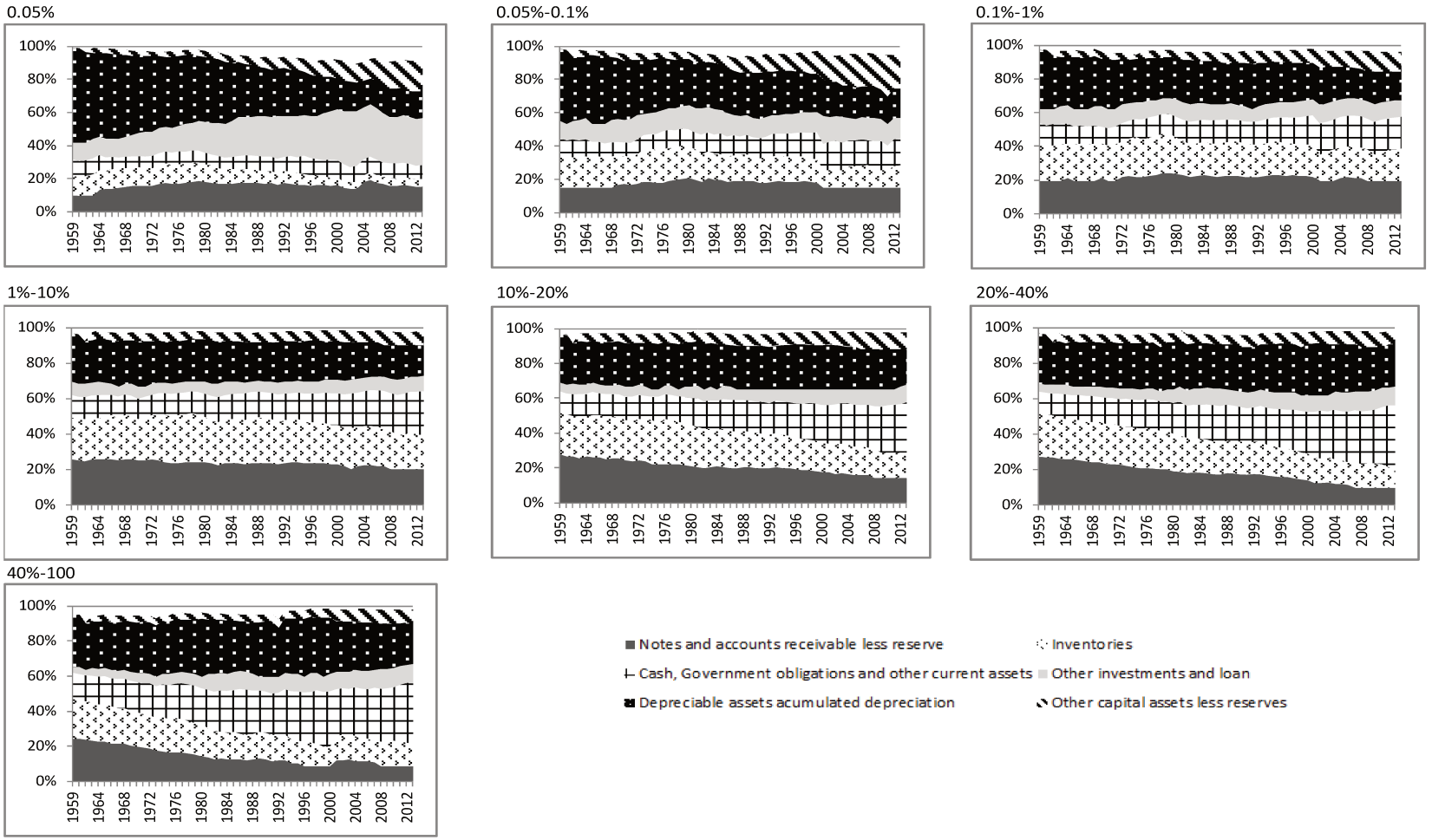
The definition is very broad and may include both financial and non-financial assets (also related to the international activities of NFCs). As we did in previous sections we are able to verify whether these 'other investments and loans' are related or not to a flow of financial income (Figure 3.12).[48]

We show, for each percentile, the proportion of financial income over total income as we defined it in Section 4. For the upper 0.1% and especially for the 0.05%, financial income has increased as a percentage of income. Yet, the percentage does not surpass the 3.5% level for biggest firms and 1.4% for the 0.05%-0.1% segment. Figure 3.12 also allows us to check whether the increase in more clear financial assets -'cash, government obligation and other current assets'- in other firm sizes was associated with an increase in financial income. For the 1%-10% and 10%-20% segments financial income was higher in 1961 and 1962 compared to 2004-2013. Only in the 20%-40% and 40%-100% segments we observe some years in the recent period with higher financial income. However, it is never higher than 0.3% for the former and 1% for the latter. These general trends are maintained also for the manufacturing sector (Figures A3.4 and A3.5 in the Appendix).

Finally, Figure 3.13 shows selected assets of NFCs belonging to the top 1% and lower 50% in asset size from Compustat. Differences are telling: even if in both cases a decrease in 'net property, plant and equipment' is verified, the biggest cut is experienced by the top 1%. The highest increases in 'other intangibles than goodwill' and 'goodwill' are also verified for this category. On the other hand, the most dramatic change in 'cash and short-term investments' happens for the lower 50%. This result is consistent with Figure 3.11 and confirms that, even for listed firms, the highest increase in liquid assets is verified for the smaller firms.

[48] The SOI only presents the disaggregation of income for 1961, 1962 and 2004-2013. That's why we take those years.

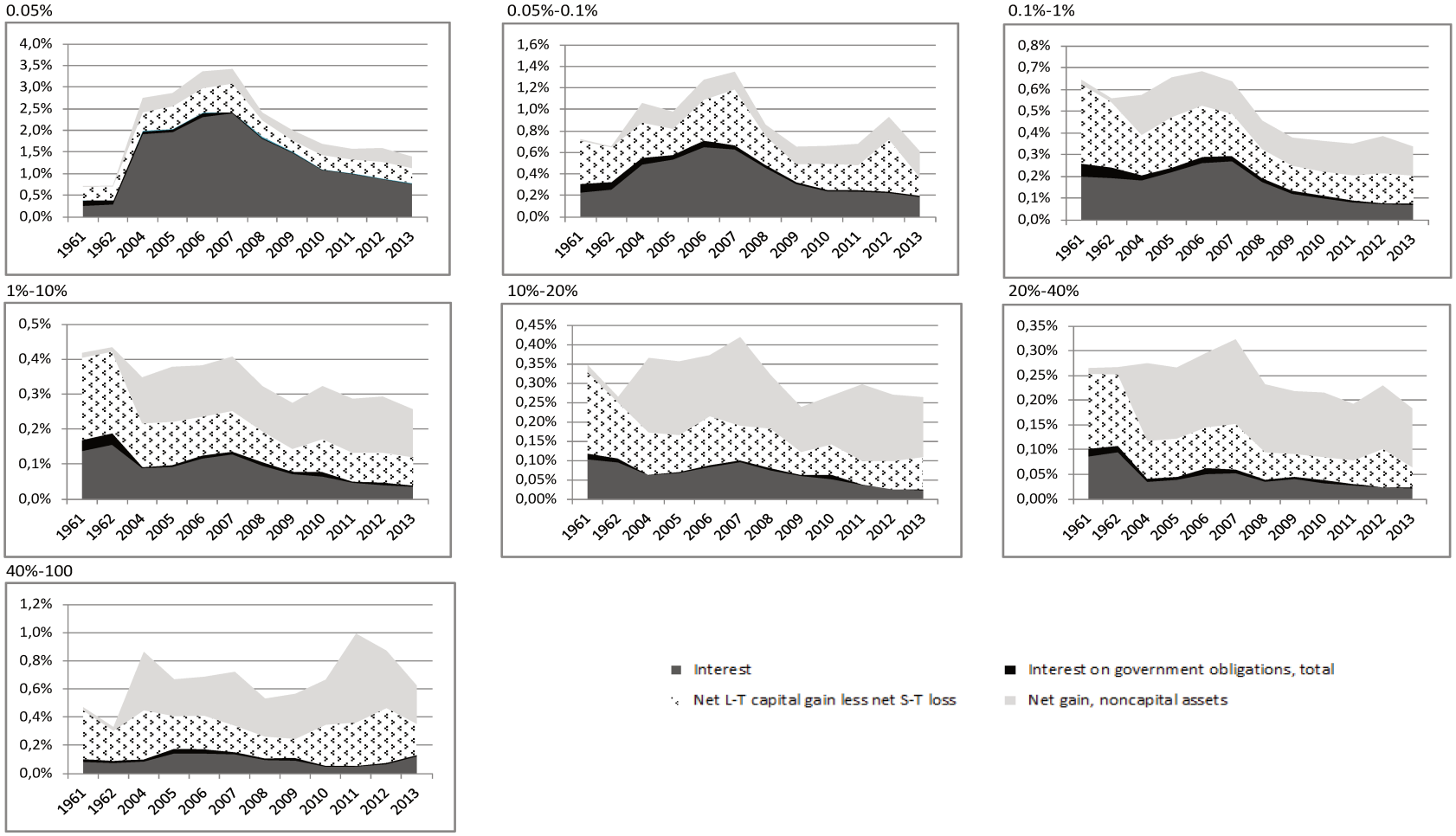
Figure 3.11. Selected assets, NFCs, 1959-2013



Note: Assets measured as a proportion of total assets. See additional details on variable definitions in Table A3.1.

Source: SOI.

Figure 3.12. Components of financial Income, NFCs, 1961, 1962, 2004-2013.

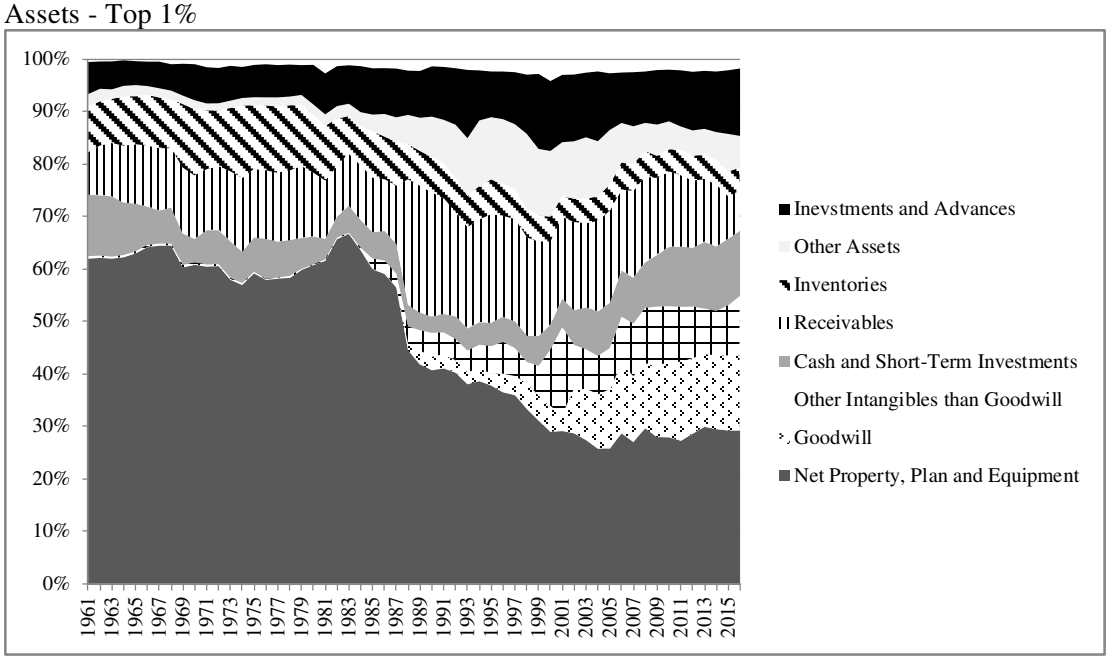


Note: Financial income measured as a proportion of total income. See additional details on variable definitions in Table A3.1.

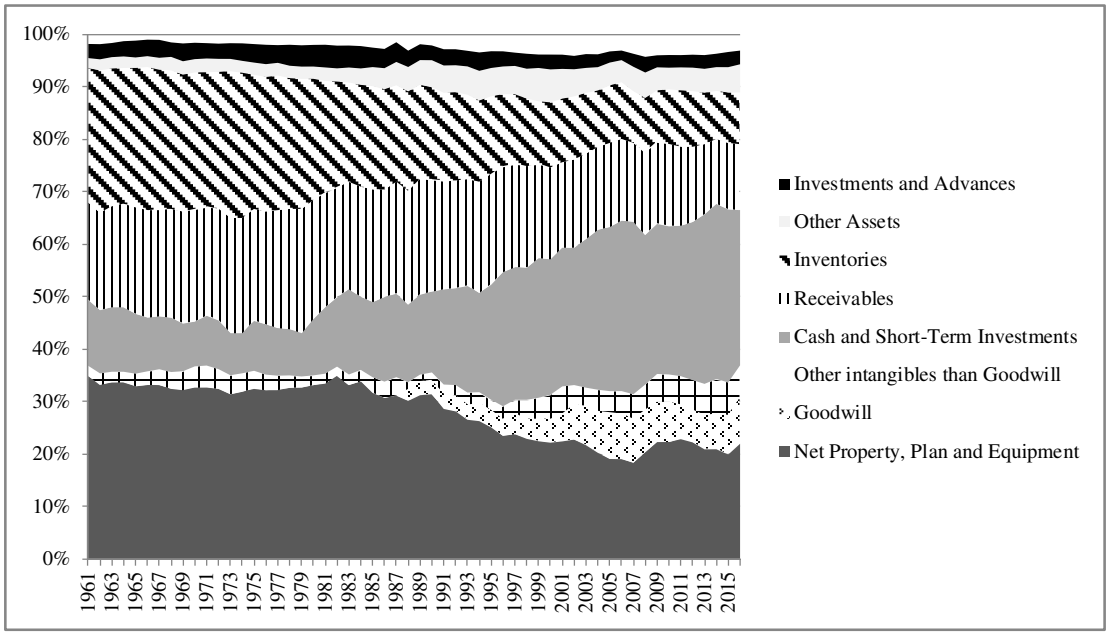
Source: SOI.

Figure 3.13. Selected assets, NFCs, 1961-2016. Top 1% and Lower 50% in asset size

Assets - Top 1%



Assets - Lower 50%



Note: Assets measured as a proportion of total assets. See additional details on variable definitions in Table A3.1.

Source: Compustat.

6. Discussion

Our results not only show that, for the aggregate, the *financial turn of accumulation* hypothesis does not hold, but also points towards those other strategies followed by NFCs. In terms of assets, the biggest increase was verified in 'unidentified miscellaneous assets' in which

'goodwill' has a dominant role. 'Other intangibles' such as patents, copyrights and licenses are also part of that category and partly reflect the movement towards higher value added activities. Of the rest of the financial assets that can be identified, it is FDI that demonstrates the highest increase. Strikingly, neither intangibles (goodwill and other intangibles) nor FDI support *financial accumulation* while, in fact, both of them may indicate other changes experienced by NFCs: M&As, reorientation towards core activities, tax avoidance and offshoring respectively.

This does not mean that no financial asset has increased in proportion, as is the case for 'cash and short-term investments' since the 1990s. However, the fact that NFCs are holding a higher proportion of cash and short term investments is not related to an increase in the flow of financial income but to other motives. For example, the corporate finance literature identifies different groups of answers for this phenomenon such as growth opportunities (Fazzari et al., 1988; Opler, Pinkowitz, Stulz, & Williamson, 1999), riskier cash flows (Acharya, Almeida, & Campello, 2007; Bates, Kahle, & Stulz, 2009), tax costs associated with repatriating foreign income (Foley, Hartzell, Titman, & Twite, 2007), R&D activities (Brown & Petersen, 2011; Pinkowitz, Stulz, & Williamson, 2012) and agency issues (Fama & Jensen, 1983; Jensen & Meckling, 1976). For the latter, in sharp contrast to the financialisation theory, the accumulation of cash and liquid assets is regarded more as wasted resources rather than profitable investments. In relation to this literature on cash holdings, our results point towards the direction of tax motives but also riskier cash flows and uncertainty since the largest increase in liquid assets is verified for smaller firms.

The analysis in terms of the cash flow statement does not support either the *financial turn of accumulation* hypothesis. Financial investments represent a relatively minor and constant use of cash over the period. This is a clear indication that financial investments have not displaced capital expenditures in terms of use of funds or, what is the same, that real investment has not been *crowded-out* by financial investment.

This finding is not entirely inconsistent with the financialisation literature. Most econometric studies, rather than evaluating the effect of financial investment as determinants for capital expenditures, have tested the impact of interest income over physical investment. Negative and significant values of the estimated parameters are thus interpreted as a proof of the turn to financial accumulation (Hecht, 2014; Orhangazi, 2008; Stockhammer, 2004) even though liquid financial assets are found to have a positive effect on investment when they are included (Davis, 2017; Hecht, 2014). Without carrying an econometric analysis (that will be carried anyway in Part 3), our results also go in the direction of an absense of crowding-out.

7. Conclusion

This chapter has scrutinized the empirical data sustaining the *financial turn of accumulation* hypothesis. Our main contribution has been to provide extensive evidence for the aggregate of NFCs, but also for different sizes considered on their own, that rejects the hypothesis.

The evidence traditionally used in the literature to sustain the *financial turn of accumulation* hypothesis shows an increase in the financial assets held by NFCs along with a higher proportion of financial income. However, in terms of assets, one of the main changes has been the growth of goodwill. In the FAUSA, this asset is part of a miscellaneous category classified as financial even though most of their assets are intangibles. Foreign Direct Investment is another asset which has increased and is considered as financial by the FAUSA although it should not be necessarily considered as such. Far from supporting the *financial turn of accumulation* hypothesis, the increase in intangibles in general, goodwill in particular, along with FDI (and its location) may indicate other paths followed by US NFCs. To our knowledge, these are the refocusing in higher value added activities, M&As, tax avoidance and internationalization of production. Many of them will be studied in Part 3 of this thesis.

In terms of financial assets, only 'cash and short-term investments' have increased since the beginnings of the 1990s. Nevertheless, the proportion of financial income over total income is fairly low and, more important, has been decreasing in the last years. 'Receivables' and 'other investments and advances' have remained fairly constant (or even decreased) while, at the same time, the proportion of NFCs with a significant amount of those assets has decreased over the past 25 years.

Apart from the *financial turn of accumulation* hypothesis, in Chapter 1 we emphasized that the introduction of shareholder value orientation as a guiding principle for management and the engagement in financial activities through an increase in financial payouts were also part of the dynamics involved in the financialisation of non-financial corporations. By showing the dramatic increase in share buybacks as a percentage of use of funds we provided evidence that supports these ideas.

A corollary of the *financial turn of accumulation* hypothesis is that NFCs are increasingly becoming or behaving as financial *rentiers* (Davis, 2016). Although our results reject the *financial turn of accumulation* hypothesis, they do not imply that no type of *rentierization* is happening regarding NFCs, but only that, if there is any *rentierization*, it does not seem to be financial. On the contrary, the growing importance of intangibles in aggregate terms points toward a type of business model that is more dependent on technological and intellectual rents, such as the case of pharmaceutical sector (Montalban & Sakinç, 2013), electronics (Dedrick,

Kraemer, & Linden, 2010) or internet platforms (Haucap & Heimeshoff, 2014). We will go back to this point in Chapter 6.

Appendix of Chapter 3

Table A3.1. Definitions of variables in figures

Variable	Source
Figure 3.1	
Checkable deposits and currency	Financial Accounts of the USA, Table B.103
Time and savings deposits	Financial Accounts of the USA, Table B.103
Money market fund shares	Financial Accounts of the USA, Table B.103
Debt securities	Financial Accounts of the USA, Table B.103
Loans	Financial Accounts of the USA, Table B.103
Trade receivables	Financial Accounts of the USA, Table B.103
US direct investment abroad	Financial Accounts of the USA, Table B.103
Mutual fund shares	Financial Accounts of the USA, Table B.103
Figures 3.3, 3.4, 3.5, 3.7, 3.13, 3.A1	
Cash and Short-Term Investments	Compustat Data Item 1
Receivables	Compustat Data Item 2
Inventories	Compustat Data Item 3
Net Property, Plant and Equipment	Compustat Data Item 8
Investments and Advances - Equity Method	Compustat Data Item 31
Investments and Advances - Other	Compustat Data Item 32
Goodwill	Compustat Data Item 204
Other Intangibles than Goodwill = Intagibles - Goodwill	Compustat Data Item 33, 204
Other Assets	Compustat Data Item 69
Sales	Compustat Data Item 12
Figures 3.6, 3.12, 3.A2, 3.A3, 3.A5	
Other interest	SOI
Interest on government bonds	SOI
Net Capital Gain	SOI
Net gain, noncapital assets	SOI
Dividends domestic corporations	SOI
Dividends foreign corporations	SOI
Interest Paid	SOI
Financial Profitability = (Other interest + Interest on government bonds + Net Capital and Noncapital Gain + Dividends - Interest Paid)/Net Income	SOI
Figures 3.7, 3.8, 3.A3	
Interest Income	Compustat Data Item 62
Dividend Income	Compustat Data Item 55
Figure 3.9	
Income Before Extraordinary Items	Compustat Data Item 123
Depreciation and Amortization	Compustat Data Item 125
Other Funds from Operations	Compustat Data Item 217
Sale of Property, Plant and Equipment	Compustat Data Item 107
Sale of Common and Preferred Stock	Compustat Data Item 108
Net Long-Term Debt Issuance = Long-Term Debt Issuance - Long-Term Debt Reduction	Compustat Data Items 111, 114
Total estimated sources = Income Before Extraordinary Items + Depreciation and Amortization + Other Funds from Operations + Sale of Property, Plant and Equipment + Sale of Common and Preferred Stock + Net Long-Term Debt Issuance + Deferred Taxes + Extraordinary Items and Discontinued Operations	Compustat Data Item 123, 125, 217, 107, 108, 111, 114, 126, 124
Figures 3.10	
Net Increase in Investments = Increase in Investments - Sale of Investments	Compustat Data Item 113
Capital Expenditures	Compustat Data Item 128
Acquisitions	Compustat Data Item 129
Other Investing Activities	Compustat Data Item 310
Purchase of Common and Preferred Stock	Compustat Data Item 115
Cash Dividends	Compustat Data Item 127

Cash and Cash Equivalents	Compustat Data Item 274
Total estimated uses = Net Increase in Investments + Capital Expenditures + Acquisitions + Other Investing Activities + Purchase of Common and Preferred Stock + Cash Dividends + Cash and Cash Equivalents + Change in Short-Term Investments + Equity in Net Loss + Net Receivables	Compustat Data Item 113, 128, 129, 310, 115, 127, 274, 309, 106, 302, 304

Figures 3.11, 3.A4

Notes and accounts receivable less reserve	SOI
Inventories	SOI
Cash, Government obligations and other current assets	SOI
Other investments and loan	SOI
Depreciable assets acumulated depreciation	SOI
Other capital assets less reserves	SOI

Table 3.3

Non-Financial Assets	Financial Accounts of the USA, Table B.103
Financial assets less unidentified miscellaneous assets	Financial Accounts of the USA, Table B.103 and L.103
Unidentified miscellaneous assets	Financial Accounts of the USA, Table B.103 and L.103

Table 3.4

Income from financial divisions	CRSP-Compustat Merged database

Mathematical Appendix

We define the ratio of portfolio income as calculated by Krippner and Crotty in the following way (we do not take into account depreciation allowances but it does not change the result):

$$Rpi = \frac{I_f}{I_f + I_{nf} - C_f - C_{nf}}$$

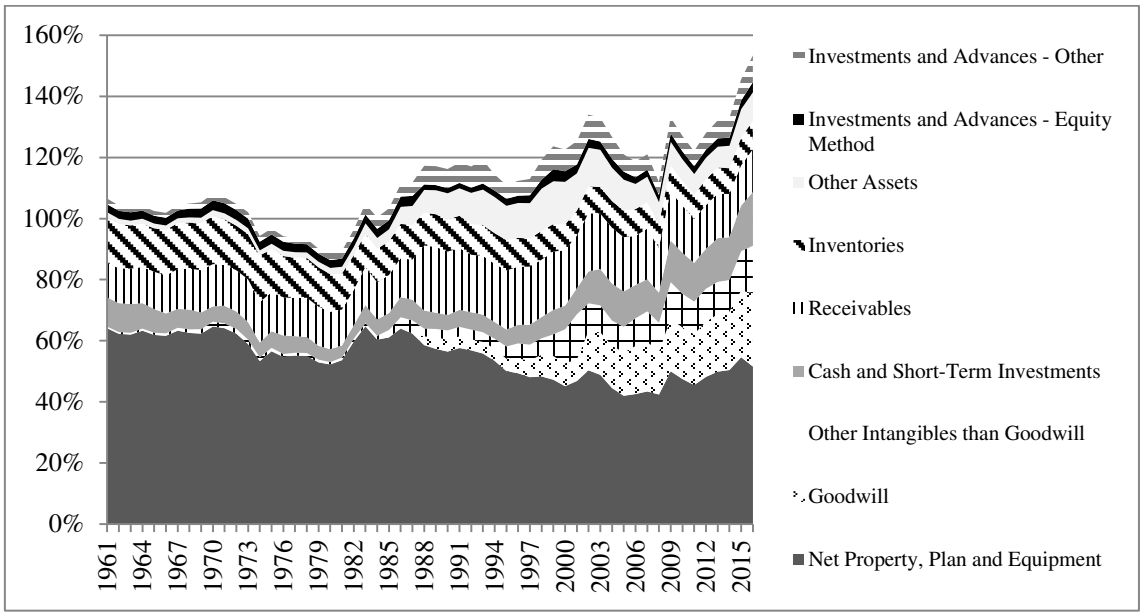
Where Rpi is the ratio of portfolio income, I_f financial income, I_{nf} non-financial income, C_f financial costs and C_{nf} non-financial costs.

We are interested to know why this ratio could be moving so we calculate total differential of Rpi.

$$\mathrm{d}Rpi = \frac{\left(I_{nf} - C_f - C_{nf}\right).\mathrm{d}I_f}{(I_f + I_{nf} - C_f - C_{nf})^2} - \frac{I_f.\mathrm{d}I_{nf}}{\left(I_f + I_{nf} - C_f - C_{nf}\right)^2} + \frac{I_f \mathrm{d}C_f}{(I_f + I_{nf} - C_f - C_{nf})^2} + \frac{I_f \mathrm{d}C_{nf}}{(I_f + I_{nf} - C_f - C_{nf})^2}$$

If $\uparrow C_f, ceteris\ paribus \rightarrow \uparrow \mathrm{d}Rpi$

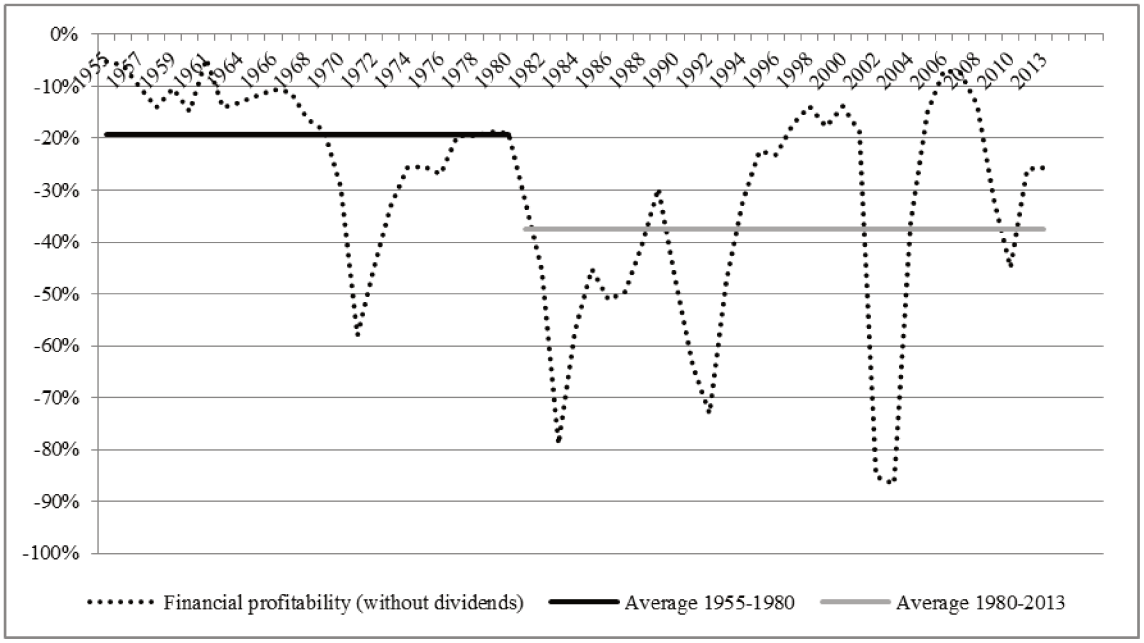
Figure A3.1. Selected assets, NFCs, 1961-2016.

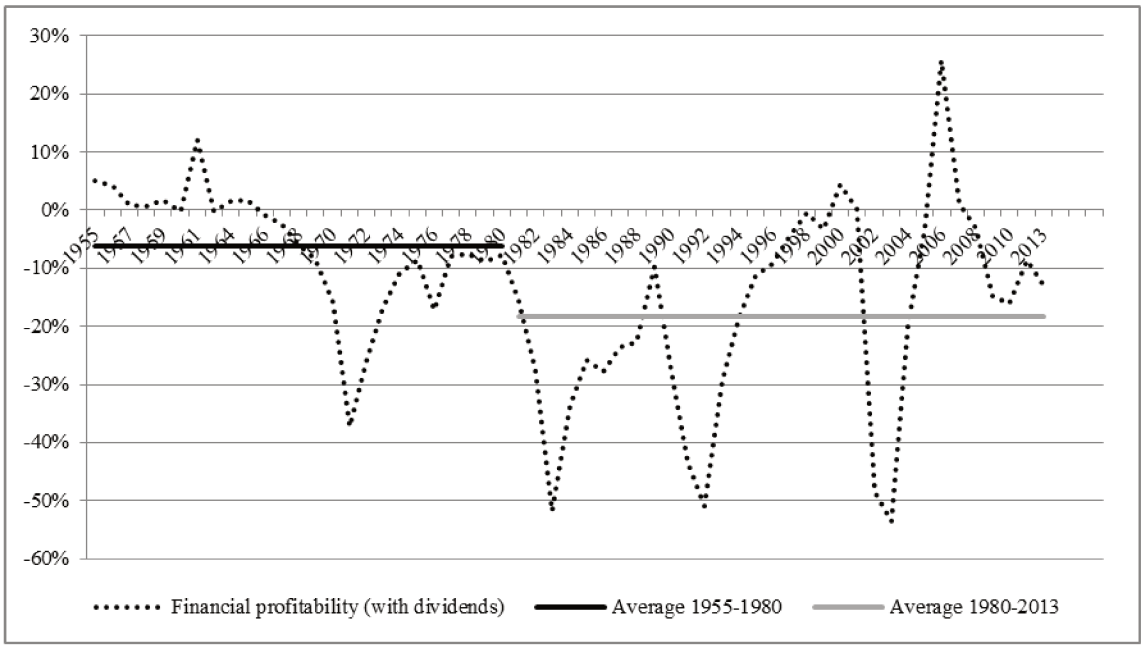


Note: Assets measured as a proportion of sales. See additional details on variable definitions in Table A3.1.

Source: Compustat.

Figure A3.2. Net financial profitability, NFCs, 1955-2012.

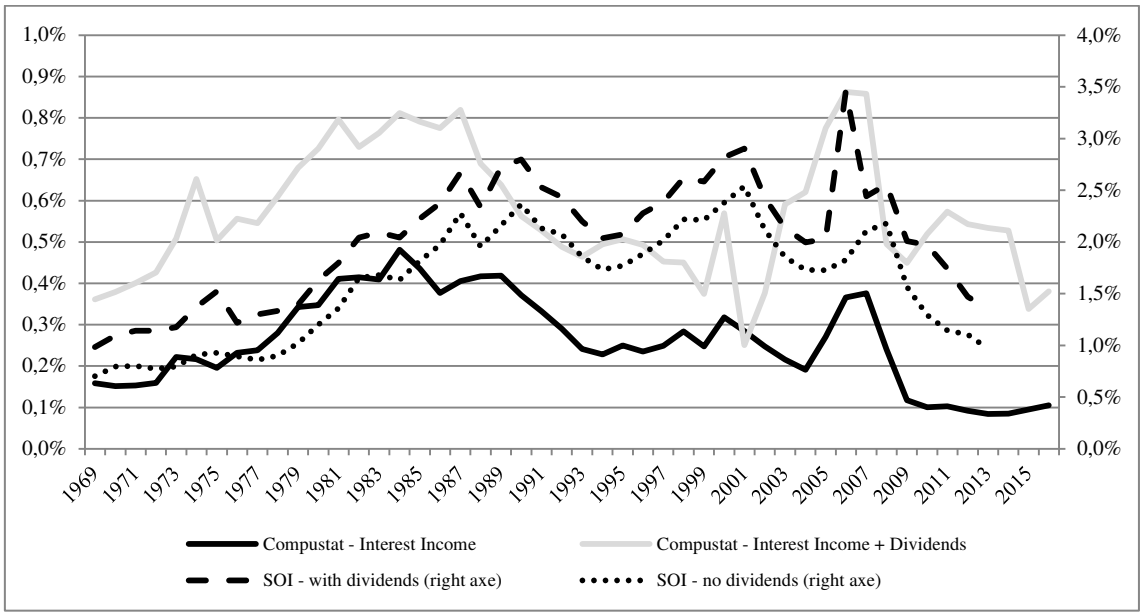




Note: Financial profitability calculated as "financial income – financial expenses" as a proportion of profits. The upper figure does not include dividends from subsidiaries as part of financial income and the lower does. See additional details on variable definitions in Table A3.1.

Source: SOI

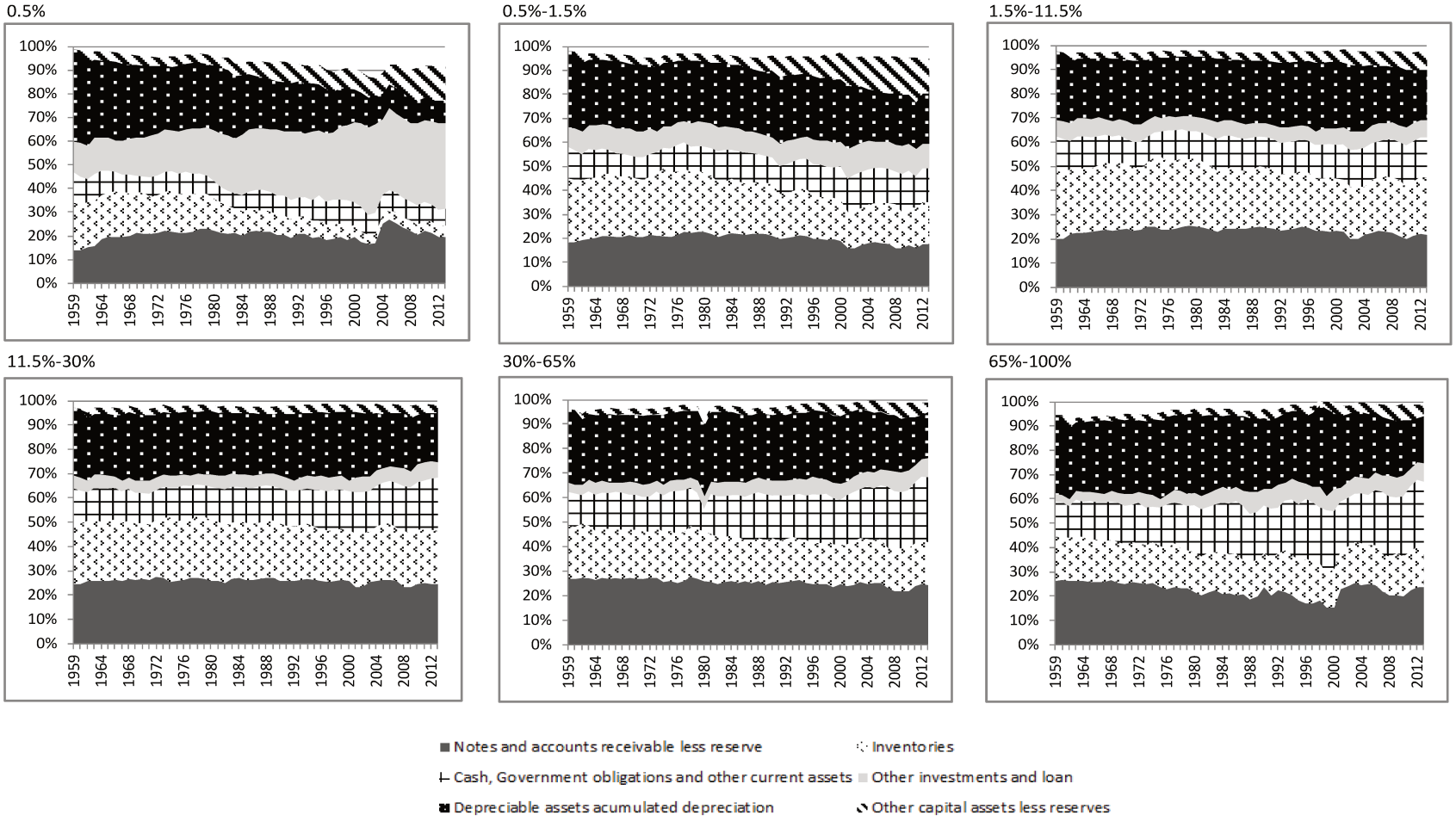
Figure A3.3. Financial income, NFCs, 1969-2016



Note: Financial income measured as a proportion of total income. See additional details on variable definitions in Table A3.1.

Source: Compustat and SOI.

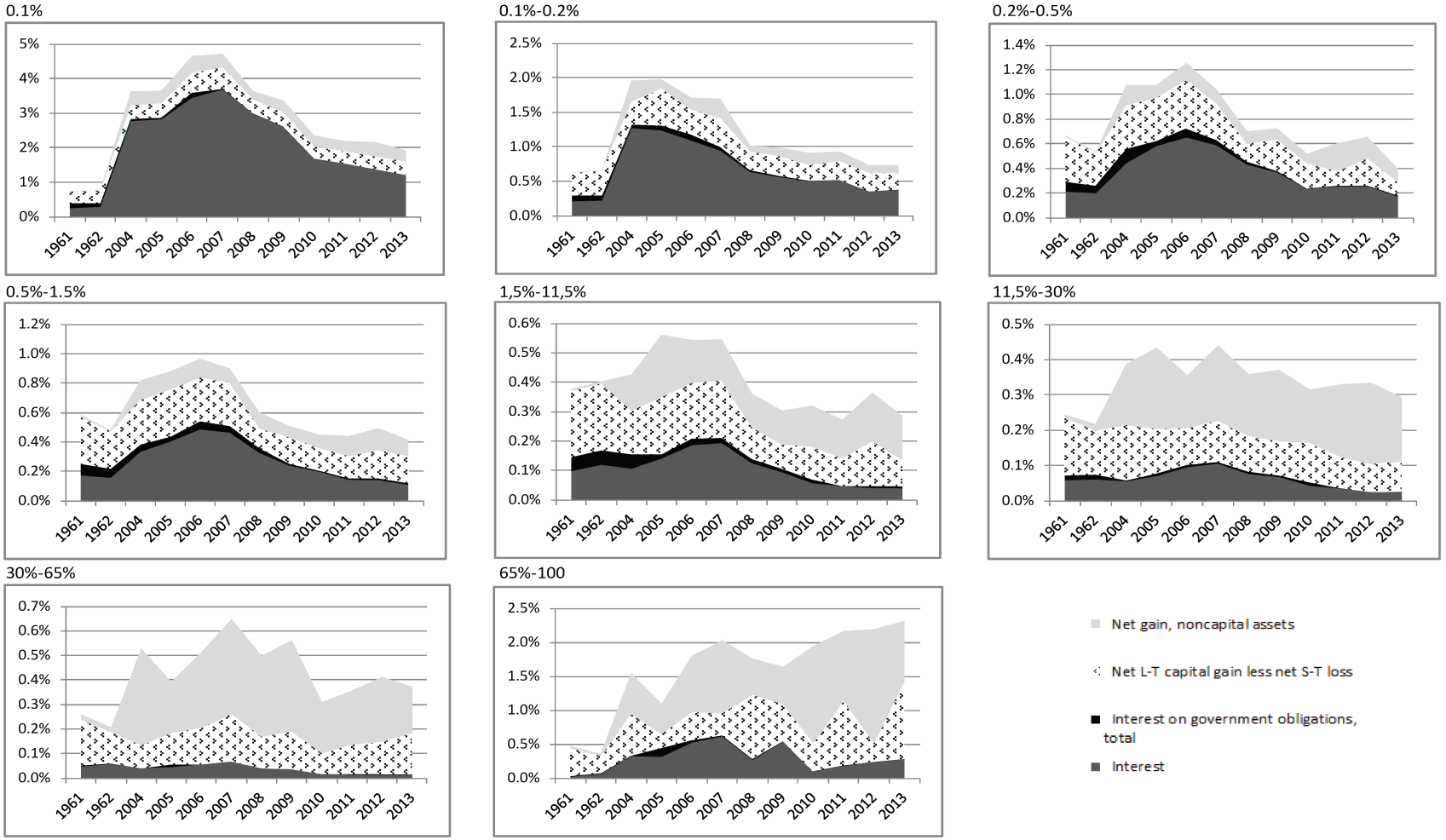
Figure A3.4. Selected assets, Manufacturing, 1959-2013.



Note: Assets measured as a proportion of total assets. See additional details on variable definitions in Table A3.1.

Source: SOI

Figure A3.5. Components of financial Income, Manufacturing, 1961, 1962, 2004-2013.



Note: Financial income measured as a proportion of total income. See additional details on variable definitions in Table A3.1.

Source: SOI

Chapter 4: Cash holdings and the *financial turn of accumulation* of Latin American NFCs

1. Introduction

In the previous chapter we have provided what we believe is enough evidence to reject the *financial turn of accumulation* hypothesis in the USA and, as a consequence, reject also the idea that capital expenditures have been displace by financial investments. In this chapter we will further concentrate on the *financial turn of accumulation* hypothesis but with a different geographical scope and methodology than in the previous chapter. In this case, we will study Latin American non-financial firms' decisions in terms of liquid financial assets. Choosing this region, as it will be clear later, is not arbitrary.

During the 2000s, Latin American economies went through a period of accelerated economic growth and buoyant financial markets, in the midst of the upward phase of the commodities prices and foreign capital inflows cycle. In spite of this favorable context, non-financial corporations` (NFCs) investment performance fell behind expectations (ECLAC, 2014; International Monetary Fund, 2015; Manuelito & Jiménez, 2015). Moreover, this disappointing behavior seems to linger on today.

Meanwhile, Latin American NFCs steadily increased their ratio of cash and equivalents to total assets mirroring a similar performance by advanced economies` corporates over the last 30 years as we showed for the USA in the previous chapter. Although substantial media and academic attention has been devoted to growing cash holdings in developed countries, the recent increase by Latin American firms has been mostly overlooked by scholars. We focus on these countries because, it could be argued, the *financial turn of accumulation* hypothesis is more relevant in the case of emerging market economies compared to their developed peers considering that in emerging markets there are higher possibilities to carry trade[49] (Bruno & Shin, 2017; Caballero, Panizza, & Powell, 2016; Shin & Zhao, 2013) and speculate with national currencies (Farhi & Borghi, 2009; Júnior, 2013; Zeidan & Rodrigues, 2013).

Given the increased global liquidity in the aftermath of the financial crisis in 2007/8, recent studies (Bruno & Shin, 2017; Caballero et al., 2016) attempt to measure its impact on cash policies of firms from emerging market economies (EMEs). However, they focus in the use of proceeds from bond issues and, by doing so, they restrict their analysis to firms issuing bonds. A

[49] Defined as the strategy by which "investors can make systematic profits by shorting the low yielding currency and taking a long position in the high yielding currency" (Clarida, Davis, & Pedersen, 2009, p. 1376).

byproduct of this is that the evolution of actual cash ratios for a broader sample of publicly traded firms is neglected.

In this context, the objective of this chapter is to estimate the determinants of cash holdings from Latin American NFCs during the last twenty years focusing especially on whether the *financial turn of accumulation* hypothesis has been or not associated with that increase. We do so by studying the relation between financial income and cash holdings which include not only cash but also other short-term investments and liquid assets typically identified to cash by accounting standards. If these variables are correlated, it means that the yield of financial assets is a new source of profitable investment and explains the accumulation of financial assets. If they are not correlated, it means that the accumulation of cash is independent from the search of new profitable opportunities but may be related to basic cash management.

The main contribution of this chapter, in line with Part 2 of this thesis, is to show that, on average, financial income is not related to the increase of cash holdings from Latin American firms and, therefore, the *financial turn of accumulation* hypothesis does not apply either for these firms. Results change when we perform estimations for firms belonging to specific countries. In this case, we find evidence of a positive and statistically significant relation between cash holdings and financial income for Brazilian, Chilean and big Mexican NFCs, which we explained by the specific cases of these countries. Results, moreover, are negligible from an economic point of view.

Apart from this main contribution, the chapter pursues other objectives. We also contribute to the financialisation literature by extensively integrating the corporate finance main contributions to the study of corporate cash policies, pointing out a number of reasons why firms may differ in their cash policies and modify them over time, like investment opportunities or payout policy. This becomes a key issue when it comes to identifying the impact of financial income on cash holdings (i.e., financial accumulation), by controlling for other theoretically relevant determinants.

We use quarterly firm-level data from a sample of 1430 listed firms from the six largest Latin American economies: Argentina, Brazil, Chile, Mexico, Peru and Colombia between 1999q1 and 2017q1. We complement this microeconomic data retrieved from Economatica with macroeconomic information from the International Monetary Fund's (IMF) International Financial Statistics (IFS) and Balance of Payments (BOP) Databases. With this data, we estimate standard cash-holdings equations to which we add a measure of financial accumulation.

The reminder of the chapter is organized as follows. Section 2 reviews the motives for cash holdings in developed and emerging economies from a mainstream perspective mainly. Section 3 revises the literature on the financialisation of NFCs in emerging economies. Sections 4, 5 and 6 present the model and hypotheses, data and stylized facts and methodology respectively. Section 7 discusses the econometric results and finally Section 8 concludes.

2. Cash Holdings in developed and emerging economies

The corporate finance literature has addressed the demand of cash holdings by non-financial firms stressing primarily the liquidity aspect of cash and short term investments as the main motive for their demand. There are two broad views on the causes of firms` cash demand, namely: *the trade-off* and the *pecking order theories*. Both theories were originally aimed at explaining firms' capital structure, and the contest between both of them was originally considered in Myers (1984). We will also present how these theories can be applied in the context of emerging economies.

a. The trade-off theory

When access to capital markets is impaired or highly expensive, firms may hold cash in order to seize investment opportunities when they arise, something usually labeled as the *underinvestment* problem (Fazzari et al., 1988). This liquidity view yields the *precautionary motive* for cash and equivalent assets holdings.

Many scholars have addressed the role of financial management in minimizing the impact of financial constraints on firms' investment decisions and performance. Financial management comprises liquidity holdings, cash flows and capital structure policies. At a theoretical level, Holmström and Tirole (2000) show that financially constrained firms demand a positive amount of liquidity holdings when facing volatile liquidity requirements in a given investment project. Moreover, some studies report that constrained firms tend to save cash out of cash flows as a means of hedging against underinvestment scenarios. This policy seems to be a byproduct of financial constraints, as unconstrained firms show no systematical relation between cash holdings and cash flows (Acharya, Almeida & Campello, 2004).

On the other hand, according to the agency view, managers' interests may not be aligned with those of shareholders, leading the former to engage in empire building and using cash on excessive spending and value destroying operations (Jensen, 1986). This raises an *overinvestment problem*. As a consequence, less cash is desirable from a value maximizing perspective. The agency motive for cash holdings affects particularly public firms, where higher

information asymmetries may arise between managers and shareholders. Firms should hold less cash to signal that they will not consume private benefits of control.

Thus, the trade-off theory of capital structure claims that, in order to arrive at an optimal level of liquidity holdings, firms face the trade-off between the incentive to raise cash for *precautionary* motives and an incentive to decrease cash for *agency motives*. Consequently, this trade-off theory puts forward a number of testable hypotheses concerning the relation between cash and a number of firm features.

First, larger firms and those with higher payout ratios are usually regarded as less financially constrained (for a discussion on these and other financial constraints measures see Farre-Mensa & Ljungqvist, 2016; Hadlock & Pierce, 2010). Consequently, they are supposed to hold less liquidity as agency motives prevail.

Second, constrained firms with better investment opportunities are expected to need higher liquidity buffers as precautory motives prevail. So a positive relation would emerge between cash holdings, on the one hand, and measures of investment opportunities such as return on assets, cash flows and market-to-book ratios, on the other.

Third, several studies find a positive relation between idiosyncratic cash-flow volatility and cash holdings as precautory motives prevail. Moreover, from studies of US firms we learn that idiosyncratic volatility was a key driving force behind the cash buildup taking place in that country since the early 1980s (Bates et al., 2009).

Macroeconomic GDP volatility also determines corporate cash holdings in advanced economies (Baum, Caglayan, Ozkan, & Talavera, 2006). Moreover, in the years following the financial crisis of 2007/8 the increase in political uncertainty has become another source of volatility impact over corporate decisions (S. R. Baker, Bloom, & Davsi, 2016). Duong, Nguyen, Nguyen & Ghon Ree (2017) use the Baker et al. (2016) policy uncertainty index, and find a positive impact of this variable on firm cash holdings for US firms.

b. Pecking order theory

The second view assumes that firms' liquidity oscillates as a result of fluctuating cash flows and financial disbursements, and that there is no targeted or optimal level of liquidity holdings. The main theoretical motivation for this is, again, the presence of information asymmetries between managers and investors which gives rise to adverse selection problems (Myers, 1984; Myers & Majluf, 1984). Information asymmetries may lead to excessively high external financing costs, which in turn may result in firms avoiding external finance.

Myers & Majluf (1984) posit that when information asymmetries increase the cost of raising external capital, firms with reliable investment projects ("high" or "good" type in a typical adverse selection model) will avoid external finance. Cadsby, Frank, & Maksimovic (1990) present a simple adverse selection model illustrating this point.

This adverse selection problem produces a hierarchy or pecking order of financial sources, ordered from the least to the most expensive. When facing liquidity requirements (such as investment disbursements or debt repayments), firms will first resort to internal financing, then turn to debt, and finally issue equity. In addition, if internal cash flows outpace the short-term liquidity needs, firms will accumulate liquidity as cash buffers until future cash requirements arise. As a result the pecking order view of cash predicts that the amount of cash fluctuates, going up if cash-flows exceed liquidity requirements, and decreasing otherwise.

In addition, following Myers (2003), another theoretical motivation for the pecking order may be derived from some versions of agency theory. This is the case with the traditional example of agency cost of equity discussed in Jensen & Meckling (1976). Given this agency cost, issuing equity will lead the firm to an underinvestment situation, and thus internal financing will be preferred.

Although a number of empirical tests have confirmed the validity of the pecking order theory (Fama & French, 2002; Shyam-Sunder & Myers, 1999), the standard version discussed so far has met significant empirical challenges. Frank & Goyal (2003) show that, in the real world, firms issue large amounts of equity, and they do it even before facing financing deficits. This has led later advocates of the pecking order theory to propose more refined versions of the model. For instance, Lemmon & Zender (2010) introduce the notion of "debt capacity".[50] Whereas a strict interpretation of the pecking order theory implies that equity should not be issued unless debt is not available, the notion of debt capacity allows for equity issues when firms are affected by debt capacity concerns. These authors show that when firms are in need of external funding, those which are not affected by concerns over debt capacity use mostly debt, whereas firms facing low debt capacity rely more heavily on equity.

As argued by Opler, Pinkowitz, Stulz, & Williamson (1999), the empirical distinction between the trade-off and the pecking order model as competing explanations for corporate cash holdings may sometimes become blurry. This obeys to the fact that both of them imply similar predictions in this regard. However, according to the pecking order theory it is possible to predict that firms investing more should have lower levels of cash. On top of that, larger firms have presumably been more successful in the past, and should have received larger cash flows,

[50] Defined as "whether the firm has, based on its underlying characteristics, a high likelihood of being able to access the public debt markets." (Lemmon & Zender, 2010, p. 1171)

leading to higher amounts of cash held. By contrast, the trade-off view would predict that larger firms should demand less cash due to their more fluid access to capital markets. Additionally, firms with higher investment opportunities should hold more cash in order to hedge against financial constraints.

c. Cash holdings and liquidity management in emerging economies

How should cash holdings behave in emerging economies according to the trade-off theory? We would predict that firms operating in less developed capital markets and with poorly defined investor protection would hold higher amounts of cash due to both the precautionary and agency motive. Similarly, from the pecking-order theory, the underdevelopment of financial market increase the cost of external finance and exacerbates the need of internal funding, as the theory of business groups posits (Khanna & Yafeh, 2007). Although there is no strong evidence that firms in small capital markets hold more cash, Dittmar, Mahrt-Smith, & Servaes (2003) and Al-Najjar (2013) show that firms belonging to countries where shareholders rights are less protected hold twice as much cash as their counterparts in countries with better investor protection. Lins, Servaes, & Tufano (2010) argue that this weak relation between capital markets development and cash holdings in emerging economies obeys to the use of credit lines (instead of cash holdings) as the main source of liquidity. Consequently, they find that lines of credit are larger when credit markets are less developed.

The impact of political uncertainty has recently been documented in EMEs as well. This is a relevant issue for Latin American countries, given the region`s political instability record, and more recent events such as the Brazilian presidential impeachment. Using firm-level data from firms in Brazil, Russia, India, China and South Africa (BRICS) in 2006-2015, Demir & Ersan (2017) find that firms prefer to increase cash holdings when uncertainty about economic policy ascends. This positive effect of political uncertainty on cash might be mitigated by the so-called grabbing hand phenomenon. When government officials are prone to extracting resources from firms through expropriation, user fees, new taxes, regulations and brivery, firms will design a corporate policy to minimize the loss from political extraction (Stulz, 2005). Caprio, Faccio, & McConnell (2013) study a sample of firms from 109 countries and document that when the probability of extraction is high firms reduce their cash holdings. A similar result is found by Xu, Chen, Xu, & Chan (2016) when analyzing the impact of political uncertainty at a city government-level in China.

Studies specifically focusing on the increase of financial assets held by Latin American firms are scarce. Torija Zane and Gottschalk (2018) and Pérez Artica, Brufman, & Saguí (2018) document the increase in cash holdings. The latter test both the trade-off and the pecking order models and find evidence in favor of the former. Particularly, larger firms hold less cash, thus

signaling the lower need of financial hedging as the growing amount of assets in place allow a more fluid access to external finance.

After finishing the revision of cash holdings for mainstream literature, in the following section we will go through other motive identified by heterodox traditions, specifically the topic studied in this Part 2 of the thesis, the *financial turn of accumulation* hypothesis.

3. Financialisation of emerging economies' NFCs

As we indicated in Chapter 2, the financialisation literature identifies financial profitability as an additional motive for liquid financial assets besides those revised in the previous section. Interestingly, this variable is absent from mainstream analysis. While traditionally focused on developed economies, the financialisation literature has progressively broadened the scope incorporating emerging economies, usually comparing them with their developed peers (for a review see Bonizzi, 2013; Karwowski & Stockhammer, 2017; specifically for Latin America see Abeles, Pérez Caldentey, & Valdecantos, 2018). In the case of NFCs, the motives allegedly making them move towards finance identified in Chapter 2 were, in many cases, also present in EMEs. Falling rate of profit, higher returns in the financial sector and poor macroeconomic performance are examples of them (Demir, 2007; Demir, 2009).[51] Financialisation has been mainly assessed by its effect on real investment and financial asset accumulation.

As in the case of NFCs belonging to advanced economies (AE), some studies have focused on the impact of increased financial activity over physical investment. Demir (2009) does it for Argentinian, Mexican and Turkish listed NFCs and finds a negative and statistically significant effect of the return gap in favor of financial returns compared to fixed investment. Barradas and Lagoa (2017) use a vector-error correction model (VECM) and state that while financial income does not have a statistically significant effect in the VECM coefficients, it does have a dynamic negative effect in the impulse response function. Seo, Kim and Kim (2016), on the other hand do not find a statistically significant effect.

On top of these common explanations, scholars have highlighted some specific causes which make the quest for financial profit more significant in emerging countries. According to Bonizzi (2013) "financialisation through interest income may be of particular relevance for many developing countries, since inflation and the need to encourage capital inflows (or discourage capital flight) has often induced these countries to adopt high interest rates." In fact, the

[51] Changes in terms of power balances between management and shareholders, however, are more arguable. One of the most important legal forms of business in developing countries, now and before, are the business groups where ownership and management are not separated (Khanna & Yafeh, 2007).

relevance of high interest rates for the regular activities of EM NFCs has been such that, in Brazil, a country with one of the highest interest rates in the world, the reduction in 2013 was criticized rather than supported by the productive sector (Neumann, 2016).

Higher interest rates offer the opportunity for carry trades. According to Shin and Zhao (2013), even though carry trades were traditionally associated with financial institutions, in emerging economies with capital controls, those NFCs able to access international capital markets either through offshore affiliates or trade financing are harder to regulate than traditional banks due to their bigger number and complexity of their operations. Therefore, they are more capable of circumventing those capital controls. Powell (2013) presents macroeconomic data of Mexican NFC which suggests an increased involvement in carry trades between 2004 and 2008. Using firm level data from 18 emerging economies, Caballero, Panizza and Powel (2016) find a positive and statistically significant impact of capital controls with regards to liquid financial assets. Bruno and Shin (2017), using also firm level data but both from emerging and advanced economies, show that EM firms, *vis-à-vis* their AE peers, borrow more in dollars when they already have high cash balances and maintain a higher proportion of those funds in cash within the next 3 years. From a group of possible explanations including precautionary motives, capital expenditures, R&D, long-term debt reduction and carry trade, the authors find evidence for the latter.

Financial activities by EM NFCs are not only limited to carry trades. Farhi and Borghi (2009) report the cases of many EM NFCs who used financial derivatives in 2008, rather than hedging[52] themselves, to bet that their national currencies wouldn´t depreciate against the dollar and had enormous losses. Although in most of the cases these NFCs were exporters, therefore making sense to protect themselves from appreciation, the amounts were much higher than the volume of exports. Zeidan and Rodrigues (2013) focus on the example of a Brazilian company, Aracruz Celulose, who lost more than US$2 billion with currency derivatives. Using a panel of 200 Brazilian NFCs which represent approximately 68% of all market capitalization in Brazil, Júnior (2013) shows that approximately 15% of derivatives users could be classified as speculators in 2008 and 2009.

An interesting distinction can be derived from the financial activities engaged by NFCs in emerging and developed countries. In the case of the latter, case studies generally show that they are related to the provision of financing to their clients (Froud et al., 2006). Therefore, it is an activity which is *dependent* on their main production. In the case of NFCs belonging to emerging markets, the engagement in financial activities is also originally related in many cases

[52] Which is, in fact, the original purpose of the instruments: "[h]edging is the use of financial instruments, such as futures contracts, to offset the risk in an investment portfolio" Available in https://stats.oecd.org/glossary/detail.asp?ID=1224

with their main activity (managing foreign currency and financial derivatives due to exports) but then becomes *independent* of that main activity.

As we will detail next, a set of variables already used in the literature of cash holding may capture some of the effect previously described (like leverage). In addition of payout which is already a standard variable, our originality is to include a new variable of financialisation in these models that capture the incentive to accumulate cash, namely the financial income which is a proxy of the benefit that can be obtained from carry trade and the use of derivatives.

4. Model and hypotheses

Based on the theoretical insights developed in Sections 2 and 3 we propose to estimate the following equation:

$$\frac{Cash}{Assets}_{ijt} = \alpha_0 + \alpha_1 \frac{Cash}{Assets}_{ij,t-1} + \alpha_2 \frac{Financial\ Income}{Revenues}_{ijt} + \alpha_3 \log(Assets)_{ijt} + \alpha_4 \frac{Leverage}{Assets}_{ijt} + \alpha_5 \frac{Payouts}{Assets}_{ijt} + \alpha_6 \frac{Net\ Investment}{Assets}_{ijt} + \alpha_7 ROA_{ijt} + \sum_{t=1999q1}^{t=2016q4} \beta_t + \varepsilon_{ijt} \quad (1)$$

Where $\alpha_0 \ldots \alpha_7$ are parameters, the *i* subscript denotes the firm, *j* the country and the *t* subscript denotes the time period. β_t are coefficients of a set of quarterly time dummies, while ε_{it} represents nonobservable shocks.

Our dependent variable is defined as the cash-to-assets ratio. The numerator also includes other short-term investments and liquid assets typically identified as cash by accounting standards.

First, we evaluate a baseline model regressing the cash ratio on a set of independent firm-level regressors intended to capture the effect of the *financial turn of accumulation* hypothesis discussed in Section 3 and control for other theoretically relevant determinants according to the trade-off and pecking order theories. Subsequently, we consider an extended model, adding macroeconomic variables in order to measure the effect of the macroeconomic situation and perform robustness checks. We describe each regressor below.

Financial income. This is our main variable of interest, since we aim to capture the impact of the financial profitability on cash accumulation and therefore the *financial turn of accumulation* hypothesis. We define financial income as the ratio of gross financial income to revenue. Gross financial income comprises interest income, dividends received, net capital gains and foreign exchange results. If the main hypothesis raised by the financialisation literature holds, this

coefficient should be positive and remain economically relevant after controlling for other firm-level and macroeconomic determinants. Mainstream literature, on the other hand does not predict a particular sign for this coefficient.

Size. Following the financial literature (Bates et al., 2009), we measure firm size as the natural logarithm of the book value of total assets. If firms behave according to the trade-off theory, we expect the coefficient of firm size to be negative: economies of scale and financial constraints should make smaller firms demand more cash. Alternatively, we expect the size coefficient to be positive if the pecking order theory holds. Also for the financialisation literature since it is claimed that large firms are more involved in financial activities (Orhangazi, 2008; Tori & Onaran, 2018).

Leverage. As explained above, leverage is measured as the ratio of the book value of total liabilities to total assets. This is a measure of the extent to which firms access credit and debt markets. Consequently, we expect that corporate demand for cash falls when access to credit and financial leverage improves for both mainstream theories (Opler et al., 1999). Alternatively, a positive sign might be indicative of a movement towards financial activities (carry trade, borrowing in foreign currency to invest in financial local assets) as shown by Bruno & Shin (2017).

Net investment rate. The net investment rate is measured by the first difference of *Property, Plant and Equipment* divided by the book value of *Total Assets*. Pecking order theory would predict a negative coefficient, since more cash disbursements are needed to meet investment requirements. This is also the case for trade-off and financialisation theories.

Payouts. We expect the coefficient to be negative if the precautionary motive holds, since firms with higher payouts may reduce the distribution of dividends when investment opportunities arise and external finance is not available (Fazzari et al., 1988). Likewise, as discussed above the pecking order theory does not predict a particular sign of the coefficient. Financialisation theory, on the other hand, identifies a positive relation between firms engaged in financial accumulation and the distribution to shareholders as we reviewed in Chapter 2.

Return on Assets (ROA). ROA is measured as the ratio of *Net Income (Bottom Line)* to *Total Assets*. This is aimed at assessing the impact of internal finance over cash ratios. According to both the trade-off and the pecking order theories, this coefficient is expected to be positive. This is also the case for the financialisation theory.

In Table 4.1 we present the expected signs of the different variables we are studying according to each theory.

Table 4.1. Expected sign of each variable according to different theories

Variable	Mainstream		Financialisation
	Trade-off	Pecking order	
Size	-	+	+
Investment	n/a	-	-
ROA (Investment oportunities)	+	+	+
Leverage	-	-	+
Payouts	-	n/a	+
Financial Income	n/a	n/a	+

As part of the robustness checks, we introduce macroeconomic variables into the model which are described below. All of them are provided by the IMF`s International Financial Statistics IFS and BOP Databases.

GDP growth. In order to control for the effect of business cycle fluctuations on firms cash policies, the GDP growth rate is included as a regressor. As long as investment opportunities arise in the growing phase and diminish during the downturns, GDP growth is expected to positively affect cash microeconomic investment opportunities.

Financial Account Balance (FAB). This variable includes further information by recording the flows of capital and finance between one country and the rest of the world which are not necessarily related to the result of the Current Account Balance. Given that Financial Account records follow the Sixth Edition of the Balance of Payments and International Investment Position of the IMF, net capital inflows[53] are recorded as negative FAB values, and net outflows are recorded as positive FAB values. It is relevant to control for this variable because carry trades tend to take place during the expansionary phase, when external liquidity conditions promote issuing debt abroad and foreign capital inflows tend to appreciate exchange rate. None or low depreciation expectations are a condition for carry trades, in order to preserve the profitability arising from interest rate differentials. On the other hand, the foreign currency hedging motive tends to occur during the downward phase of the foreign capital cycle, when depreciation expectations begin to go up, and the need to protect balance sheets against currency mismatch increases. Consequently, if hedging strategies prevail we expect cash-ratios to increase when FAB is positive (net financial outflows). On the other hand, if carry trade strategies prevail we should expect cash-ratios to increase when FAB is negative (net financial inflows).

Exchange Rate. We include the nominal exchange rate, measured as the amount of domestic currency per US Dollars. We control for this variable considering its role for carry trade

[53] Net capital inflows are defined by the IMF as gross inflows (net acquisition of domestic assets by nonresidents) minus gross outflows (net acquisition of foreign assets by residents, excluding reserve assets).

(profitability will be higher when expected devaluation is low or close to zero) and speculation using financial derivatives.

Interest Rate. We take the deposits interest rate considering that it is the main variable affecting the interest income received by NFCs. In addition, this provides a suitable proxy for the domestic returns, which interact with exchange rate expectations to determine carry trade operations. Taking these variables into account gives equation (2).

$$\frac{Cash}{Assets_{ijt}} = \alpha_0 + \cdots + \alpha_8 GDPgrowth_{jt} + \alpha_9 FAB_{jt} + \alpha_{10} FOREX_{jt} + \alpha_{11} Interest\ Rate_{jt} + \sum_{t=1999q1}^{t=2016q4} \beta_t + \varepsilon_{ijt} \qquad (2)$$

Therefore, our model allows testing the *financial turn of accumulation* hypothesis first and most important by the sign of financial income but also by the effect of leverage and the financial account balance.

5. Data and stylized facts

We extracted our data from the Economatica database of Latin American publicly listed firms', which contains accounting information on their Balance Sheet, Income Statement and Cash Flow Statement. The main advantage of this database compared to the more used ones, such as Worldscope or Compustat Global, is that Economatica's information is more complete: the number of firms is higher and also the coverage per firm over time is higher. For example, Table 4.2 compares the number of firms with no missing values for liquidity demand in Economatica and Compustat Global. As it can be seen, for all countries the number is higher in the former.

Table 4.2. Number of firms with liquidity data per country

Country	Economatica	Compustat Global
Argentina	96	71
Brazil	875	371
Chile	370	167
Colombia	40	-
Mexico	202	122
Peru	257	85

Note: the table shows the number of firms reporting non-missing values for the cash ratio in Economatica and Compustat Global databases, for the countries covered in our sample.

We use information for all active and inactive, publicly listed NFCs in the Argentina, Brazil, Chile, Colombia, Mexico and Peru. Economatica does not indicate the primary SIC codes so we eliminate firms belonging to the sectors ´Credit union and savings institutions´ (*Uniones de crédito e instituciones de ahorro*), ´Stock exchange´ (*Bolsa de valores*), ´Brokerage house, exchange house and currency centers´ (*Casas de bolsa, casas de cambio y centros cambiarios*), ´Pension funds´ (*Fondos de pensión de empleados*) and "Other Funds" (*Otros Fondos*). The data, originally, are quarterly for the period of 1986q1–2017q1.

As it is usually the case, our firm level data requires some treatment before we are able to apply econometric techniques. In terms of missing values, we eliminates those firms with no info or nil values in net property, plant and equipment, net revenue, total assets and liabilities and liquidity. We also drop firms with no information of profits. We also exclude information from before 1999q1 because there are only few observations and we only take firms that have at least five consecutive observations for the dependent variable, something required for our Generalized Method of Moments (GMM) econometric technique. In terms of extreme values, we winsorize all variables at the upper and lower 0.5% of each variable's distribution (Bond, Elston, Mairesse, & Mulkay, 2003).

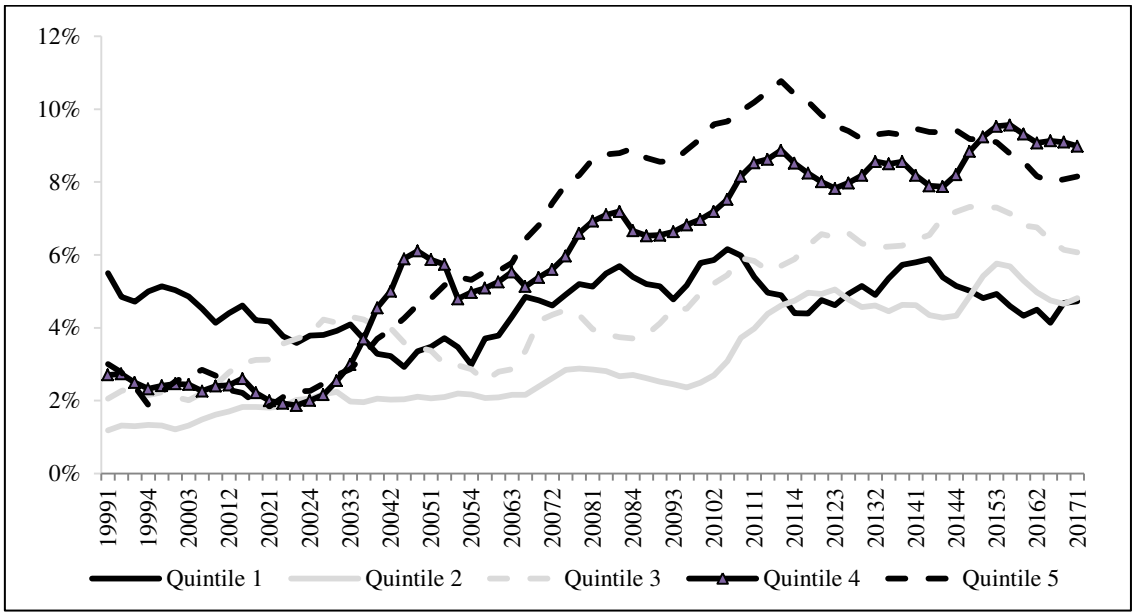
We provide a preliminary, bivariate outlook of the main features of cash holdings in the sample, by displaying the evolution of the median cash ratio for different groups of firms, over the 1999-2016 period. In Figures 4.1 to 4.4, we split the sample into quintiles according to firm´s size, leverage, ROA and financial income.

We construct quintiles as follows. Consider the total asset size quintiles. First, for each firm we compute the time-series average value of the natural logarithm of total assets. We thus obtain one value of "average size" per firm. Then, we split the sample in "average-size" quintiles. As a result, the firm with the largest "average-size" belongs to quintile 5, and the firm with the smallest "average-size" will be part of quintile 1.

Figure 4.1 shows the evolution of the median cash ratio for each size quintile. In turn, cash ratios' time series are smoothed by a 4-quarter moving average. The main observed pattern is that all groups have increased their cash holdings throughout the period except quintile 1 which started with the highest proportion and finished with the lowest. Smaller firms from quintiles 1 and 2 hold less cash while bigger firms do the opposite during most of the time. Moreover, the latter seem to have experienced a higher increase during the sample period: quintiles 4 and 5 accelerated their growth during the Great Recession and its aftermath although quintile 5 later

decreased it. This was also the case for quintile 3. Therefore, it is among biggest firms where most of the increase in cash holdings happened.

Figure 4.1. Evolution of Cash Ratios by size quintile, NFCs, 1991q1-2017q1



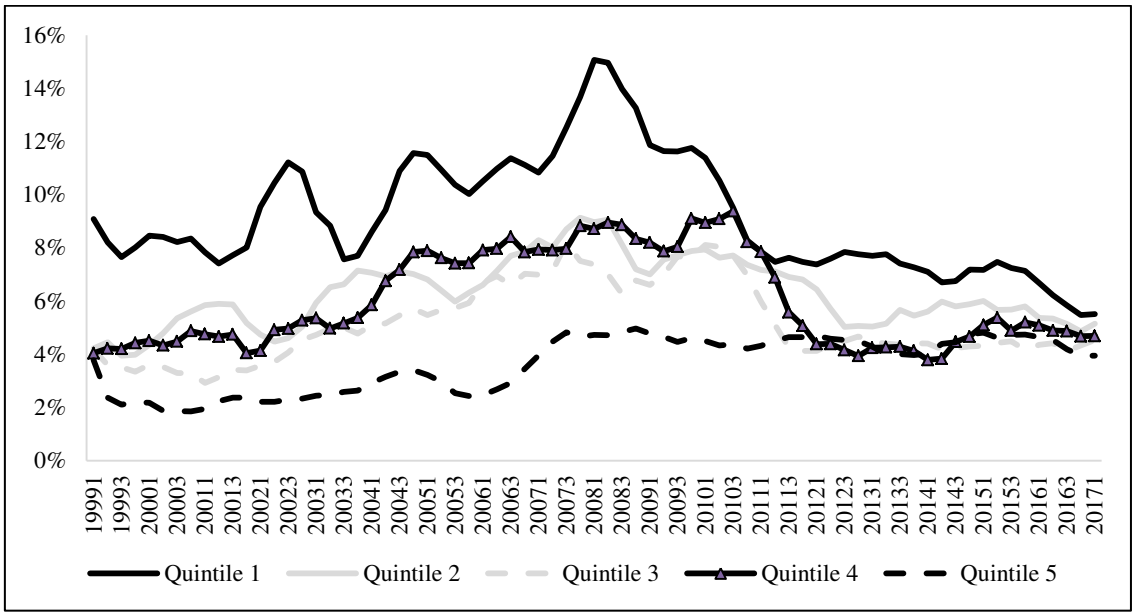
Note: evolution of the median cash ratio for each quintile of total assets size.

Source: Economatica.

In terms of leverage, Figure 4.2 shows the higher level of liquidity for firms with the lowest indebtedness during the whole sample with a decrease verified after the Financial Crisis. It also shows that all quintiles, except the 5th, display a similar pattern in terms of growth until the crisis and decrease later. The reduction is sharper for the least indebted group. By contrast, in the case for the 5th quintile, the decrease is less pronounced and occurs later on. This pattern seems consistent with the effects of financial constraints leading the most constrained firms to save cash out of cash flows, and to deplete it when the crisis impacts internal funding.

Taking ROA into account (Figure 4.3), the most profitable quintile shows a higher amount of cash and also a more stable pattern over the sample period. The first four quintiles, on the other hand, display an upward evolution until 2011, when the business cycle growing phase began to weaken. Therefore, profitability in a broad sense does not seem to be behind the accumulation of cash holdings.

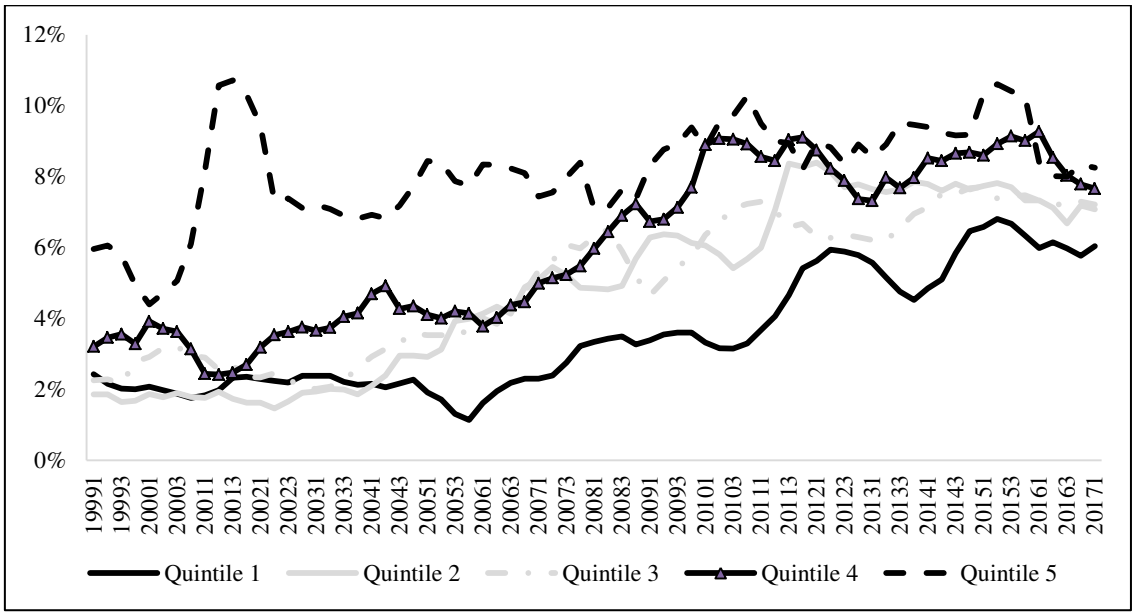
Figure 4.2. Evolution of Cash Ratios by leverage quintile, NFCs, 1991q1-2017q1.



Note: evolution of the median cash ratio for each quintile of financial leverage. Financial leverage is measured as the ratio of Total Liabilities to book value of Total Assets.

Source: Economatica.

Figure 4.3. Evolution of Cash Ratios by profitability quintile, NFCs, 1991q1-2017q1.



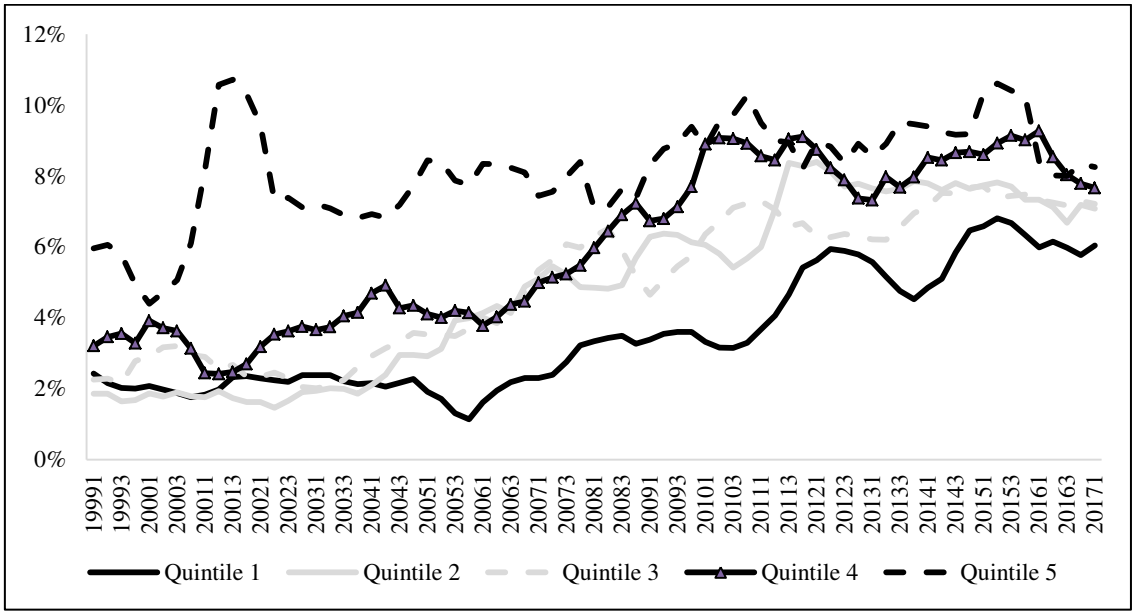
Note: evolution of the median cash ratio for each quintile of Return on Assets (ROA). ROA is measured as the ratio of Net Income (bottom line) to book value of Total Assets.

Source: Economatica.

Finally, the evolution of cash holdings analyzed in relation to our main variable of interest, financial income, seems to challenge the idea that Latin American firms have turned to financial assets in search of financial profitability. Although the biggest quintiles, 4 and 5, have the

highest levels of cash to assets ratios, it is in the medium and relatively smaller quintiles of financial income (2 and 3) where we find the most impressive increases (almost 6 times in each of them compared with 1.5 for quintiles 4 and 5). This may be interpreted has a consequence of the 2008 financial crisis. Since 2009, financial income doesn't seem to be a good discriminant of cash holdings, while all firms have increased their cash holdings in the post-crisis era, which may be interpreted as a precautionary move in a context of financial dependence and capital flight.

Figure 4.4. Evolution of Cash Ratios by financial income quintile, NFCs, 1991q1-2017q1



Note: evolution of the median cash ratio for each quintile of Financial Income. Financial Income is measured as the ratio of Financial Income to Net Sales. Financial Income includes interest income, dividends received, net capital gains and foreign exchange exposition results.
Source: Economatica.

Overall, on the basis of these preliminary exercises we have a first hint as to the potential determinants of cash holdings for Latin American firms. First, the bivariate relation does not seem to portray a positive relation between financial income and cash holdings. Second, the size and ROA distribution of cash ratios seem to support the pecking order theory, since larger and more profitable firms accumulate higher amounts of cash. On the other hand, when cash ratios are analyzed for different leverage levels, the trade-off predictions emerge, for more constrained firms show a greater cash accumulation. We will now examine more precisely these possible connections.

6. Methodology

Endogeneity arising due to unobservable individual heterogeneity is a well-known problem associated with microeconomic data, rendering ordinary least squares (OLS) to be inconsistent. This is because it requires explanatory variables to be uncorrelated with the error term. This is also the case with the within groups estimator (Pindado & Requejo, 2015). Although the transformation into deviations from the means eliminates constant unobservable heterogeneity, taking variables as strictly exogenous in microeconomic decisions is a strong assumption. Moreover, in dynamic panel models, the lag of the dependent variable is, by definition, correlated with the error term. The Within estimator will be biased and its consistency depends upon *T* being large (Nickell, 1981).

On the other hand, instrumental variables (IV) methods can overcome endogeneity problems as long as the instrument chosen is also uncorrelated with the error term. GMM is a particular IV method where more than one instrument for each explanatory variable can be used. Moreover, rather than looking for instruments outside the model, GMM offers the possibility to use the lags of explanatory variables as instruments. Not only these instruments naturally contain more information than variables outside the model but also, as it was proved by Arellano and Bond and Blundell and Bond, they are uncorrelated with the error term.

Arellano and Bond (1991) proposed a GMM procedure that is more efficient than the Anderson and Hsiao (1981). The latter consisted on first differencing the model in order to remove the individual effects and then using the second lag of the dependent variable as an instrument for the first lag which would not be correlated with the error as long as it is not serially correlated. The procedure proposed by Arellano and Bond (1991) uses additional instruments based on the orthogonality condition that exists between lagged values of the right-hand side variables and the error term. The estimator has one-step (for homoscedastic disturbances) and two-step variants (for heteroscedastic disturbances). Although the latter is more general, the standard errors are usually low. Nevertheless, the finite-sample correction derived by Windmeijer (2005) adjusts the standard errors for heteroscedasticity making the two-step more efficient than one-step.

Finally, a problem with the original Arellano-Bond (1991) estimator is that lagged levels tend to be poor instruments for first differences. Arellano and Bover (1995) showed that, under certain conditions, when the original equations in levels were added to the system, the efficiency could be increased. Later, Blundell and Bond (1998) provided the necessary assumptions for the augmented estimator more precisely. The new instruments will be valid as long as the stationarity condition is fulfilled: the correlation between the explanatory variables and the unobserved effects does not change over time.

System GMM can generate quite a great number of instruments, something that, although does not compromise consistency, can move it away from the asymptotic ideal; overfits endogenous variables failing to expunge their endogenous components and weakens the Hansen test making it generate implausibly good *p*-values of 1.000 (Roodman, 2009b, p. 98). In order to reduce the quantity of instruments, we use one instrument for each variable and lag distance instead of one for each time period, variable and lag distance (we collapse the instrument set).

Besides the lag of cash holdings, variables included are in all cases contemporaneous and therefore we treat them as endogenous, except dummy variables. This is relevant when deciding the structure of lags that will be used as instruments: predetermined variables allow to use the first lag as instrument while endogenous the second. We start from the second lag and use up to the fifth lag in order to have information from one year.

The correct specification of the model is evaluated by means of 3 tests. The first addresses serial correlation in the disturbance term. Since the model takes first differences, it could have first order but not second order serial correlation in the residuals. The m_1 and m_2 statistics test that (ar1p and ar2p in the tables are the p-value associated with those tests). The second test addresses endogeneity. The Hansen *J* statistic of overidentifying restrictions evaluates the validity of instruments by testing the correlation between instruments and the error term.

7. Results

Table 4.3 shows the results of the estimation of equations 1 and 2 for the complete sample of firms as well as for each national sub-sample. Our two models (with and without macro controls) pass the autocorrelation and overidentification tests for the whole sample indicating that the model is well-specified. Moreover, the test on the level equations is also satisfactory indicating that the system specification is the correct one. Results vary, nevertheless, when applied to each country in particular (the tests are valid for Argentina and Peru, but not for Brazil, Chile and Mexico). All estimations include quarterly dummies.

In terms of our main variable of interest, financial income, results only support the *financial turn of accumulation* hypothesis for Brazil in both equations and Chile without macro controls. Results are statistically significant at the 1% level for the former and 10% for the latter.[54] It is only in these countries that financial income has a positive and significant effect on cash holdings. The Brazilian result is consistent with the cases mentioned in the literature review and the exceptional role played by interest rates in that country. However, the economic relevance of

[54] This result for Chile is not robust in our other estimations.

this effect for both countries is meager: when we compute the elasticity,[55] an increase in 100% of financial income corresponds to an increase of 0.6% and 1% in cash holdings for Brazilian and Chilean firms respectively. For the whole sample and the remaining countries taken individually, financial income either is not statistically significant or has a negative effect, as in the case of Argentina.

In Table 4.4 we add an interaction variable to see whether financial income, rather than being related to all sizes plays an important role in determining cash policies specifically for bigger firms (defined as those in the upper 25% percent). In addition to the reasons why cash holding may vary across different size-segments, arguably larger firms might be more responsive to financial income. In a context where offshore financial activities prevail, larger firms face fewer constraints when accessing foreign capital markets, and can turn to overseas subsidiaries in order to issue debt (Avdjiev, Chui, & Shin, 2014; Calomiris, Larrain, Schmukler, & Williams, 2018). In turn, this may facilitate carry trade operations and search for financial yield at large. Overall, results confirm previous findings but also add some interesting facts. First, Brazil maintains its positive results with additional effects for bigger firms. This provides additional support for the relevance of financial accumulation in that country, particularly for larger firms. Nevertheless, the parameter for larger firms only accounts for an increase of 0.4 additional percentage points, suggesting that even when statistically significant, financial income plays a minor role. Second, only in Mexico do we find statistically and economically relevant evidence that big firms might be involved in financial activities. For them, the effect is still low but comparatively higher: an increase in 100% of financial income is associated with an increase of 4% in cash holdings.

Moving to the other variables, in both tables the lagged value of liquidity holdings is statistically significant, confirming the existence of a dynamic process in terms of the decisions regarding cash holdings, and therefore the importance of using a dynamic model. Additionally, in all cases it indicates positive feedbacks from previous decisions.

Not only the lagged value of liquidity but also other variables are robust across the whole sample and countries. Those firms with higher leverage, when statistically significant, hold less liquidity. This result is in line with similar findings in the finance literature for developed economies (Bates et al., 2009). Following Opler et al (1999), we interpret this as being consistent with the pecking order theory, since more debt is associated with more interest payments and liquidity needs. Additionally, this result also goes against the prevalence of carry trade strategies driving Latin American firms' liquidity holding policies. Would that be the case,

[55] The elasticities are computed for each observation using the value of the marginal effect reported in the table and then an average of all of them is calculated.

we should find a positive relation between firms' indebtedness and cash holdings. Focusing on bonds issues in international capital markets by EMs corporates, Bruno & Shin (2017) find that firms tend to retain the proceeds as cash. Our results regarding the relation between leverage and cash suggest however that this is not a driver behind the overall evolution of cash holdings for Latin American firms.

Also, firms that invest more hold less cash. As we claimed above, this is an expected result according to the different theories as firms will turn to their cash balances in order to finance investment requirements. Another robust results and predicted by different theories is the positive relation with profitability. Payouts, on the other hand, are only statistically significant for Chile where they have a negative sign.

The effect of firm size is not robust throughout the sample and countries. For the whole sample and for Peru taken individually, the effect is negative and significant. These results go in line with the previous as they indicate scale economies in cash management and credit rationing given that bigger firms are less rationed and therefore need less money for precautory motives. On the other hand, results differ for Brazil and Mexico where the size effect is positive and significant at the 1% and 5% level respectively indicating that bigger firms accumulate higher amounts of cash. In turn, this is consistent with the pecking order and financialisation theory, as we discussed in Section 2.

Summing up, firms tend to hold more cash when they are more profitable and collect larger internal funding, when they are less indebted and when they invest less. In addition, considering the coefficients for Brazil and Mexico, larger firms hold more cash. Overall, these results seem to support the prevalence of the pecking order over the trade-off theory in explaining cash policies by Latin American firms. However, taking the coefficients for the whole sample into account, larger firms tend to hold less cash, which suggests that financial constraints are also a relevant force behind cash holdings in the region.

These results for firm-level variables are maintained when including the macroeconomic regressors. These variables are most of the times non-significant or non-robust when significant. Thus, compared to recent studies in the literature, our results throw a different light on the determinants of cash holdings for EMs firms. Focusing in firms` bond issuance activity, Bruno & Shin (2017) show that firms which issued dollar denominated debt used those proceeds to accumulate local currency assets. Our results indicate that cash holdings are not positively correlated to net foreign capital inflows, result that goes against the prevalence of carry trade strategies.

Table 4.3. Estimation results based on equations (1) and (2). Period: 1999q1-2017q1.

Dependent variable:$Cash_{ijt}$	All countries		Argentina		Brazil		Chile		Mexico		Peru	
	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.
$Cash_{ij,t-1}$	0.167***	0.169***	0.216***	0.225***	0.767***	0.766***	0.516***	0.517***	0.714***	0.713***	0.203***	0.201***
	(0.034)	(0.036)	(0.069)	(0.066)	(0.022)	(0.023)	(0.047)	(0.047)	(0.062)	(0.061)	(0.039)	(0.039)
Financial $Income_{iit}$	-0.003	-0.001	-0.001***	-0.001***	0.002***	0.002***	0.008*	0.008	0.015	0.015	0.002	0.002
	(0.003)	(0.003)	(0.000)	(0.000)	(0.000)	(0.001)	(0.005)	(0.005)	(0.011)	(0.010)	(0.005)	(0.006)
$Log(Assets)_{ijt}$	-0.153***	-0.066***	0.005	0.003	0.029***	0.028***	0.010	0.007	0.038**	0.030**	-1.773*	-1.813*
	(0.045)	(0.017)	(0.003)	(0.005)	(0.008)	(0.009)	(0.008)	(0.007)	(0.016)	(0.013)	(0.911)	(0.934)
$Leverage_{ijt}$	-0.151**	-0.131**	-0.003	-0.000	-0.022*	-0.023*	-0.003	-0.004	-0.040*	-0.051**	0.380	0.293
	(0.072)	(0.064)	(0.035)	(0.038)	(0.012)	(0.012)	(0.032)	(0.032)	(0.023)	(0.023)	(0.477)	(0.502)
Net $Investment_{ijt}$	-0.027	-0.012	-0.007**	-0.007**	-0.013***	-0.013***	0.010	0.004	-0.019**	-0.017*	-0.077	-0.077
	(0.030)	(0.028)	(0.003)	(0.004)	(0.003)	(0.003)	(0.008)	(0.011)	(0.009)	(0.010)	(0.260)	(0.265)
ROA_{ijt}	0.087***	0.084***	0.023	0.029	0.004	0.004	-0.011	-0.008	0.035**	0.027*	0.068**	0.068**
	(0.025)	(0.028)	(0.028)	(0.033)	(0.003)	(0.003)	(0.039)	(0.040)	(0.016)	(0.015)	(0.032)	(0.032)
$Payouts_{ijt}$	0.001	0.001	-0.000	-0.001	0.000	0.000	-0.003**	-0.003**	0.000	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
FAB_{jt}		0.757		-0.597		0.061		-0.045		-24.249		0.000
		(0.522)		(1.999)		(0.231)		(0.059)		(15.174)		(0.001)
GDP $growth_{jt}$		-0.098		-0.195*		0.037		-0.018		-6.802		0.000
		(0.180)		(0.115)		(0.352)		(0.038)		(6.596)		(0.001)
$FOREX_{jt}$		-0.000		-0.040		-0.000		-2.191		2.832*		-0.000
		(0.000)		(0.098)		(0.000)		(1.443)		(1.498)		(0.000)
Interest $Rate_{jt}$		0.010		0.005		0.001		0.081		-1.237		-0.067
		(0.013)		(0.308)		(0.014)		(0.130)		(0.823)		-0.089
Constant	2.032***	0.732***	-0.018	0.155	-0.350***	-0.344	-0.131	-0.100	-0.478**	25.523	7.803**	0.000
	(0.603)	(0.206)	(0.050)	(0.503)	(0.106)	(0.212)	(0.116)	(0.117)	(0.212)	(16.653)	(3.661)	(0.001)
N. obs	47,051	47,051	1,163	1,163	27,908	27,908	4,851	4,851	6,037	6,037	6,805	6,805
N. firms	1,430	1,430	63	63	742	742	216	216	195	195	193	193
Instruments	108	112	56	60	108	112	65	69	73	77	108	112
ar1p	0.000	0.000	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ar2p	0.303	0.339	0.822	0.961	0.005	0.005	0.044	0.044	0.000	0.127	0.689	0.656
hansenp	0.413	0.158	0.489	0.828	0.000	0.000	0.029	0.033	0.001	0.003	0.285	0.128

Estimations are all obtained by the Arellano-Bond two-step difference GMM. All instruments include up to four quarters lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansen and hansen_level are the Hansen-Sargan test of overidentifying restrictions for all instruments and instruments in levels respectively. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

Table 4.4. Estimation results based on equations (1) and (2). Period: 1999q1-2017q1

Dependent variable:$Cash_{ij,t}$	All countries		Argentina		Brazil		Chile		Mexico		Peru	
	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.	Micro	Micro w/macro vs.
$Cash_{ij,t-1}$	0.169***	0.168***	0.199***	0.175**	0.762***	0.760***	0.528***	0.518***	0.714***	0.707***	0.198***	0.198***
	(0.035)	(0.039)	(0.073)	(0.081)	(0.022)	(0.023)	(0.062)	(0.064)	(0.051)	(0.050)	(0.038)	(0.038)
Financial $Income_{iit}$	-0.003	-0.004**	-0.001***	-0.001***	0.002***	0.002***	0.011	0.011	0.010	0.010	0.000	-0.001
	(0.002)	(0.002)	(0.000)	(0.000)	(0.001)	(0.001)	(0.007)	(0.007)	(0.009)	(0.009)	(0.005)	(0.005)
$Log(Assets)_{ijt}$	-0.146***	-0.011	0.004	0.001	0.027***	0.024***	0.014	0.010	0.031***	0.029**	-2.036***	-1.958***
	(0.041)	(0.025)	(0.003)	(0.005)	(0.008)	(0.009)	(0.016)	(0.015)	(0.012)	(0.012)	(0.598)	(0.592)
$Leverage_{ijt}$	-0.130**	-0.115	-0.020	-0.017	-0.028**	-0.029**	0.008	0.004	-0.043**	-0.049**	0.103	0.053
	(0.065)	(0.079)	(0.038)	(0.039)	(0.012)	(0.012)	(0.039)	(0.045)	(0.022)	(0.022)	(0.463)	(0.491)
Net $Investment_{iit}$	-0.024	-0.016	-0.006*	-0.007	-0.014***	-0.014***	0.010	0.005	-0.020**	-0.020**	-0.039	-0.054
	(0.017)	(0.019)	(0.004)	(0.004)	(0.003)	(0.003)	(0.008)	(0.013)	(0.009)	(0.010)	(0.257)	(0.255)
ROA_{ijt}	0.090***	0.079***	0.020	0.029	0.004	0.003	-0.007	-0.004	0.032**	0.028**	0.063**	0.064**
	(0.025)	(0.029)	(0.030)	(0.033)	(0.003)	(0.003)	(0.041)	(0.041)	(0.014)	(0.014)	(0.030)	(0.031)
$Payouts_{ijt}$	0.001	-0.001	-0.000	-0.000	0.000	0.000	-0.003**	-0.003**	0.000	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
FAB_{jt}		0.216		-0.248		0.005		-0.032		-21.376		0.000
		(0.380)		(4.743)		(0.042)		(0.075)		(19.859)		(0.001)
GDP $growth_{jt}$		0.123		-0.078		0.023		-0.019		-1.958		0.000
		(0.174)		(0.163)		(0.217)		(0.044)		(6.869)		(0.001)
$FOREX_{jt}$		0.000		-0.036		0.011		-0.000		-0.914		2.964***
		(0.000)		(0.144)		(0.052)		(0.000)		(0.961)		(0.945)
Interst $rate_{jt}$		0.059*		0.024		0.003		0.073		-0.810		-0.059
		(0.034)		(0.373)		(0.014)		(0.169)		(0.714)		-0.07
$Interaction_{jt}$	0.001	0.001	-0.031	-0.024	0.015***	0.017***	-0.003	-0.003	1.816***	1.912***	0.003	0.003
	(0.001)	(0.001)	(0.023)	(0.034)	(0.004)	(0.004)	(0.006)	(0.007)	(0.515)	(0.735)	(0.006)	(0.006)
Constant	1.928***	-0.542	-0.001	0.173	-0.309***	-0.292***	-0.197	-0.152	-0.396***	10.715	8.838***	0.000
	(0.551)	(0.508)	(0.049)	(0.732)	(0.101)	(0.107)	(0.230)	(0.222)	(0.153)	(10.564)	(2.423)	(0.000)
N. obs	47,051	46,760	1,163	1,163	27,908	27,908	4,851	4,851	6,037	6,033	6,805	6,805
N. firms	1,430	1,430	63	63	742	742	216	216	195	195	193	193
Instruments	118	121	66	69	118	121	75	78	78	81	113	116
ar1p	0.000	0.000	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ar2p	0.304	0.331	0.968	0.824	0.005	0.005	0.045	0.047	0.000	0.016	0.416	0.398
hansenp	0.346	0.227	0.596	0.779	0.000	0.000	0.075	0.091	0.001	0.002	0.270	0.122

Estimations are all obtained by the Arellano-Bond two-step difference GMM. All instruments include up to four quarters lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansen and hansen_level are the Hansen-Sargan test of overidentifying restrictions for all instruments and instruments in levels respectively. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

8. Conclusion

This chapter has analyzed the evolution and determinants of cash holdings from NFCs belonging to Argentina, Brazil, Chile, Colombia, Mexico and Peru trying to identify, specifically, the validity of the *financial turn of accumulation* for these firms. While different scholars have presented evidence for and against this hypothesis in advanced economies, the relevance for emerging markets has been off-radar.

Paradoxically, studies focusing on the specificities adopted by financialisation in emerging economies have highlighted the relatively better opportunities offered by these countries *vis-à-vis* developed to engage in such activities. Emerging markets typically have higher interest rates that, when coupled with fixed or semi-fixed exchange rates, allow for carry trades. Other studies have also highlighted different cases of NFCs using financial derivatives to speculate rather than hedge against the volatility in national currencies.

Using quarterly firm level data coupled with macroeconomic information for the last 20 years we tested the relation between financial profits and cash holdings. Our results indicate that the effect is significant only for Brazil, both in general and for big firms, and Mexico, only for big firms. We found positive statistically significant results in Chile which were not robust nevertheless. Moreover, in all cases except in big Mexican firms, effects were not economically relevant.

Other variables which may also be indicative of the presence of speculative activities are leverage (positive relation) and the result of the FAB (negative relation). However, in the case of the former the results found were the opposite than the financialisation theory would suggest while the latter were non-significant.

Future research should continue and try to provide other explanations for the increase in cash holding from Latin American firms. Our results were not conclusive regarding the motives for growth in cash holdings verified in the last years. Nevertheless, for the purposes of this chapter it is sufficient to have provided evidence that the turn to financial accumulation does not seem to be valid either in the majority of Latin American NFCs.

Conclusions of Part 2

In **Part 2** we have started to answer the research questions guiding this thesis: a) why are not firms investing in spite of high profitability?, b) what are they doing with those funds?, c) how can they remain profitable with low levels of investment? As we said in the introduction of this part, the strength of the *financial turn of accumulation* is that it can offer answers to all these questions. However, the results found both for the USA (**Chapter 3**) and Latin America (**Chapter 4**) tend to reject the validity of this strategy as a *general trend*.

In **Chapter 3** we confirmed the growing importance of payouts to shareholder, as an answer to question b). Also for question a) but in this case it will be examined econometrically in the next Part along with other possible explanations. Moreover, also in terms of question a) and c), we can say that financial investment *does not* seem to be the reason behind the decrease in capital expenditures (i.e., real investment is not being crowded out by financial investment) and, at the same time, financial profit *does not* seem to be either what allows firms to remain profitable.

In terms of assets, some of the alleged financial assets might actually reflect other activities in which non-financial corporations have been increasingly engaging such as tax avoidance, internationalization of production, activities refocusing and M&As. Nevertheless, some financial assets did increase since the beginnings of the 1990s, especially the most liquid ones. The problem for the validity of the *financial turn of accumulation* hypothesis is that the proportion of financial income over total income is fairly low and, more important, has been decreasing in the last years. Moreover, the proportion of NFCs with a significant amount of those assets has decreased over the past 25 years.

In **Chapter 4** we started by showing that in Latin America there has also been an increase in liquid assets and we ask whether they are linked to the quest for financial income. Even though the possibilities to engage in such type of activities are higher *vis-à-vis* developed countries, in the chapter we show that, on average, financial income is not related to the increase of cash holdings from Latin American firms. Although results change when we perform estimations for firms belonging to specific countries, such as in Brazilian, Chilean and big Mexican NFCs, their economic effect is still low.

In the next part we left behind the *financial turn of accumulation* in order to analyze other types of answer to our research questions, more related to changes in *real* accumulation. Moving also back to developed economies only, the next part should be able to answer as well something confirmed in Chapter 3: how the growing distribution of funds to shareholders coupled with low accumulation has been sustainable for such a long period.

Part 3: The strong answer to the puzzle: offshoring and intangible investment

This final part presents two chapters tackling the questions that were not completely answered in the previous one: why are not firms investing in spite of high profitability? How can they remain profitable with low levels of investment? The commonality of the following chapters is that they depart from the financial type of answers offered in the previous part and move to the realm of the productive sphere by focusing on offshoring (**Chapter 5**) and intangibles and market power (**Chapter 6**). As the title of this part indicates, in these two chapters we find more satisfactory answers compared to **Part 2**. Both of them represent forces that reduce firms' need to invest and still permit them to capture profits: offshoring allows firms to increase production and decrease costs per unit of investment, while intangible investment is usually associated with monopoly rents increasing therefore prices.

As two of the major forces shaping world economic dynamics over the last several decades, financialisation and globalisation have received a good deal of academic scrutiny separately. Few studies, nevertheless, have explored their interdependence. This interdependence is the core of **Chapter 5** as it offers a plausible explanation for our research questions. Here, we test the hypothesis that most of the gains associated with offshoring were used to sustain financialisation rather than investing in productive assets. This is done by estimating investment functions using world-consolidated firm-level data for U.S.-listed companies merged with industry-level information on offshoring. We focus, therefore, on individual capital accumulation behaviour, conditional on the fact that firms belong to industries with various degrees of offshoring.

In **Chapter 6**, on the other hand, without abandoning offshoring dynamics we also take into account the role played by intangible accumulation and market power. In **Chapter 3**, when we studied the asset composition, we found that the most significant change was, in fact, related to the increasing role played by intangible assets and goodwill. As we indicated there, the growing importance of intangibles in aggregate terms points toward a type of business model that is more dependent on technological and intellectual rents. Apart from goodwill and other intangibles, in **Chapter 3** we also identified FDI as an asset that experienced a high increase. While neither intangibles (goodwill and other intangibles) nor FDI support *financial accumulation*, we claimed that both of them may indicate other changes experienced by NFCs such M&As, reorientation towards core activities, tax avoidance and offshoring respectively. From all these changes, in **Chapter 5** we investigate the role played by production offshoring

and in **Chapter 6** we turn to intangibles. We estimate tangible and intangible investment functions with firm-level data for US, UK, French, German and Japanese listed companies, also merging it with industry-level information on participation in global value chains.

Chapter 5: The financialisation–offshoring nexus and the capital accumulation of US non-financial firms

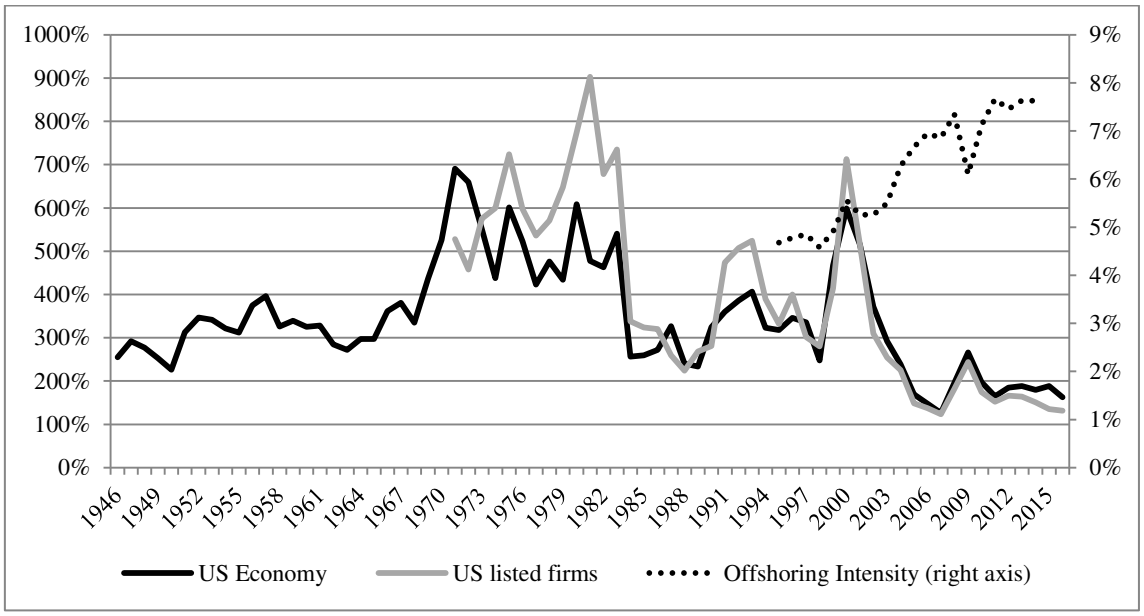
1. Introduction

In the previous part we examined the validity of the *financial turn of accumulation* hypothesis as an answer for the profit-investment puzzle and arrived to a negative assessment. In this part and chapter we will focus on other explanations. Figure 5.1 illustrates the negative relation between investment and payouts for the USA, as we did in the Introduction of the thesis, by showing the ratio between gross fixed investment and net financial payouts for the whole economy, and listed firms. In both cases the trend is similar: it abruptly decreases since the beginnings of the 1980s, remains relatively constant until the end of the 1990s when it increases and then declines sharply again. The figure also indicates that the trend for listed companies started from a higher point than the whole economy. All in all, this suggests that the decrease in investment has been more dramatic for listed firms. As we indicated in Chapter 2, even though the explanations at the micro level that rest on the consequences of shareholder value orientation are consistent with stylized facts, they provide no clue to answer another question: that of the sustainability of low investment and high payouts considering that today's firm capital accumulation is a prerequisite for tomorrow's profitability (Arestis & Karakitsos, 2004; Dallery, 2009; Lavoie, 2014; Minsky, 1986). They do no provide an answer to the *supply-side* face of the profit-investment puzzle.

The aim of this chapter is to examine, empirically, whether the offshoring of production[56] is one of the conditions that has made such strategy sustainable over the past years. The appeal of this solution is that it is able to increase the amount of profits with a given stock of capital by increasing production and decreasing costs. This proposition is motivated by previous work by Milberg (2008) and Milberg and Winkler (2009, 2013) who indicated that most of the gains associated with offshoring were used to sustain financialisation rather than investing in productive assets. Following this line of reasoning, Figure 5.1 also shows, along with the negative relation between payments and investment, the increased offshoring activity verified since mid 1990s.

[56] Offshoring is part of a broader process of productive reconfiguration carried mainly through the so-called global value chains (Gereffi & Korzeniewicz, 1994), which implies both spatial relocation –home nation/offshoring– and organizational restructuring –in-house/outsourcing– (Contractor, Kumar, Kundu, & Pedersen, 2011, p. 7; Kinkel, Lay, & Maloca, 2008, p. 247). As we explain below, this chapter focuses on offshoring, keeping in mind its differential effects in case it is carried in-house or outsourced.

Figure 5.1. Investment as a ratio of Net Financial Payouts for the U.S. Economy and U.S. listed firms, and Offshoring Intensity, 1946-2016.



Note: Offshoring Intensity is the industries' average of all Intermediate Imported Inputs over output.

Source: Table Z1, Financial Accounts of the USA, Compustat and WIOD.

In order to fulfil the objective of this chapter, we estimate investment functions using world-consolidated firm-level data for U.S.-listed companies from Compustat merged with industry-level information on offshoring from the World Input-Output Database (WIOD). The main issue when dealing with offshoring is that comprehensive information is not available for individual firms. Rather than studying the offshoring of corporations, we propose to consider the offshoring of their industry for which we have reliable information over the 1995-2011 period. The scope of this study focuses, therefore, on individual capital accumulation behaviour, conditional on the fact that firms belong to industries with various degrees of offshoring.

Thanks to this empirical strategy, the main contribution of this chapter is to show that the negative correlation between payouts and investment in capital expenditures underlined by the literature is valid mainly for firms belonging to industries with high offshoring in non-core non-energy activities. Moreover, investment of firms in low offshoring sectors is not significantly correlated to their financial payouts. These results suggest that financialisation and offshoring are related phenomenon. By providing the empirical evidence of this interaction, we contribute to the critical debate dealing with the context of the shareholder value creation and its consequences on fixed capital formation. Financialisation is not a uniform process and, in particular, it occurs differently depending on the variety of business models (Lazonick, 2009; Montalban & Sakinç, 2013). In this respect, our results imply that the so-called downsize and

distribute strategy, in its capital accumulation component at least, has been mainly followed by firms belonging to industries well-integrated in global value chains (GVCs).

Our econometric estimations are robust to various specifications, and results cohere with previous works. First, we know that financialisation is more pronounced for the largest firms (Orhangazi, 2008). In our sample, both financialisation and its interaction with offshoring manifest mainly for large firms. Second, as we explain below, offshoring may have opposite effects on the investment of corporations, depending on its organizational setup (in-house or outsourcing, offshoring in core, or non-core activities). Basically, we can expect a positive (negative) relationship between investment and offshoring in core (non-core) activities since outsourcing may probably occur for non-core activities while in-house transfer of production may probably occur for core activities (Gereffi et al., 2005). Though the evidence for such effects is not clear-cut, our results are in line with these expectations.

The reminder of the chapter is organized as follows. Section 2 deals with the literature on the financialisation of non-financial corporations (NFCs), offshoring and their interaction with profits and investment. Section 3 introduces the regression specification and our main hypothesis, while Section 4 presents the data and estimation methodology. Section 5 shows and discusses the results. Section 6 presents robustness checks, while Section 7 finishes with some concluding remarks.

2. Financialisation, offshoring, and investment

a. Benefits from offshoring and its effect on investment

As we mentioned before, global production is organized mainly through GVCs today (OECD, 2010), resulting in a fundamental restructuring through offshoring and outsourcing (J. Lee & Gereffi, 2015). We will be following OECD's definition (OECD, 2010, p. 220): "offshoring is generally defined as companies' purchases of intermediate goods and services from foreign providers at arm's length or the transfer of particular tasks within the firm to a foreign location, i.e., to foreign affiliates. Outsourcing refers to the purchasing of intermediate goods and services from outside specialist providers at arm's length either nationally or internationally". The combination of offshoring and outsourcing gives four possibilities described in Table 5.1.

Table 5.1. Definition of offshoring and outsourcing.

	Home nation	"Offshore"
In-house Domestic or foreign	Value of entirely in-house activities in home nation	Value of entirely in-house activities within owned foreign affiliates
Outsourcing Domestic or foreign	Value outsourced domestically in home nation	Value outsourced contractually from foreign providers

Source: Contractor et al (2011).

Multinational corporations play a key role in this process as the leaders of the whole network whereas the dominant consideration in order to engage in such strategy is still to reduce wages and costs[57] (Contractor, Kumar, Kundu, & Pedersen, 2011). In fact, while stagnation of wages in advanced countries and gains of productivity related to the introduction of new information technology were, traditionally, the most studied ways to maintain a mark-up despite price competition, Milberg (2008, p.428) puts forward a third source: the effective management of global value chains more related to cost management rather than price setting.

The rise in cost mark-ups and profitability was achieved by focusing in some activities considered core or strategic (development and design, trans-divisional research, technology and business intelligence) while dropping the non-core activities, usually with low value creation (Gereffi et al., 2005; J. Lee & Gereffi, 2015; Schwörer, 2013; Serfati, 2008)[58]. According to Milberg and Winkler (2013), thanks to the availability of various suppliers all over the world, offshore production took the form of arm´s-length relationships between the leading firm and supplier establishing an asymmetric market structure which consists of a monopsonic buyer relation between those various suppliers and the lead firms, who also exercise oligopoly power as sellers.

The benefits associated with offshoring are well documented for different countries and industries. Jabbour (2010) uses information on offshoring activity by French manufacturing firms for the year 1999 and finds positive effects on profitability and productivity. Milberg and Winkler (2009) show that services and materials' offshoring significantly increased profit shares between 1998 and 2006 in the USA. For Irish electronics firms, Görg and Hanley (2004) find that international outsourcing improves the profitability of large companies. Dunn et al (2009) report, for the U.S. technology sector case between 2001 and 2005, that firms offshoring

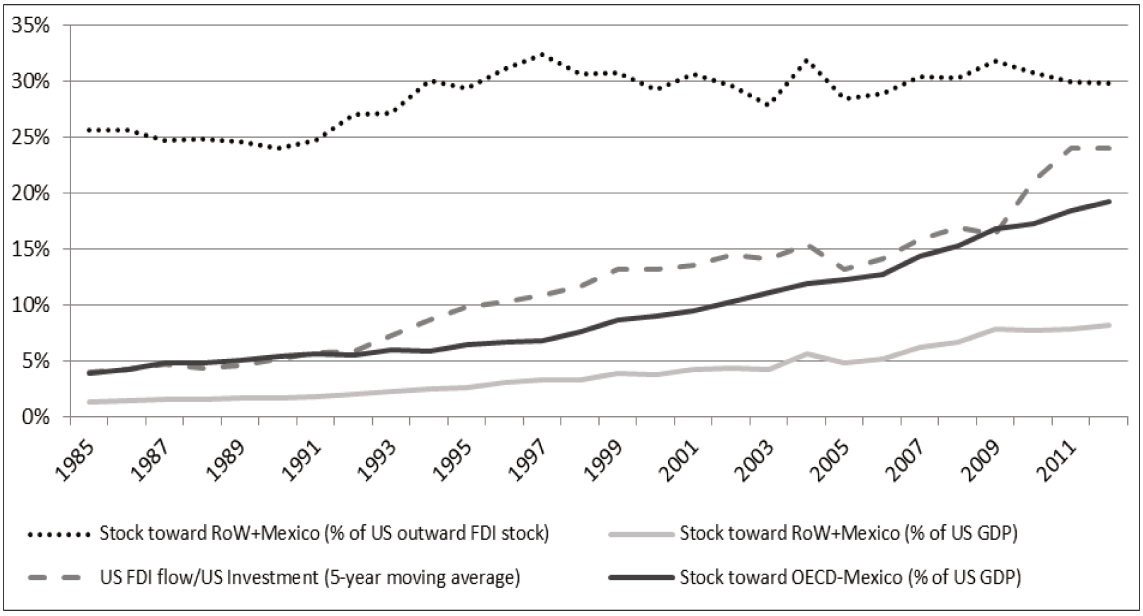
[57] Although greater flexibility and diversification of location are also important.

[58] This distinction between core and non-core activities is based on the competencies of a firm, rather than its products (Prahalad & Hamel, 1990). However, we will follow a different perspective related to the industry-level data we will use: core (non-core) offshoring of a given industry is defined by the import of inputs that belongs to the same (a different) two-digit Standard Industrial Classification industry (e.g., Feenstra and Hanson, 1999). The underlying assumption is that core tangible and intangible assets of a corporation are probably related to its primary industry. We rely on this definition in this chapter (for more details see section 2.b).

technology-oriented jobs have greater earnings and operating cash flows. D'Attoma and Pacei (2014) also find positive effects for the Italian manufacturing industry. In a survey carried by the McKinsey Global Institute (2003) cited in Milberg and Winkler (2013), it is mentioned that the cost saving of offshoring is between 45% to 55%.

As Baud and Durand (2012) pointed out, suppliers are not only forced to compete among each other but also must face leader firm's terms of payments, its standards of just-in-time production, as well as carry the risks associated with sales volatility, which imposes additional financial costs and increase their capital needs. This lack of accountability for standards in the supplying firm, be they working standards or capital commitments, is one of the most important differences between arm's-length relations and in-house offshoring through vertical foreign direct investment (FDI) according to Milberg & Winkler (2013). In fact, they argue that the asymmetry between leading firms and suppliers created conditions for greater returns from externalization than internalization. Internalization through FDI is preferred in those cases where a strategic protection of an asset, such as a knowledge asset, is involved or when the objective is to replicate productive capacity in a foreign location, also known as "market-seeking" or horizontal FDI. The authors show the relative increase of horizontal FDI compared to vertical going from 25.4% in 1985 to 63.8% in 2010 (Milberg & Winkler, 2013, p. 133, Table 4.8). Figure 5.2 indicates the growing importance of U.S. FDI outward flows relative to U.S. investment, and the increase in the stock of FDI measured as percentage of GDP. Nevertheless, it confirms the fact that most of that FDI is related to horizontal rather than vertical FDI considering that approximately 70% is maintained in developed countries.

Figure 5.2. Stock and Flow of U.S. Outward FDI, 1985-2012.



Note: FDI calculated as either as a % of GDP, total stock or investment.

Source: Table Z1, Financial Accounts of the USA; OECD, FDI statistics according to Benchmark Definition 3rd Edition (BMD3), FDI positions by partner country.

Besides the effects on profits, we are interested in studying how these recent changes affected investment. Milberg and Winkler (2013, p. 224) identify three channels by which offshoring affects investment. Domestic capital stock can be diminished due to its replacement by foreign capital, the 'substitution effect', or due to a reduced demand for capital for each unit of output produced, the 'capital productivity' effect. However, it can also increase due to the growth in the scale of production, the 'scale effect'.[59] Their results show that between 1996 and 2006 offshoring significantly reduced capital accumulation.

b. The codependence between the financialisation of NFC and offshoring

In the previous sections we have shown, separately, the decrease in investment, the increase in financial payouts and offshoring in the USA. Milberg's (2008) pioneering work first indicated the relation among these different phenomenon: since firms own less productive facilities due to offshoring, profits are not reinvested in inputs, plants and equipment, but redirected to the purchase of financial assets and dividend payments which raises shareholder value. Milberg and Winkler (2013, p. 230) later showed, for different U.S. sectors between 1998 and 2006, that services offshoring increases financialisation in the USA. For different countries and industries, Durand and Miroudot (2015) introduce financialisation, in addition to offshoring, as a possible explanation of the level of employment. Their results suggest that these two variables are significantly correlated with employment, though their effects are unrelated in their macro dataset.

Other studies have been carried for specific sectors and results go in the same direction. Soener (2015) analyses the apparel and footwear industry, differentiating among branded manufactures (firms that own some productive facilities as well as their own brand), branded marketers (firms that contract all production and sell their brands in retailers), general retailers (which sell their own products and others as well), special retailers (which sell their own products) and textile assemblers and producers (firms that do not fit previously mentioned categories). His empirical results support the hypothesis that the more a firm divests from production, the more likely it will be financialised: branded marketers have around 700% the level of financial assets, 300% the level of payouts and 430% the level of interest income compared with general retailers. Branded marketers have 222% the level of assets and 194% the level of payouts compared with general retailers. Baud and Durand (2012) show, for the retail sector, that the development of

[59] Moser et al. (2015) identifies similar channels by which offshoring affects another outcome variable as employment.

international and financial operations contributed to its ability to provide high returns to shareholders.

Relying on the literature previously reviewed, we propose a framework in Figure 5.3 based on the channels by which offshoring affects employment (Moser, Urban, & Weder Di Mauro, 2015) and investment (Milberg & Winkler, 2013). Nevertheless, since we focus on the microeconomic level of the firm, and because we work with world-consolidated firm-level data, this framework focuses on the firms' perspective rather than on the home nation's viewpoint. Basically, we assume that offshoring is profitable to the firm but the use of profits will depend on the organisational set-up of offshoring. Five relationships between offshoring, investment and payout can be drawn.

1) If we acknowledge that core-offshoring of production tends to be internalized in order to protect strategic assets, and even if it may reduce domestic investment by a substitution or a productivity effect, it would increase firm's investment through FDI and also thanks to a growth in the scale of production.[60] Here the payout policy may go in two directions: either the firm may reduce payout to focus on foreign investment, or the new source of profit is enough to increase both investment and payout.

2) Conversely, non-core offshoring should result in the development of arm's-length relationships between the firm and international suppliers with one major consequence being a reduction of investment at the world-firm level. In this case, the new source of profits can be used for distribution to shareholders, and a non-ambiguous negative relationship should exist between offshoring and investment on the one hand, and between investment and payout on the other hand.

3) However, even outsourcing in non-core activities may result in an increase of investment if the firm reinvests its profits in capital related to its core competences, especially when the firm enjoys a scale effect. This case ends as in case number 1; it is uncertain that profits will be distributed to shareholders if they are oriented toward core investment. Given that one of the main business models adopted by U.S. firms combines financialisation and offshoring (Lazonick, 2009; Milberg, 2008) we hypothesize that case 2 should be more frequent than case 3.

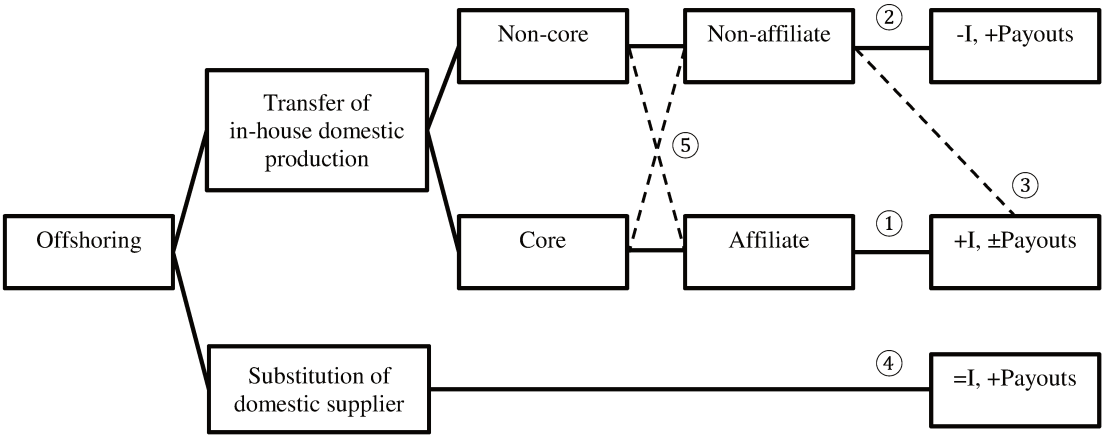
4) Finally, if offshoring consists of replacing a supplier in the home nation by a supplier abroad, then the consequences should be neutral for the firm's investment since it already relies on

[60] There is abundant literature on the effects of FDI over investment. While market-seeking FDI generally has a positive effect on domestic investment, which is in line with the scale effect hypothesis, cost-seeking FDI tends to be negative. See for example Lian and Chuang, (2007); Hering et al., (2010); Hejazi and Pauly, (2003) and Onaran et al., (2013).

outsourced production. Because the demand for capital is low for these firms, their profits can be used for distribution to shareholders.

5) Of course, we cannot exclude that some firms outsource core activities while other keep non-core ones, which results in various outcomes in investment and payouts. Nevertheless, given the already cited literature, these cases should not be dominant.

Figure 5.3. Offshoring, investment, and payouts from the firm's perspective



Note: dotted lines indicate relationships that should be less frequent than the one designated by solid lines. Numbers correspond to the five situations detailed in the text

Our main proposition is that non-core offshoring may explain the prevalence of firms with low investment and high financial payouts. To illustrate this statement, Figure 5.4 portrays trends in both offshoring and payout-to-investment ratios for firms belonging to different industries.[61] Those related to the production of machinery, nondurables and durables goods present the highest rates of offshoring along with the highest payout-to-investment ratios. Here, two caveats must be noted. First, most industries have increased their financial payouts relative to investment during the 2000's. A closer look to the data shows that most of the increase occurs after 2007. When profits and stock prices decline, paying dividends and stocks buybacks are a good way to retain shareholders. We are therefore attentive to the persistence of the relationship we presume between offshoring and financialisation over time. Second, two industries with low offshoring also present high payout-to-investment ratios (utilities, ISIC E, and wholesale and retail trade, ISIC 51 and 52). We also consider the possible non-linearity between offshoring and financialisation that can be perceived in Table 5.2 and Figure 5.4. However, two remarks can be made here in order to sustain our statement.

[61] Figure 5.4 provides the median and the 75th percentile of the payout-to-investment ratio by industry because the mean is distorted by extreme values in some industries. Table 5.2 provides detailed descriptive statistics of the mean, the median, and the75th percentile of the payout-to-investment ratio for the 31 industries we study.

Table 5.2. Industries' non-core non-energy offshoring and financial payout-to-investment ratios.

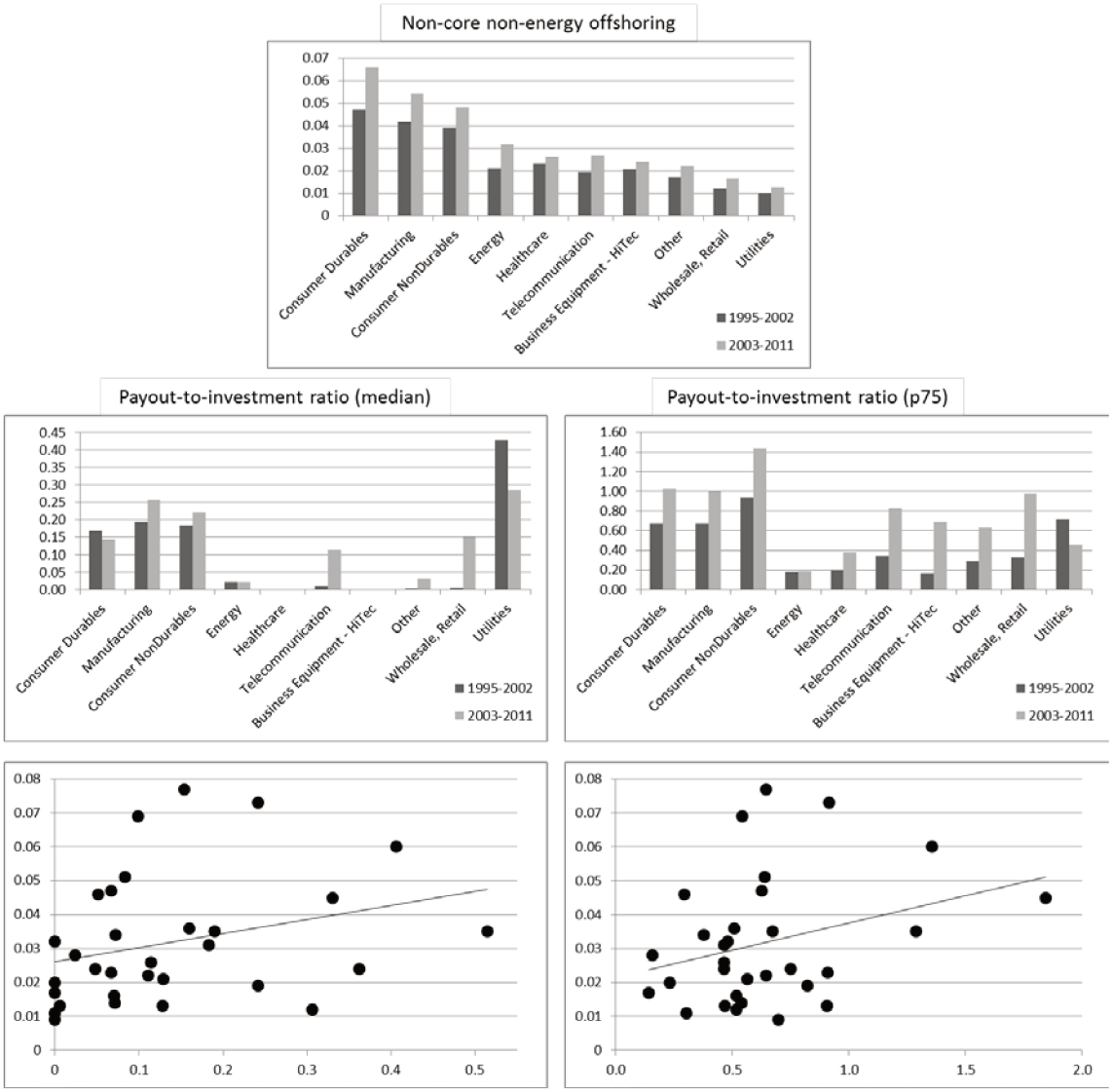
ISIC	Industry	Offshoring		Total obs.	%	Offshoring (mean)	Payout-to-investment ratio		
		High	Low				(mean)	(p50)	(p75)
25	Rubber and Plastics	458	0	458	1%	0.077	0.593	0.154	0.644
29	Machinery, Nec	1532	0	1532	5%	0.073	0.940	0.242	0.915
34t35	Transport Equipment	827	0	827	3%	0.069	0.557	0.099	0.541
36t37	Manufacturing, Nec; Recycling	586	0	586	2%	0.060	1.181	0.406	1.357
17t18	Textiles and Textile Products	575	0	575	2%	0.051	0.766	0.083	0.640
F	Construction	458	0	458	1%	0.047	1.148	0.067	0.626
50	Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; Retail Sale of Fuel	192	0	192	1%	0.046	0.776	0.051	0.295
15t16	Food, Beverages and Tobacco	1012	0	1012	3%	0.045	1.358	0.330	1.845
19	Leather, Leather and Footwear	94	0	94	0%	0.036	0.529	0.160	0.508
27t28	Basic Metals and Fabricated Metal	1074	0	1074	4%	0.035	0.571	0.190	0.674
21t22	Pulp, Paper, Paper , Printing and Publishing	838	0	838	3%	0.035	1.073	0.515	1.289
20	Wood and Products of Wood and Cork	195	0	195	1%	0.034	0.381	0.072	0.379
Sub-total		***7841***	***0***	***7841***	***26%***	***0.054***	***0.892***	***0.203***	***0.912***
30t33	Electrical and Optical Equipment	4541	0	4541	15%	0.032	0.940	0,000	0.480
26	Other Non-Metallic Mineral	224	0	224	1%	0.031	0.775	0.183	0.466
C	Mining and Quarrying	1348	335	1683	6%	0.028	0.326	0.024	0.156
61	Water Transport	55	66	121	0%	0.026	0.378	0.114	0.466
64	Post and Telecommunications	878	640	1518	5%	0.024	0.791	0.048	0.465
Sub-total		***7046***	***1041***	***8087***	***26%***	***0.030***	***0.771***	***0.005***	***0.376***
23	Coke, Refined Petroleum and Nuclear Fuel	111	128	239	1%	0.024	0.502	0.362	0.749
24	Chemicals and Chemical Products	1262	1412	2674	9%	0.023	0.922	0.067	0.909
H	Hotels and Restaurants	30	132	162	1%	0.022	1.498	0.111	0.644
AtB	Agriculture, Hunting, Forestry and Fishing	9	111	120	0%	0.021	0.588	0.129	0.565
N	Health and Social Work	0	819	819	3%	0.020	0.702	0,000	0.232
60	Inland Transport	0	177	177	1%	0.019	0.592	0.242	0.822
62	Air Transport	0	287	287	1%	0.017	0.260	0,000	0.142
O	Other Community, Social and Personal Services	0	756	756	2%	0.016	1.244	0.070	0.519
52	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	0	2774	2774	9%	0.014	0.612	0.071	0.540
Sub-total		***1412***	***6596***	***8008***	***26%***	***0.019***	***0.786***	***0.061***	***0.626***
51	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	0	1334	1334	4%	0.013	1.234	0.128	0.905
M	Education	0	132	132	0%	0.013	0.820	0.006	0.467
E	Electricity, Gas and Water Supply	0	1965	1965	6%	0.012	0.461	0.306	0.518
63	Other Supporting and Auxiliary Transport Activities; Activities of Travel Agencies	0	49	49	0%	0.011	0.547	0,000	0.303
71t74	Renting of M&Eq and Other Business Activities	0	3146	3146	10%	0.009	1.215	0,000	0.697
Sub-total		***0***	***6626***	***6626***	***22%***	***0.011***	***0.983***	***0.161***	***0.611***
Total		**16299**	**14263**	**30562**	**100%**	**0.029**	**0.852**	**0.082**	**0.629**

Note: This table displays the number of observations in high and low non-core non-energy offshoring sectors over the 1995-2011 period. It reports also the mean value of non-core non-

energy offshoring by sectors, i.e., the share of foreign input in total output, and the mean, the median, and the 75th percentile of the payout-to-investment ratio by sectors. Industries are ranked by the level of offshoring. The four group of offshoring are built to be closed to 25% of the sample for descriptive purpose.

Source: WIOD and Compustat.

Figure 5.4. Non-core offshoring and Payout-to-Investment ratio.



Note: this figure shows, over the period 1995-2011, the relationship between the mean non-core non-energy offshoring, i.e., the share of foreign input in total output, and either the median or the 75th percentile of the payout-to-investment ratio, i.e., dividends and share repurchases over capital expenditures. Sectors are grouped in 10 industries and are ranked according to the level of offshoring in bar charts. Scatter plots present the payout-to-investment ratio in the horizontal axis and offshoring in the vertical axis for the 31 sectors of our study.

Source: WIOD and Compustat.

First, it should be noted that utilities are usually excluded in corporate finance studies that focus either on dividend policy (Fama & French, 2001) or accumulation slowdown (Asker et al., 2014). The rationale is that dividend or investment in those firms may be a by-product of federal or state regulation. Utilities are still regulated, and even after the sector's deregulation initiated by the Energy Policy Act of 1992, they continue to pay high dividends (D'Souza, Jacob, & Willis, 2015). Second, the wholesale and retail trade industries reach the same median or 75th percentile in the payout-to-investment ratio than the industries with high offshoring, especially in the second half of the 2000's. We have to underline that our measure of offshoring, i.e., the share of foreign input in total output, doesn't capture the offshoring of firms belonging to these industries because they import final products rather than intermediary products. Actually, these firms rely heavily on offshoring (Baud & Durand, 2012; Chesnais, 2016; Gereffi, 1994; Milberg & Winkler, 2013) and are mainly those that fall in the case number 4 in the Figure 4. Nevertheless, our general results are not affected by the presence of utilities and wholesale and retail trade industries.

3. The regression specification

a. The baseline model: financialisation of NFCs

Because we want to assess to what extent financialisation and offshoring are related phenomenon in the accumulation slowdown, we propose an investment function based on Fazzari et al. (1988) who, as we indicated in Chapter 2, criticize the Modigliani-Miller principle of capital structure irrelevance and show the importance of financing constraints and, particularly, the internal cash flow for investment decisions. The significance of internal funds is also supported by Hubbard (1998) and Brown et al (2009).

Acknowledging the changes in contemporary economies brought about by financialisation, a group of scholars has tried to re-estimate those investment functions, explicitly considering different financial determinants (Hecht, 2014; Orhangazi, 2008). Our baseline model basically follows their work and is defined in the following way:

$$\frac{I}{K} = f\left(\frac{I_{t-1}}{K}, \frac{\pi}{K}, \frac{S}{K}, Q, \frac{LONGDEBT}{K}, \frac{INTEXP}{K}, \frac{INTINC}{K}, \frac{DIV}{K}, \frac{STKISSUE}{K}, \frac{STKREP}{K}, \frac{NETDEBTISSUE}{K}, \frac{INTERNF}{K}\right)$$

I is capital expenditure; *K* is net property, plant and equipment; π is operating income; *S* is sales; *Q* is Tobin's *q*, defined as the ratio of firms' market capitalisation and book liabilities over total assets ; *LONGDEBT* is long debt; *INTEXP* is interest expense; *INTINC* is interest and

investment income; *DIV* are the common and preferred stock dividends paid; *STKISSUE* and *STKREP* are the issuance and repurchase of common and preferred stock, respectively; *NETDEBTISSUE* is the difference between the sale and purchase of short-term and long-term debt; *INTERNF* is firm's balance sheet value of cash and short-term securities, and it is used as a proxy of internal cash flow, following Hecht (2014). Compustat data items corresponding to each of these variables can be found in the appendix (Table A5.1), along with description of variables used in Figures and other Tables.

As it is standard in this literature we take lags of explanatory variables. In Post Keynesian theories of the firm, investment decisions are indeed modelled as a function of expected profits (Dallery, 2009; Lavoie, 2014). In a context of fundamental uncertainty as meant by Keynes (1937), where it is not possible to know future values of demand and profits, it is reasonable to think that previous experience serves as a basis for expectations. According to Davis (2017), this experience may be captured by past values of independent variables because all flow variables in year *t* are not necessarily realized when the decision of investment is taken, while the flows occurring during the year *t-1* are well-known and may explain the decision to invest.

Besides the importance of internal funds ($\frac{INTERNF}{K}$) and profits ($\frac{\pi}{K}$) as a source of capital spending, which should be positively correlated with investment[62] (Fazzari et al., (1988), our model also captures the dynamic nature of investment and its path-dependency (Kalecki, 1954): positive signs for past investment ($\frac{I_{t-1}}{K}$) reflect the dynamic process it involves. Sales ($\frac{S}{K}$), along with profits ($\frac{\pi}{K}$), are frequent variables in investment functions (Chirinko, 1993) and reflect the firm's growth opportunities. In a Keynesian perspective, sales represent the microeconomic demand for the firm's products. Sales may be also a proxy for the growth in the scale of production (Milberg & Winkler, 2013, p. 224) described in Section 2.2. For all these reasons, sales should be positively correlated with investment. Tobin's q (Q) is also a standard variable (Chirinko, 1993) and is a proxy for profit and investment expectations and as such should be positively correlated with investment.

As explained in Section 3, Chapter 2, interest income ($\frac{INTINC}{K}$) measures the extent by which real investment is displaced by financial investment and should be negatively correlated with investment. In this case, we follow the literature and still control for this variable in spite of our critique developed in Part 2 of this thesis. This is also an opportunity to econometrically asses that critique. Interest expenditures ($\frac{INTEXP}{K}$), dividends ($\frac{DIV}{K}$), and stock repurchases ($\frac{STKREP}{K}$)

[62] This might seem contradictory to our previous chapter where we found a negative relation between cash holdings and investment. The difference is that, there, we found a negative relation between contemporaneous investment and cash stocks while here the relation is between previous cash holdings and current investment.

align with the story of real investment being displaced by financial payments; we expect negative sign for all of them, as the literature usually finds. We expect a negative sign for long-term debt ($\frac{LONGDEBT}{K}$) as a consequence of the financial fragility of the firm, but we acknowledge that debt may have a positive effect as a source of funds for investment[63]. For net debt issue ($\frac{NETDEBTISSUE}{K}$), we expect a positive sign based on its role in financing real investment, highlighted by Kliman and Williams (2014). The same applies for stock issue ($\frac{STKISSUE}{K}$) as stressed by Hecht (2014).

To sum up, expected signs are:

$$\left(\frac{I}{K}\right)_{\frac{I_{t-1}}{K}} > 0, \left(\frac{I}{K}\right)_{\frac{\pi}{K}} > 0, \left(\frac{I}{K}\right)_{\frac{S}{K}} > 0, \left(\frac{I}{K}\right)_{Q} > 0, \left(\frac{I}{K}\right)_{\frac{LONGDEBT}{K}} \gtrless 0, \left(\frac{I}{K}\right)_{\frac{INTEXP}{K}} < 0, \left(\frac{I}{K}\right)_{\frac{INTINC}{K}} \gtrless 0,$$

$$\left(\frac{I}{K}\right)_{\frac{DIV}{K}} < 0, \left(\frac{I}{K}\right)_{\frac{STKISSUE}{K}} > 0, \left(\frac{I}{K}\right)_{\frac{STKREP}{K}} < 0, \left(\frac{I}{K}\right)_{\frac{NETDEBTISSUE}{K}} > 0, \left(\frac{I}{K}\right)_{\frac{INTERNF}{K}} > 0$$

The statistical specification will be the following:

$$\begin{aligned}\ln\left(\frac{I}{K}\right)_{it} = {} & \alpha_0 + \alpha_1 \ln\left(\frac{I}{K}\right)_{i,t-1} + \alpha_2 \ln\left(\frac{\pi}{K}\right)_{i,t-1} + \alpha_3 \ln\left(\frac{S}{K}\right)_{i,t-1} \\ & + \alpha_4 \ln(Q)_{i,t-1} + \alpha_5 \ln\left(\frac{LONGDEBT}{K}\right)_{i,t} + \alpha_6 \ln\left(\frac{INTEXP}{K}\right)_{i,t-1} \\ & + \alpha_7 \ln\left(\frac{INTINC}{K}\right)_{i,t-1} + \alpha_8 \ln\left(\frac{DIV}{K}\right)_{i,t-1} + \alpha_9 \ln\left(\frac{STKISSUE}{K}\right)_{i,t-1} \\ & + \alpha_{10} \ln\left(\frac{STKREP}{K}\right)_{i,t-1} + \alpha_{11} \ln\left(\frac{NETDEBTISSUE}{K}\right)_{i,t-1} \\ & + \alpha_{12} \ln\left(\frac{INTERNF}{K}\right)_{i,t-1} + \gamma_{it} + \sum_{t=1996}^{t=2011} \beta_t + \varepsilon_{it} \qquad (1)\end{aligned}$$

where *ln* is a logarithmic function used to account for potential non-linearities between explained and explanatory variables[64], $\alpha_0 \ldots \alpha_{12}$ are parameters, the *i* subscript denotes the firm and the *t* subscript denotes the time period. γ_{it} is the coefficient of the age of the corporation. β_t are coefficients of a set of time dummies, while ε_{it} represents nonobservable shocks. The regression variables are divided by capital stock to correct for heteroscedasticity and control for firm size. It is important to control for the age and the size of the corporation because small and recently listed firms usually don't pay dividends (Fama & French, 2001) and do investment thanks to the cash they raise on the stock exchange (Lazonick, 2009). We will estimate equation

[63] We use the contemporaneous value as it is done by Hecht (2014) and Schoder (2014) to take into account the current financial fragility of the firm.

[64] Our log transformation avoids censorship of firms with variables equal or inferior to zero (those with negative earnings or without stock issues or financial payouts for example): for any variable *var*, we compute ln(*var*) = -ln(*var* + 1) if *var*≤0, and ln(*var*) = ln(*var*+1) if *var*>0.

(1) for the complete sample and for the subsamples of large and small firms, taking into account the findings of Orhangazi (2008), Davis (2017) and Tori and Onaran (2018) who found larger effects of financialisation-related variables for the former.

b. The main hypothesis: the financialisation-offshoring nexus

Once we estimate this baseline model, we will concentrate on the specific novelty we are dealing with: an analysis of the simultaneous effects of financialisation and offshoring in investment functions using industry-level information from WIOD. In accordance with our framework (Section 2.b, Figure 5.3), we include two measures for offshoring: one for the narrow or core activities of the enterprise considered are those inputs from the same sector (*COREOFF*) and another for the non-core and non-energy activities calculated as those inputs from the other sectors excluding energy (*NONCORENONENERGYOFF*), as proposed by Feenstra and Hanson (1999). To limit the effects of domestic outsourcing as much as possible, we take the total output of each sector as the denominator (Geishecker, 2007).[65] The measures are the following:

$$COREOFF_j = \frac{II_j^F}{Y_j},$$

$$NONCORENONENERGYOFF_j = \frac{\sum_{k \neq j} II_k^F}{Y_j},$$

where II^F is foreign intermediary inputs, Y total output, and subscripts j and k denote two-digit ISIC (International Standard Industrial Classification) industry. Including offshoring gives the following equation:

$$\ln\left(\frac{I}{K}\right)_{ijt} = \alpha_0 + \cdots + \alpha_{13} \ln(COREOFF)_{j,t-1} + \alpha_{14} \ln(NONCORENONENERGYOFF)_{j,t-1} + \gamma_{it} + \sum_{t=1996}^{t=2011} \beta_t + \varepsilon_{it} \qquad (2)$$

Here, one point is worth mentioning on the significance and the sign of coefficients α_{13} and α_{14}. Our measures are not able to distinguish between the production offshored to affiliates and that to other enterprises like we did in Figure 5.3. A negative sign would be related to the substitution of the firm's own production through downsizing, while a positive sign would be linked to the potential increase in their domestic and foreign market share due to the increase in the scale of production. However, considering that a large proportion of the downsize

[65] It could also be used, in the denominator, industry's total inputs (Amiti & Wei, 2005) or industry value added (Hijzen, Görg, & Hine, 2005). However, as Geishecker (2007) notes, those two measures are less accurate than the one with total output in the denominator since they are both affected by domestic outsourcing. We will focus on this last measure in the next sections.

movement has been concentrated in non-core activities and the benefits associated with arm-length subcontracting (Milberg & Winkler, 2013), we should expect that *NONCORENONENERGYOFF* is negatively correlated with investment (α_{14}<0, see case number 2 in Section 2.b and Figure 5.3). Conversely, in the case of offshoring core activities, we acknowledge that firms may prefer to keep and refocus on their core competences (J. Lee & Gereffi, 2015). Therefore, if they offshore them, we make the assumption that it would be to a subsidiary (although our scheme recognizes with a dotted line, as it happens in reality, that it could be to a non-affiliated). Hence, *COREOFF* should be positively correlated with investment (α_{13}>0). In case of a positive sign, however, we would not be able to determine whether it is related to the transfer of production to a subsidiary or to a scale effect (see case number 1 in Section 2.b and Figure 5.3).

We now turn to our main proposition regarding the co-dependence of financialisation and offshoring. We know that the distribution of cash to the financial sector, and especially to shareholders through dividends and share buybacks, is partly at the expense of capital accumulation of U.S. NFCs.[66] This means that they distribute an increasing share of their earnings rather than retaining and investing them. Nevertheless, pursuing an intensive payout policy requires not only to reduce the share of investment but also to maintain profits. As we said in the introduction, one way to do so has been the involvement in GVCs.

Consequently, we hypothesize that the negative correlation between payouts and investment has been possible for firms belonging to industries highly involved in GVCs which decreased their need for own productive facilities through arm-length relations. This hypothesis will be true if financial payouts are significantly negatively correlated with investment in capital expenditures for the subsample of firms belonging to industry consuming the highest level of foreign non-core intermediary inputs, and if the correlation is non-significant for the subsample of firms belonging to industry with low offshoring. To implement the test related to this hypothesis, we split the sample according to the upper and lower year-median in *NONCORENONENERGYOFF* since offshoring in non-core activities is assumed to be the main source of decreasing investment and therefore the background of the downsize and distribute strategy (see Figure 5.4). Table 5.2 presents the distribution of offshoring according to the various industries in our sample.

[66] We will test again this assertion thanks to equations (1) and (2).

4. Data and estimation methodology

We took our data from the Standard and Poors' Compustat Annual Industrial Database and the updated WIOD for the United States. The latter is organized following the ISIC 3rd revision, which is not available in Standard and Poors, so we use the SIC codes of each firm. The correspondence between the two classifications was based on the concordance tables provided by the U.S. census bureau.

We use information from all active and inactive, publicly listed non-financial U.S. corporations,[67] excluding financial firms identified by the primary SIC codes from 6000 to 6799, firms without sectoral information, and firms whose exchange ticker is over the counter. We use annual data from 1995-2011, the period during which WIOD information is available.

Although Standard and Poors provides standardized information, we found that many firms have no information on several variables used in this chapter. Thus, apart from removing the enterprises mentioned in the last paragraph, we removed firms with no information for all years of capital expenditure, sales, net property plant and equipment, long-term debt, interest expenses, of cash and short-term securities, total assets, total liabilities, and equities. We also removed observations with no information on market capitalization at the end of the year, with duplicate observations, negative values for interest income, and positive values for interest expenses and dividends. Finally, to account for outliers, we winsorize observations at the upper and lower 0.5%.[68] The final sample includes on average 2,049 companies by year, representing 68% of the total U.S. market capitalization.[69] Tables 5.3 and 5.4 display the descriptive statistics and the correlation matrix for all the variables we are using. Descriptive statistics on offshoring and financial payout-to-investment ratios are also provided for each of the 31 sectors of our sample in Table 5.2.

[67] These companies are incorporated and have their headquarters in the United States and their primary listing in a U.S. stock market.

[68] Values of each variable are set either at the 0.5 or 99.5 percentile value when they are respectively lower or higher than these thresholds.

[69] This ratio compares the market capitalization of the U.S. non-financial corporations of our sample to the total market capitalization disclosed in the World Bank statistics, which also include financial corporations and foreign corporations with primary listing in the United States.

Table 5.3. Descriptive Statistics

Variable name & variable label		*Mean*	*Std. Dev.*	*Observations*
Capital expenditures	overall	0.242	0.229	N = 30,562
I/K	between		0.223	n = 4,674
	within		0.137	T-bar = 6.539
Profits	overall	-0.052	4.400	N = 30,562
π/K	between		6.460	n = 4,674
	within		2.355	T-bar = 6.539
Sales	overall	9.112	18.502	N = 30,562
S/K	between		19.519	n = 4,674
	within		8.125	T-bar = 6.539
Long Term Debt	overall	2.110	6.002	N = 30,562
LONGDEBT/K	between		7.047	n = 4,674
	within		3.138	T-bar = 6.539
Interest Expenditure	overall	0.253	1.191	N = 30,562
INTEXP/K	between		1.594	n = 4,674
	within		0.690	T-bar = 6.539
Interest and Investment Income	overall	0.041	0.167	N = 30,562
INTINC/K	between		0.190	n = 4,674
	within		0.098	T-bar = 6.539
Dividends	overall	0.036	0.101	N = 30,562
DIV/K	between		0.087	n = 4,674
	within		0.055	T-bar = 6.539
Stock Issue	overall	0.484	2.921	N = 30,562
STKISSUE/K	between		3.499	n = 4,674
	within		2.026	T-bar = 6.539
Stock Repurchase	overall	0.109	0.422	N = 30,562
STKREP/K	between		0.330	n = 4,674
	within		0.311	T-bar = 6.539
Net Debt Issue	overall	0.255	2.399	N = 30,562
NETDEBTISSUE/K	between		2.743	n = 4,674
	within		1.859	T-bar = 6.539
Internal Finance	overall	1.302	4.887	N = 30,562
INTERNF/K	between		5.698	n = 4,674
	within		2.645	T-bar = 6.539
Tobin's *q*	overall	1.927	2.572	N = 30,562
Q	between		3.317	n = 4,674
	within		1.424	T-bar = 6.539
Narrow or core offshoring	overall	0.024	0.028	N = 30,562
COREOFF	between		0.028	n = 4,674
	within		0.005	T-bar = 6.539
Non-core non-energy offshoring	overall	0.028	0.018	N = 30,562
NONCORENONENERGYOFF	between		0.017	n = 4,674
	within		0.005	T-bar = 6.539

Table 5.4. Correlation Matrix

Variable name	*Variable label*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Capital expenditures	$\ln(I/K)_{i,t-1}$	1.000												
2. Profits	$\ln(\pi/K)_{i,t-1}$	0.016	1.000											
3. Sales	$\ln(S/K)_{i,t-1}$	0.313	0.274	1.000										
4. Long Term Debt	$\ln(LONGDEBT/K)_{i,t}$	0.234	0.039	0.457	1.000									
5. Interest Expenditure	$\ln(INTEXP/K)_{i,t-1}$	0.217	-0.215	0.410	0.671	1.000								
6. Interest and Investment Income	$\ln(INTINC/K)_{i,t-1}$	0.238	-0.258	0.166	0.272	0.281	1.000							
7. Dividends	$\ln(DIV/K)_{i,t-1}$	-0.006	0.227	0.135	0.105	0.037	0.023	1.000						
8. Stock Issue	$\ln(STKISSUE/K)_{i,t-1}$	0.252	-0.374	0.167	0.212	0.354	0.379	-0.025	1.000					
9. Stock Repurchase	$\ln(STKREP/K)_{i,t-1}$	0.126	0.261	0.228	0.164	0.052	0.127	0.223	0.062	1.000				
10. Net Debt Issue	$\ln(NETDEBTISSUE/K)_{i,t-1}$	0.162	-0.144	0.011	0.240	0.156	0.071	0.004	0.086	0.093	1.000			
11. Internal Finance	$\ln(INTERNF/K)_{i,t-1}$	0.330	-0.164	0.387	0.376	0.345	0.673	0.060	0.502	0.197	0.081	1.000		
12. Tobin's *q*	$\ln(Q)_{i,t-1}$	0.132	-0.202	0.019	0.073	0.204	0.117	0.031	0.286	0.062	0.102	0.182	1.000	
13. Narrow or core offshoring	$\ln(COREOFF)_{j,t-1}$	0.038	-0.077	-0.005	-0.003	0.021	0.127	0.030	0.107	0.024	0.010	0.198	0.089	1.000
14. Non-core non-energy offshoring	$\ln(NONCORENONENERGYOFF)_{j,t-1}$	-0.085	0.051	-0.004	-0.017	-0.042	-0.049	0.071	-0.064	-0.016	-0.039	-0.024	-0.040	0.483

By considering a panel data with the lagged value of investment as an explanatory variable, we introduce two different sources of persistence over time: autocorrelation due to the lagged dependent variable among regressors and individual persistent effects (Baltagi, 2008, p. 135). A fixed effects estimator, although wiping out the individual effects, is unable to eliminate the correlation between the lagged variable and the error term. We follow the same methodology as in previous chapter. We will use the Arellano-Bond two-step difference GMM estimator, which is also the mostly used in the literature we summarised in Section 3.a in Chapter 2. Roodman (2009b) points out that this estimator is especially useful for situations with "small T, large N" panels, linear functional relationships, one left-hand variable that is dynamic, independent variables that are not strictly exogenous, fixed individual effects, and, finally, heteroscedasticity and autocorrelation within individuals but not across them.

Different tests are implemented. The Arellano-Bond test for autocorrelation is applied to the first-difference equation residuals in order to detect unobserved and perfectly autocorrelated instrumental variables. While an AR(1) is expected in first differences (ar1p in the tables), a higher-order autocorrelation (in our case, only second order: ar2p in the tables) shows that some lags of the dependent variables used as instruments are endogenous. We will also report a test for over-identifying restrictions: Hansen J statistic. This statistic is the minimized value of the two-step GMM criterion function and it is robust to heteroscedasticity or autocorrelation.

Finally, difference GMM can generate quite a great number of instruments, something that, although does not compromise consistency, can move it away from the asymptotic ideal. In fact, according to Roodman (2009a, p. 7), "[t]he absence of formal tests and accepted rules of thumb makes it important for researchers to test GMM results for robustness to reductions in the instrument set". Therefore, as robustness test, we both collapse the number of instruments and drop non-significant variables.

5. Estimation results

Table 5.5 presents the results of the estimation of equations (1) and (2) for all, as well as large and small firms defined as the upper and lower year-median in total assets, respectively. It also shows results of equation (2) for enterprises with high and low levels of offshoring (defined by the year-median of the sample).

Results from equation (1) are presented under the heading "Financialisation model" in Table 5.5. Regarding the financial payout channel, dividends have a negative and statistically significant elasticity of 0.05. Stock repurchases also present a negative elasticity but lower, 0.009, and non-significant. Considering that financial payouts (the sum of interest expense, dividends and stock

repurchases) have a negative elasticity of 0.036 in Orhangazi (2008) and that, in the case of Hecht (2014) dividends present a negative and significant elasticity of 0.02 and net stock issuance presents a positive but non-significant value of 0.012, our results are in line with the literature. As in the case of Orhangazi (2008), large firms also present a stronger correlation in our estimations: stock repurchases become statistically significant only for them with an elasticity of -0.016.

Regarding the financial income channel, we find positive but non-significant effects in all cases. Orhangazi and Hecht also found positive and non-significant effects for this variable. As we indicated in Section 3.a in Chapter 2, results for financial income tend to be less robust in the literature compared to financial payouts. This result also goes in line with our critique to the *financial turn of accumulation* hypothesis in Chapter 3. Moreover, we find a positive and statistically significant effect of *INTERNALF* at the 1% level. This result not only proves the importance of internal funds for investment decisions but may also explain why Davis (2017) obtains positive and statistically significant results for her measures of financial assets. Our variable *INTERNALF* is analogous to Davis' measure of 'cash and short-term investments'. Therefore, contrary to the crowding out thesis, some financial assets are in fact positively correlated with real accumulation.

In the case of control variables, all other variables but *LONGDEBT* and *INTEXP* are significant with the expected sign. Net debt issue, stock issue, tobin's *q*, sales, profits, and past investment are all positive and significant for the whole sample and for large and small firms.

Table 5.5 also shows results when *COREOFF* and *NONCORENONENERGYOFF* are introduced. In the case of the new variables, *NONCORENONENERGYOFF* has a negative and significant elasticity of 0.039 for all non-financial firms. For all non-financial firms, *COREOFF* has a positive sign as expected, with a significant elasticity of 0.026. We have to stress that we are only able to say that firms that belong to industries with high (low) non-core offshoring are firms that invest less (more) than the other ones. We are not able to disentangle if the positive effect of *COREOFF* is due to a tendency to offshore in foreign affiliates or to a scale effect that stimulates domestic investment. Similarly, we are not be able to determine whether the negative sign of *NONCORENONENERGYOFF* is related to a substitution effect or to a capital productivity effect, i.e., a reduced demand for capital for each unit of output produced. Nevertheless, our results are in line with the framework of Section 2.b and support the idea that firms in industry with a high level of offshoring in non-core activities can have a lower demand for capital since part of their production is probably outsourced. In all the cases, control variables from equation (1) maintain sign, significance, and similar values. Nevertheless dividends are no longer significant while stock repurchases are still negative and significant for the largest firms.

Finally, if we turn to the comparison between high and low non-core non-energy offshoring sectors, we find supporting evidence for our main hypothesis. Regarding the financial payout channel of financialisation, we find that dividends are significant for firms in high non-core non-energy offshoring sectors, both for the full sample and the subsamples of large and small firms in high non-core non-energy offshoring industries. Moreover, the negative elasticities, between -0.1 and -0.08, are higher than in the financialisation model: firms belonging to high non-core non-energy offshoring sectors have an elasticity for dividends which is 60% higher than when we make no distinction in terms of sectors in the financialisation model. Stock repurchases are also negative and significant for the full sample of firms in high non-core non-energy offshoring sectors, also with an elasticity that is around 60% higher than when we make no distinction in terms of sectors in the financialisation model (although it's not significant for the latter). The rate of accumulation would have been 8% higher without the rise in dividends for firms belonging to high offshoring sectors. All in all, this shows the relevant economic effect played by offshoring for the financialisation of NFCs. Combining a weak demand for capital and a strong supply of financial payouts has been possible for firms belonging to industries in which the offshoring of the non-core production provides opportunities to outsource productive facilities. On the other hand, for low non-core non-energy offshoring sectors neither dividends nor stock repurchases present a negative and statistically significant relation with investment.

As far as the financial income channel of financialisation is concerned, it is worth noting that interest income becomes statistically significant and positive for the whole sample of firms with a high level of offshoring in non-core non-energy sectors. Contrary to the thesis of the crowding out of real investment by financial investment, financial income is probably a source of funding for this subsample. Both in the empirical literature and in our results it seems that neither financial assets nor financial income can support the financial crowding out thesis.

Table 5.5. Estimation results based on equations (1) and (2). Period: 1995-2011.

Dependent variable:ln(I/K)i,t	Financialisation model			Financialisation and offshoring model			High non-core non-energy offshoring sectors			Low non-core non-energy offshoring sectors		
	All	Large	Small	All	Large	Small	All	Large	Small	All	Large	Small
ln(I/K)i,t-1	0.239***	0.318***	0.185***	0.240***	0.322***	0.180***	0.205***	0.165***	0.155***	0.242***	0.378***	0.157***
	(0.017)	(0.032)	(0.018)	(0.016)	(0.031)	(0.018)	(0.020)	(0.049)	(0.023)	(0.022)	(0.039)	(0.027)
ln(π/K)i,t-1	0.015**	0.036***	0.011	0.015**	0.036***	0.013*	0.019**	0.019	0.016	0.006	0.042***	0.000
	(0.007)	(0.012)	(0.007)	(0.007)	(0.011)	(0.007)	(0.009)	(0.013)	(0.010)	(0.009)	(0.013)	(0.008)
ln(S/K)i,t-1	0.031***	0.034*	0.033**	0.028**	0.036*	0.032**	0.039***	0.092***	0.024	0.034**	-0.011	0.057***
	(0.012)	(0.021)	(0.013)	(0.011)	(0.019)	(0.013)	(0.014)	(0.023)	(0.016)	(0.014)	(0.020)	(0.017)
ln(LONGDEBT/K)i,t	-0.010	-0.000	-0.007	-0.009	0.001	-0.006	0.009	0.034**	0.002	-0.010	-0.014	-0.013
	(0.008)	(0.014)	(0.010)	(0.008)	(0.013)	(0.010)	(0.010)	(0.017)	(0.012)	(0.011)	(0.013)	(0.012)
ln(Q)i,t-1	0.070***	0.065***	0.071***	0.070***	0.069***	0.070***	0.073***	0.066***	0.074***	0.056***	0.052***	0.046***
	(0.007)	(0.008)	(0.009)	(0.007)	(0.008)	(0.009)	(0.009)	(0.013)	(0.012)	(0.010)	(0.010)	(0.013)
ln(INTEXP/K)i,t-1	0.003	-0.033	0.011	0.005	-0.035	0.008	-0.005	-0.084*	0.005	0.003	0.007	-0.013
	(0.017)	(0.034)	(0.019)	(0.016)	(0.032)	(0.018)	(0.022)	(0.046)	(0.025)	(0.020)	(0.035)	(0.023)
ln(INTINC/K)i,t-1	0.006	0.040	0.030	0.008	0.020	0.035	0.090**	0.056	0.087	-0.075*	-0.027	-0.062
	(0.025)	(0.038)	(0.028)	(0.025)	(0.037)	(0.028)	(0.043)	(0.050)	(0.065)	(0.040)	(0.057)	(0.056)
ln(DIV/K)i,t-1	-0.050*	-0.056	-0.034	-0.045	-0.056	-0.034	-0.081**	-0.098**	-0.080*	0.004	-0.024	0.014
	(0.029)	(0.043)	(0.036)	(0.029)	(0.044)	(0.037)	(0.032)	(0.045)	(0.047)	(0.037)	(0.059)	(0.035)
ln(STKISSUE/K)i,t-1	0.020***	0.012**	0.020***	0.020***	0.012**	0.020***	0.027***	0.008	0.025***	0.009*	0.009	0.011*
	(0.004)	(0.006)	(0.004)	(0.004)	(0.006)	(0.004)	(0.005)	(0.010)	(0.006)	(0.005)	(0.005)	(0.006)
ln(STKREP/K)i,t-1	-0.009	-0.016**	-0.013	-0.009	-0.016**	-0.014	-0.015*	-0.010	-0.014	-0.002	-0.015	0.005
	(0.007)	(0.008)	(0.011)	(0.007)	(0.007)	(0.011)	(0.008)	(0.011)	(0.012)	(0.010)	(0.010)	(0.014)
ln(NETDEBT	0.007***	0.006**	0.006**	0.007***	0.007***	0.006**	0.003	0.008**	-0.001	0.009***	0.007*	0.008***
ISSUE/K)i,t-1	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)	(0.002)	(0.004)	(0.003)
ln(INTERNF/K)i,t-1	0.043***	0.031***	0.051***	0.046***	0.034***	0.053***	0.033***	0.027*	0.049***	0.054***	0.036***	0.057***
	(0.007)	(0.009)	(0.009)	(0.007)	(0.009)	(0.009)	(0.010)	(0.016)	(0.013)	(0.009)	(0.012)	(0.012)
ln(COREOFF)i,t-1				0.026**	0.012	0.009	0.023	0.026	0.033	0.010	0.004	0.011
				(0.013)	(0.010)	(0.022)	(0.014)	(0.017)	(0.023)	(0.011)	(0.008)	(0.022)
ln(NONCORE				-0.039**	-0.013	-0.019	-0.029	-0.026	-0.050	0.030**	0.016	0.055
NONENERGYOFF)i,t-1				(0.018)	(0.015)	(0.029)	(0.018)	(0.019)	(0.031)	(0.015)	(0.010)	(0.038)
N. obs	30562	15282	15280	30562	15282	15280	16299	7874	8425	14263	7408	6855
N. firms	4674	2119	3211	4674	2119	3211	2659	1204	1832	2687	1252	1743
Instruments	375	375	375	433	433	433	433	433	433	433	433	433
ar1p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ar2p	0.060	0.872	0.106	0.058	0.840	0.124	0.081	0.977	0.255	0.285	0.145	0.317
hansenp	0.001	0.010	0.027	0.000	0.000	0.040	0.000	0.002	0.009	0.013	0.024	0.300
Time effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Age	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Large and small are those firms in the upper and lower median of total asset. High and low offshoring sectors are those belonging upper and lower median of non-core non-energy offshoring. Estimations are all obtained by the Arellano-Bond two-step difference GMM. All instruments include up to two-years lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansep is the Hansen-Sargan test of overidentifying restrictions. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

6. Robustness check

Next, we address potential shortcomings of the above estimates, especially the persistence over time and the potential non-linearity between offshoring and financialisation. In the previous estimates, we had controlled for year fixed effects, and our log transformation of each variable may already account for potential non-linearities between explained and explanatory variables. Nevertheless, as suggested by the descriptive statistics in Section 2.b, we delve deeper into these issues. We also conduct other traditional robustness tests, as mentioned in Section 4.

We first split the sample into two sub-periods, 1995-2002 and 2003-2011, the last period corresponding to the phase with an increase in offshoring as shown by Figure 5.1. Results in Table 5.6 hold for both sub-periods although they seem to be stronger in the first period with negative and significant effects of dividends and stock repurchases, while only dividends are significant in 2003-2011. Our conclusion remains valid even if results weaken in the second period, probably because all industries have increased their financial payouts in the mid-2000s, and especially in the aftermath of the financial crisis as explained in Section 2.b.

We now address the issue of the non-linearity between offshoring and financialisation that can be perceived in Figure 5.4 and Table 5.2 (Section 2.b). Our main proposition relies on a test that splits the sample between firms belonging to high or low non-core non-energy offshoring industries. We examine the validity of our proposition when we split the sample in four quartiles. Table 5.7 shows that both the top 25% and the top 75%-50% in non-core non-energy offshoring sectors present a significant negative correlation between investment and either dividends or stock repurchases. For the bottom 50%-25%, dividends and stock repurchases are no longer significant. Nevertheless, the bottom 25% presents a negative and significant correlation between stock repurchases and investment for the sub-sample of large firms. As we explained in Section 2.b, this result is probably due to the utilities industry and to the wholesale and retail trade sectors. Table 5.7 also shows the results for the bottom 25% when we remove from the sample utilities and wholesale and retail trade sectors: neither stock repurchases nor dividends are significant[70]. Utilities have indeed a dividend and investment policy very specific, due to the regulation in this industry, and that is why standard studies in corporate finance usually exclude this sector, -e.g., Fama & French (2001) for the dividend policy and Asker, Farre-Mensa, & Ljungqvist (2014) for the accumulation slowdown. Regarding the wholesale and retail trade sectors it is important to stress again that they import mainly final products while our indicator *NONCORENONENERGYOFF* is a measure of the share of foreign input in total output, which therefore minimizes the involvement of wholesale and retail trade in offshoring. If results in Table 5.7 lead to moderate the scope of our statement, they don't undermine our main conclusion because large firms in wholesale and retail trade sectors have

[70] Stock repurchases remain significant if we remove only one of these sectors.

organised the so-called 'buyer-driven global commodity chains' in which they have both monopsony and monopoly power (Baud & Durand, 2012; Chesnais, 2016, ch. 4 and 6; Gereffi, 1994; Milberg & Winkler, 2013). They are therefore also highly involved in the offshoring of production but not the offshoring we are capturing with our indicator. As a result, these firms can have a lower demand for capital and a higher payout policy.

In the Appendix we present additional robustness checks. In Table A5.2 we reduce the number of instruments, in Table A5.3 we drop nonsignificant variables (*LONGDEBT, INTEXP* and *INTINC*), and we consider the upper and lower 25% in terms of size in Table A5.4, rather than the median. Through all estimations, the financialisation model (equation 1) and the financialisation and offshoring model (equation 2) provide six specifications to assess the robustness of our results for the whole sample (Tables 5.5, A5.2, and A5.3), and they provide eight specifications for the sample of large firms when adding Table A5.4. The negative effect of stock repurchases for large firms is a robust result because it is significant in eight cases out of eight. Nevertheless, the negative correlation of dividends for the whole sample is significant in four cases out of six and cannot be considered as robust. Regarding the offshoring-related variables in equation (2) for the whole sample (Tables 5.5, A5.2, and A3), *NONCORENONENERGYOFF* is significant in two cases out of three and *COREOFF* is significant in one case out of three. As we said in the introduction, the positive and negative elasticities of *COREOFF* and *NONCORENONENERGYOFF* in Table 5.5 are in line with the literature but those effects are not clear-cut through all specifications. However, results for the financialisation-offshoring nexus are robust.

Concerning the interaction between financialisation and offshoring, equation (2) is estimated five times in tables 5.5, 5.6 (for two periods), A5.2, and A5.3 for the whole sample of firms in high offshoring sectors and, with Table A5.4, six times for the sample of large firms in high offshoring sectors: for the whole sample, the negative elasticities of dividends are significant in five cases out of five, and stock repurchases are significant in four cases out of five (non-significant for the 2003-2011 period only). If we consider also the top two quartiles of offshoring in Table 5.7, elasticities of dividends are negative and significant in six cases out of seven, and elasticities of stock repurchases are negative and significant in five cases out of seven. But in each of the seven cases, either dividends or stock repurchases are significant. For large firms, however, results are less robust: stock repurchases and dividends are each significant in two cases out of six only (or 2/8 with Table 5.7). Overall, our results give evidence that financialisation on average does not occur for firms belonging to industries with low non-core non-energy offshoring while it compromises capital accumulation of firms belonging to the industries most involved in GVCs.

Table 5.6. Estimation results based on equation (2). Periods: 1995-2002 and 2003-2011.

	1995-2002						2003-2011					
Dependent variable:ln(I/K)i,t	High non-core non-energy offshoring sectors			Low non-core non-energy offshoring sectors			High non-core non-energy offshoring sectors			Low non-core non-energy offshoring sectors		
	All	Large	Small	All	Large	Small	All	Large	Small	All	Large	Small
ln(I/K)i,t-1	0.218***	0.143**	0.213***	0.223***	0.339***	0.101**	0.140***	0.151***	0.070*	0.244***	0.347***	0.158***
	(0.028)	(0.060)	(0.030)	(0.039)	(0.055)	(0.047)	(0.036)	(0.057)	(0.039)	(0.031)	(0.061)	(0.035)
ln(π/K)i,t-1	0.030**	0.031	0.018	0.003	0.072***	-0.014	0.001	0.022	0.003	0.002	0.002	0.001
	(0.012)	(0.022)	(0.014)	(0.018)	(0.018)	(0.016)	(0.014)	(0.017)	(0.016)	(0.012)	(0.016)	(0.011)
ln(S/K)i,t-1	-0.011	0.081*	-0.012	0.059**	-0.026	0.104***	0.087***	0.070***	0.056*	0.039*	0.044*	0.047*
	(0.019)	(0.042)	(0.023)	(0.029)	(0.035)	(0.033)	(0.026)	(0.025)	(0.034)	(0.021)	(0.027)	(0.024)
ln(LONGDEBT/K)i,t	-0.010	0.028	-0.010	-0.023	-0.041**	-0.022	0.030*	0.023	0.022	-0.004	0.003	-0.012
	(0.017)	(0.031)	(0.024)	(0.019)	(0.020)	(0.021)	(0.016)	(0.016)	(0.017)	(0.013)	(0.015)	(0.015)
ln(Q)i,t-1	0.110***	0.073***	0.126***	0.059***	0.047***	0.060***	0.047***	0.105***	0.034**	0.059***	0.051***	0.041**
	(0.014)	(0.019)	(0.019)	(0.013)	(0.015)	(0.018)	(0.013)	(0.020)	(0.016)	(0.017)	(0.016)	(0.021)
ln(INTEXP/K)i,t-1	0.012	-0.108	0.008	-0.045	0.021	-0.053	-0.019	0.007	0.007	0.021	0.016	0.016
	(0.028)	(0.091)	(0.034)	(0.049)	(0.066)	(0.050)	(0.032)	(0.042)	(0.038)	(0.025)	(0.040)	(0.028)
ln(INTINC/K)i,t-1	0.123*	0.102	0.098	-0.075	-0.115	0.052	0.116*	-0.075	0.153**	-0.081*	0.036	-0.104*
	(0.069)	(0.080)	(0.091)	(0.100)	(0.146)	(0.102)	(0.063)	(0.070)	(0.077)	(0.044)	(0.062)	(0.060)
ln(DIV/K)i,t-1	-0.081**	-0.068	-0.072	-0.002	-0.048	0.020	-0.091*	-0.081	-0.091	0.015	-0.013	0.014
	(0.041)	(0.059)	(0.061)	(0.059)	(0.129)	(0.056)	(0.053)	(0.055)	(0.086)	(0.052)	(0.061)	(0.050)
ln(STKISSUE/K)i,t-1	0.022***	-0.001	0.023***	0.009	-0.002	0.013	0.028***	0.006	0.024**	0.010*	0.013*	0.009
	(0.007)	(0.013)	(0.008)	(0.010)	(0.013)	(0.011)	(0.008)	(0.010)	(0.010)	(0.006)	(0.007)	(0.007)
ln(STKREP/K)i,t-1	-0.026*	-0.022	-0.035*	-0.013	-0.024	-0.013	-0.004	-0.003	0.002	-0.001	-0.014	0.009
	(0.015)	(0.018)	(0.019)	(0.021)	(0.018)	(0.030)	(0.010)	(0.009)	(0.017)	(0.012)	(0.012)	(0.017)
ln(NETDEBT	0.006	0.007	0.000	0.011**	0.007	0.008	-0.001	0.010***	-0.006	0.009***	0.006*	0.010***
ISSUE/K)i,t-1	(0.004)	(0.006)	(0.005)	(0.005)	(0.007)	(0.006)	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(0.004)
ln(INTERNF/K)i,t-1	0.067***	0.064**	0.073***	0.053***	0.046**	0.045***	0.022	-0.011	0.049***	0.043***	0.019	0.050***
	(0.015)	(0.028)	(0.019)	(0.015)	(0.022)	(0.017)	(0.014)	(0.013)	(0.019)	(0.013)	(0.015)	(0.017)
ln(COREOFF)i,t-1	0.113***	0.095*	0.106	-0.000	0.006	0.023	0.005	0.019	0.003	0.008	0.013	-0.052
	(0.044)	(0.052)	(0.074)	(0.022)	(0.024)	(0.036)	(0.015)	(0.015)	(0.025)	(0.016)	(0.009)	(0.040)
ln(NONCORE	-0.202**	-0.257***	-0.272*	-0.017	0.032*	-0.082	-0.013	-0.018	-0.026	0.047**	0.017	0.138**
NONENERGYOFF)i,t-1	(0.082)	(0.080)	(0.154)	(0.030)	(0.019)	(0.076)	(0.018)	(0.018)	(0.030)	(0.023)	(0.013)	(0.057)
N. obs	7404	3525	3879	6133	3244	2889	8895	4349	4546	8130	4164	3966
N. firms	2033	945	1247	1914	976	1095	1941	904	1253	1924	874	1202
Instruments	172	172	172	172	172	172	261	261	261	261	261	261
ar1p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ar2p	0.218	0.485	0.466	0.693	0.186	0.516	0.117	0.933	0.223	0.242	0.295	0.449
hansenp	0.063	0.037	0.113	0.003	0.030	0.127	0.002	0.017	0.045	0.021	0.001	0.095
Time effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Age	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Large and small are those firms in the upper and lower median of total asset. High and low offshoring sectors are those belonging upper and lower median of non-core non-energy offshoring. Estimations are all obtained by the Arellano-Bond two-step difference GMM. All instruments include up to two-years lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansep is the Hansen-Sargan test of overidentifying restrictions. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

Table 5.7. Estimation results based on equation (2), different quartiles of non-core non-energy offshoring. Period: 1995-2011.

Dependent variable:ln(I/K)i,t	Top 25% non-core non-energy offshoring sectors			75%-50% non-core non-energy offshoring sectors			50%-25% non-core non-energy offshoring sectors			Low 25% non-core non-energy offshoring sectors			Low 25% non-core non-energy offshoring sectors without retail, whosale trade and utilities		
	All	Large	Small	All	Large	Small	All	Large	Small	All	Large	Small	All	Large	Small
ln(I/K)i,t-1	0.172***	0.112	0.115***	0.148***	0.104**	0.093***	0.219***	0.258***	0.123***	0.161***	0.352***	0.049	0.143***	0.362***	0.024
	(0.030)	(0.072)	(0.031)	(0.026)	(0.050)	(0.033)	(0.031)	(0.037)	(0.040)	(0.035)	(0.076)	(0.037)	(0.044)	(0.101)	(0.043)
ln(π/K)i,t-1	0.026**	0.034***	0.025**	0.014	0.043***	0.003	-0.012	0.028*	-0.013	0.005	0.047***	0.003	0.008	0.041***	0.005
	(0.012)	(0.013)	(0.012)	(0.014)	(0.016)	(0.012)	(0.016)	(0.016)	(0.013)	(0.010)	(0.014)	(0.008)	(0.010)	(0.015)	(0.009)
ln(S/K)i,t-1	0.041**	0.070***	0.037*	0.028**	0.022	0.025*	0.049***	-0.009	0.058***	0.040*	-0.008	0.057**	0.033	-0.025	0.045*
	(0.018)	(0.026)	(0.020)	(0.013)	(0.024)	(0.015)	(0.016)	(0.019)	(0.017)	(0.023)	(0.030)	(0.026)	(0.023)	(0.034)	(0.024)
ln(LONGDEBT/K)i,t	0.009	0.049**	-0.003	0.010	-0.008	0.005	-0.002	-0.014	-0.002	0.011	-0.001	0.012	0.014	0.013	0.017
	(0.013)	(0.024)	(0.016)	(0.012)	(0.018)	(0.013)	(0.014)	(0.014)	(0.015)	(0.012)	(0.016)	(0.014)	(0.013)	(0.021)	(0.014)
ln(Q)i,t-1	0.069***	0.082***	0.049**	0.075***	0.060***	0.073***	0.061***	0.070***	0.043**	0.045***	0.040***	0.036**	0.044***	0.032**	0.037*
	(0.015)	(0.017)	(0.023)	(0.013)	(0.019)	(0.016)	(0.013)	(0.015)	(0.017)	(0.012)	(0.013)	(0.017)	(0.014)	(0.014)	(0.019)
ln(INTEXP/K)i,t-1	-0.029	-0.065	-0.019	0.023	-0.108**	0.015	-0.020	-0.045	-0.016	0.038	0.061	0.019	0.040	0.097**	0.013
	(0.024)	(0.054)	(0.027)	(0.029)	(0.051)	(0.030)	(0.027)	(0.043)	(0.029)	(0.024)	(0.045)	(0.025)	(0.027)	(0.044)	(0.025)
ln(INTINC/K)i,t-1	0.034	-0.042	0.137*	0.026	0.172***	-0.019	-0.087	-0.043	-0.049	-0.020	0.069	-0.040	-0.034	0.110	-0.084
	(0.050)	(0.077)	(0.073)	(0.036)	(0.065)	(0.062)	(0.072)	(0.042)	(0.078)	(0.057)	(0.085)	(0.071)	(0.070)	(0.106)	(0.081)
ln(DIV/K)i,t-1	-0.060	-0.087	0.016	-0.117**	0.023	-0.131**	0.008	0.012	0.023	0.005	-0.000	0.013	0.059	0.139	0.047
	(0.045)	(0.057)	(0.053)	(0.054)	(0.046)	(0.063)	(0.049)	(0.092)	(0.066)	(0.048)	(0.120)	(0.051)	(0.058)	(0.124)	(0.055)
ln(STKISSUE/K)i,t-1	0.032***	0.002	0.027***	0.023***	0.008	0.026***	0.015**	0.009	0.019***	0.009	0.018**	0.001	0.005	0.029**	-0.007
	(0.008)	(0.018)	(0.008)	(0.006)	(0.012)	(0.007)	(0.007)	(0.010)	(0.007)	(0.006)	(0.009)	(0.008)	(0.007)	(0.012)	(0.009)
ln(STKREP/K)i,t-1	-0.021*	-0.009	-0.013	-0.018	-0.011	-0.020	0.022	0.014	0.032	-0.000	-0.028**	0.002	-0.009	-0.025	0.000
	(0.012)	(0.017)	(0.017)	(0.014)	(0.016)	(0.023)	(0.014)	(0.013)	(0.023)	(0.012)	(0.012)	(0.019)	(0.015)	(0.015)	(0.021)
ln(NETDEBT	0.004	0.008	-0.000	0.002	0.009*	-0.003	0.003	-0.001	0.004	0.015***	0.016***	0.013***	0.013***	0.016**	0.011**
ISSUE/K)i,t-1	(0.003)	(0.006)	(0.004)	(0.004)	(0.005)	(0.006)	(0.003)	(0.005)	(0.004)	(0.003)	(0.006)	(0.004)	(0.004)	(0.007)	(0.005)
ln(INTERNF/K)i,t-1	0.025**	0.025	0.036**	0.057***	0.035**	0.061***	0.050***	0.056***	0.055***	0.049***	0.008	0.073***	0.059***	0.017	0.090***
	(0.011)	(0.019)	(0.015)	(0.015)	(0.017)	(0.016)	(0.013)	(0.019)	(0.016)	(0.012)	(0.015)	(0.016)	(0.015)	(0.016)	(0.018)
ln(COREOFF)i,t-1	-0.019	0.003	-0.011	0.002	0.007	-0.007	0.000	0.010	-0.029	-0.007	0.004	-0.024	-0.007	0.016	-0.044
	(0.015)	(0.021)	(0.024)	(0.011)	(0.013)	(0.023)	(0.011)	(0.008)	(0.022)	(0.010)	(0.010)	(0.018)	(0.018)	(0.018)	(0.031)
ln(NONCORE	-0.007	-0.023	-0.008	-0.022	-0.038*	-0.022	0.028**	0.015	0.098***	0.025*	0.017	0.059**	0.017	-0.009	0.046
NONENERGYOFF)i,t-1	(0.022)	(0.023)	(0.034)	(0.022)	(0.020)	(0.037)	(0.013)	(0.014)	(0.035)	(0.015)	(0.020)	(0.030)	(0.032)	(0.039)	(0.058)
N. obs	9781	4813	4968	6518	3061	3457	8140	4293	3847	6123	3115	3008	3585	1370	2215
N. firms	1731	797	1149	1683	753	1130	1845	931	1099	1377	627	891	785	264	614
Instruments	433	433	433	432	431	432	433	433	433	432	432	432	429	428	429
ar1p	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
ar2p	0.475	0.807	0.824	0.234	0.440	0.288	0.616	0.006	0.549	0.443	0.988	0.735	0.689	0.967	0.921
hansenp	0.008	0.020	0.180	0.002	0.047	0.054	0.002	0.024	0.077	0.122	0.062	0.173	0.252	1.000	0.312
Time effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Age	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Large and small are those firms in the upper and lower median of total asset. High and low offshoring sectors are those belonging upper and lower median of non-core non-energy offshoring. Estimations are all obtained by the Arellano-Bond two-step difference GMM. All instruments include up to two-years lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansep is the Hansen-Sargan test of overidentifying restrictions. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

7. Conclusion

One of the ways in which financialisation affects NFCs is by displacing investment with different financial payments such as interest expenditures, dividends, and share buybacks. However, the literature on financialisation has not profoundly analysed how such a situation could be sustained over 30 years. In this chapter we explored the financialisation-offshoring nexus as a possible answer and found promising results.

Starting from a baseline model derived from Orhangazi (2008) and Hecht (2014), in this chapter we conducted an econometric regression to show the consequences of both financialisation and offshoring on U.S. NFCs' investment between 1995 and 2011. We built two offshoring variables, one for core and other for non-core non-energy activities, based on industry-level information that show the effect of transferring production outside the United States. We estimated equations for the entire sample and for subsamples of large and small firms belonging to high and low non-core non-energy offshoring sectors. In line with previous literature, financialisation is especially apparent amongst the largest firms. Offshoring in non-core non-energy activities tends to have a negative effect on investment for all firms. This result supports the idea that enterprises are likely to subcontract to other foreign firms' non-core activities.

The interaction between the financialisation of NFCs and offshoring was studied by splitting the sample between high and low non-core non-energy offshoring sectors considering that arm-length relations tend to be focused in these types of activities. Our results confirm the nexus as the financial payouts variables were significant for firms belonging to industries with the highest level of offshoring only. For corporations that distribute financial payouts at the expense of their capital accumulation, the real source of the cash distributed to shareholders should be found in GVCs. By doing this, we have confirmed one answer to the *supply-side* face of the profit-investment puzzle. The offshoring of production makes it sustainable as it allows to increase the amount of profits with a given stock of capital by increasing production and decreasing costs.

Although our econometric analysis ends in 2011, the patterns described in this chapter in terms of payouts, investment, and offshoring have remained until these days. Even intangible intensive firms, like Apple, have engaged in important stock buybacks.[71] This seems to run counter to those who claim that the platform economy is characterized by patient capital. In order to explain this paradox, in the next chapter we address the role played by intangibles, and the different features associated with these assets which complement the offshoring dynamic.

[71] See Lazonick (2015), and *Financial Times*, May 1, 2018. https://www.ft.com/content/c0555be2-4d79-11e8-8a8e-22951a2d8493.

Appendix of Chapter 5

Table A5.1. Definitions of variables in figures and estimations

Variable	Source
Figure 5.1, Figure 5.4, Table 5.2	
Net Financial Payouts - U.S. Economy = Dividends Paid - Equity and Investment Fund Shares	Financial Accounts of the USA, Table Z.1
Investment - U.S. Economy = Gross Fixed Capital Formation	Financial Accounts of the USA, Table Z.1
Net Financial Payouts - U.S. Listed Firms = Stock Repurchases + Dividends Paid - Share Buybacks	Compustat Data Items 115, 127 and 108
Investment - U.S. Listed Firms = Capital Expenditures	Compustat Data Item 128
Offshoring = ΣIntermediate Imported Inputs/Output (average of industries)	World Input-Output Database
Figure 5.2	
U.S. Outward FDI stock	OECD
U.S. Outward FDI flow	Financial Accounts of the USA, Table Z.1
Estimations	
Capital Expenditures	Compustat Data Item 128
Net Property, Plant and Equipment	Compustat Data Item 8
Operating Income	Compustat Data Item 13
Sales	Compustat Data Item 12
Tobin's Q	Compustat Data Items 6, 34, 142
Long Debt	Compustat Data Item 142
Interest Expense	Compustat Data Item 15
Interest and Investment Income	Compustat Data Items 62, 55
Cash Dividends	Compustat Data Item 127
Sale of Common and Preferred Stock	Compustat Data Item 108
Purchase of Common and Preferred Stock	Compustat Data Item 115
Net Debt Issue	Compustat Data Items 111, 114, 301
Internal Finance	Compustat Data Item 1

Table A5.2. Estimation results based on equations (1) and (2), instruments collapsed. Period: 1995-2011.

Dependent variable:ln(I/K)i,t	Financialisation model			Financialisation and offshoring model			High non-core non-energy offshoring sectors			Low non-core non-energy offshoring sectors		
	All	Large	Small	All	Large	Small	All	Large	Small	All	Large	Small
ln(I/K)i,t-1	0.274***	0.386***	0.219***	0.270***	0.389***	0.219***	0.230***	0.254***	0.200***	0.301***	0.507***	0.221***
	(0.018)	(0.041)	(0.020)	(0.018)	(0.041)	(0.020)	(0.026)	(0.062)	(0.026)	(0.029)	(0.057)	(0.033)
ln(π/K)i,t-1	0.012	0.045***	0.005	0.014*	0.053***	0.007	0.022*	0.036*	0.017	0.009	0.067***	0.002
	(0.008)	(0.014)	(0.008)	(0.008)	(0.014)	(0.008)	(0.012)	(0.020)	(0.013)	(0.011)	(0.022)	(0.011)
ln(S/K)i,t-1	0.018	-0.031	0.027*	0.013	-0.044	0.025	0.035	-0.019	0.034	-0.017	-0.129***	0.008
	(0.014)	(0.031)	(0.016)	(0.014)	(0.030)	(0.017)	(0.023)	(0.048)	(0.027)	(0.023)	(0.041)	(0.028)
ln(LONGDEBT/K)i,t	-0.007	0.004	-0.015	-0.009	-0.010	-0.012	0.012	-0.047	0.025	-0.032**	-0.038*	-0.043**
	(0.012)	(0.024)	(0.015)	(0.012)	(0.023)	(0.015)	(0.019)	(0.039)	(0.021)	(0.015)	(0.022)	(0.020)
ln(Q)i,t-1	0.062***	0.073***	0.057***	0.062***	0.075***	0.058***	0.051***	0.068***	0.049***	0.072***	0.080***	0.064***
	(0.010)	(0.011)	(0.013)	(0.010)	(0.011)	(0.013)	(0.014)	(0.017)	(0.019)	(0.015)	(0.014)	(0.020)
ln(INTEXP/K)i,t-1	-0.001	0.011	-0.007	0.001	0.006	-0.003	-0.007	-0.033	0.010	0.032	0.123**	0.004
	(0.020)	(0.040)	(0.023)	(0.021)	(0.041)	(0.023)	(0.027)	(0.054)	(0.030)	(0.034)	(0.048)	(0.039)
ln(INTINC/K)i,t-1	0.008	0.090*	0.002	0.012	0.113**	-0.003	0.081	0.204***	0.075	-0.028	0.073	-0.016
	(0.040)	(0.053)	(0.050)	(0.040)	(0.053)	(0.050)	(0.050)	(0.074)	(0.062)	(0.073)	(0.092)	(0.084)
ln(DIV/K)i,t-1	-0.076**	-0.108**	-0.052	-0.072**	-0.090*	-0.048	-0.077*	-0.089	0.002	-0.061	0.012	-0.045
	(0.034)	(0.052)	(0.043)	(0.034)	(0.053)	(0.043)	(0.043)	(0.057)	(0.067)	(0.055)	(0.104)	(0.060)
ln(STKISSUE/K)i,t-1	0.021***	0.018***	0.020***	0.022***	0.018***	0.020***	0.030***	0.027***	0.029***	0.014**	0.006	0.012
	(0.004)	(0.007)	(0.005)	(0.004)	(0.007)	(0.005)	(0.006)	(0.010)	(0.007)	(0.006)	(0.009)	(0.007)
ln(STKREP/K)i,t-1	-0.015**	-0.020*	-0.012	-0.014*	-0.024**	-0.011	-0.024**	-0.038***	-0.028*	-0.006	-0.009	0.003
	(0.008)	(0.010)	(0.012)	(0.008)	(0.010)	(0.012)	(0.009)	(0.014)	(0.015)	(0.011)	(0.014)	(0.017)
ln(NETDEBT	0.006**	0.006*	0.005*	0.006***	0.008***	0.006*	0.002	0.008*	-0.001	0.010***	0.008*	0.011***
ISSUE/K)i,t-1	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
ln(INTERNF/K)i,t-1	0.050***	0.017	0.062***	0.046***	0.011	0.060***	0.034***	-0.001	0.052***	0.051***	0.033*	0.060***
	(0.009)	(0.012)	(0.011)	(0.009)	(0.012)	(0.012)	(0.012)	(0.018)	(0.015)	(0.013)	(0.017)	(0.016)
ln(COREOFF)i,t-1				0.036	-0.031	0.059	0.044	0.347	0.118	0.078	-0.023	0.103
				(0.049)	(0.049)	(0.090)	(0.182)	(0.248)	(0.230)	(0.057)	(0.056)	(0.099)
ln(NONCORE				0.061	0.054	0.056	0.025	-0.207	-0.061	0.140***	0.087**	0.266***
NONENERGYOFF)i,t-1				(0.083)	(0.072)	(0.172)	(0.100)	(0.171)	(0.125)	(0.044)	(0.037)	(0.098)
N. obs	30562	15282	15280	30562	15282	15280	16299	7874	8425	14263	7408	6855
N. firms	4674	2119	3211	4674	2119	3211	2659	1204	1832	2687	1252	1743
Instruments	39	39	39	43	43	43	43	43	43	43	43	43
ar1p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ar2p	0.021	0.802	0.052	0.020	0.889	0.041	0.044	0.913	0.117	0.117	0.076	0.113
hansenp	0.035	0.281	0.117	0.020	0.089	0.107	0.161	0.070	0.263	0.043	0.375	0.245
Time effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Age	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Large and small are those firms in the upper and lower median of total asset. High and low offshoring sectors are those belonging upper and lower median of non-core non-energy offshoring. Estimations are all obtained by the Arellano-Bond two-step difference GMM. All instruments include up to two-years lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansep is the Hansen-Sargan test of overidentifying restrictions. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

Table A5.3. Estimation results based on equations (1) and (2), without nonsignificant variables. Period: 1995-2011.

Dependent variable:ln(I/K)i,t	Financialisation model			Financialisation and offshoring model			High non-core non-energy offshoring sectors			Low non-core non-energy offshoring sectors		
	All	Large	Small	All	Large	Small	All	Large	Small	All	Large	Small
ln(I/K)i,t-1	0.246***	0.324***	0.192***	0.246***	0.329***	0.187***	0.216***	0.203***	0.164***	0.250***	0.379***	0.184***
	(0.016)	(0.030)	(0.017)	(0.016)	(0.028)	(0.017)	(0.020)	(0.043)	(0.023)	(0.022)	(0.036)	(0.025)
ln(π/K)i,t-1	0.017**	0.053***	0.009	0.017**	0.050***	0.011	0.026***	0.035**	0.019*	0.011	0.052***	0.007
	(0.007)	(0.012)	(0.007)	(0.007)	(0.012)	(0.007)	(0.010)	(0.017)	(0.011)	(0.010)	(0.013)	(0.009)
ln(S/K)i,t-1	0.026**	0.004	0.032***	0.023**	0.009	0.029**	0.038***	0.052*	0.023*	0.015	-0.009	0.030**
	(0.011)	(0.019)	(0.012)	(0.011)	(0.017)	(0.012)	(0.013)	(0.028)	(0.013)	(0.014)	(0.018)	(0.014)
ln(LONGDEBT/K)i,t												
ln(Q)i,t-1	0.069***	0.066***	0.071***	0.069***	0.069***	0.070***	0.070***	0.068***	0.081***	0.063***	0.058***	0.058***
	(0.007)	(0.008)	(0.009)	(0.007)	(0.009)	(0.009)	(0.009)	(0.013)	(0.013)	(0.010)	(0.011)	(0.012)
ln(INTEXP/K)i,t-1												
ln(INTINC/K)i,t-1												
ln(DIV/K)i,t-1	-0.051*	-0.039	-0.033	-0.044	-0.041	-0.031	-0.072**	-0.087**	-0.057	-0.011	-0.017	-0.009
	(0.031)	(0.039)	(0.037)	(0.030)	(0.040)	(0.038)	(0.032)	(0.041)	(0.048)	(0.039)	(0.069)	(0.035)
ln(STKISSUE/K)i,t-1	0.018***	0.010*	0.020***	0.018***	0.009*	0.020***	0.024***	0.011	0.023***	0.007	0.006	0.008
	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.012)	(0.006)	(0.005)	(0.006)	(0.006)
ln(STKREP/K)i,t-1	-0.008	-0.013**	-0.015	-0.008	-0.014**	-0.015	-0.014*	-0.015	-0.012	-0.004	-0.012	-0.004
	(0.007)	(0.007)	(0.010)	(0.007)	(0.006)	(0.010)	(0.008)	(0.010)	(0.013)	(0.010)	(0.009)	(0.015)
ln(NETDEBT	0.004*	0.007***	0.003	0.004**	0.007**	0.003	0.001	0.012***	-0.003	0.007***	0.005*	0.007**
ISSUE/K)i,t-1	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
ln(INTERNF/K)i,t-1	0.047***	0.030***	0.054***	0.051***	0.032***	0.055***	0.039***	0.018	0.059***	0.055***	0.032**	0.056***
	(0.008)	(0.010)	(0.010)	(0.008)	(0.010)	(0.010)	(0.012)	(0.015)	(0.015)	(0.010)	(0.013)	(0.012)
ln(COREOFF)i,t-1				0.021	0.015	0.012	0.021	0.030*	0.030	0.007	0.012	0.016
				(0.013)	(0.011)	(0.022)	(0.015)	(0.016)	(0.023)	(0.011)	(0.008)	(0.022)
ln(NONCORE				-0.046**	-0.012	-0.020	-0.020	-0.024	-0.047	0.052***	0.011	0.072*
NONENERGYOFF)i,t-1				(0.019)	(0.017)	(0.029)	(0.017)	(0.019)	(0.029)	(0.017)	(0.010)	(0.039)
N. obs	30562	15282	15280	30562	15282	15280	16299	7874	8425	14263	7408	6855
N. firms	4674	2119	3211	4674	2119	3211	2659	1204	1832	2687	1252	1743
Instruments	285	285	285	343	343	343	343	343	343	343	343	343
ar1p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ar2p	0.055	0.984	0.103	0.057	0.917	0.117	0.059	0.747	0.192	0.255	0.153	0.185
hansenp	0.001	0.033	0.057	0.000	0.001	0.108	0.003	0.001	0.007	0.022	0.028	0.537
Time effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Age	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Large and small are those firms in the upper and lower median of total asset. High and low offshoring sectors are those belonging upper and lower median of non-core non-energy offshoring. Estimations are all obtained by the Arellano-Bond two-step difference GMM. All instruments include up to two-years lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansep is the Hansen-Sargan test of overidentifying restrictions. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

Table A5.4. Estimation results based on equations (1) and (2), different sizes. Period: 1995-2011.

Dependent variable:ln(I/K)i,t	Financialisation model			Financialisation and offshoring model			High non-core non-energy offshoring sectors			Low non-core non-energy offshoring sectors		
	All	Large	Small	All	Large	Small	All	Large	Small	All	Large	Small
ln(I/K)i,t-1	0.239***	0.355***	0.134***	0.240***	0.346***	0.119***	0.205***	0.177***	0.074**	0.242***	0.376***	0.051
	(0.017)	(0.049)	(0.022)	(0.016)	(0.047)	(0.022)	(0.020)	(0.065)	(0.029)	(0.022)	(0.061)	(0.036)
ln(π/K)i,t-1	0.015**	0.020	0.008	0.015**	0.016	0.008	0.019**	0.054***	0.006	0.006	0.003	0.000
	(0.007)	(0.013)	(0.008)	(0.007)	(0.012)	(0.008)	(0.009)	(0.018)	(0.011)	(0.009)	(0.014)	(0.008)
ln(S/K)i,t-1	0.031***	0.004	0.036**	0.028**	0.009	0.043***	0.039***	-0.000	0.018	0.034**	0.000	0.073***
	(0.012)	(0.023)	(0.016)	(0.011)	(0.020)	(0.015)	(0.014)	(0.023)	(0.014)	(0.014)	(0.026)	(0.019)
ln(LONGDEBT/K)i,t-1	-0.010	0.012	0.015	-0.009	0.015	0.011	0.009	0.047*	0.004	-0.010	-0.008	0.009
	(0.008)	(0.019)	(0.013)	(0.008)	(0.019)	(0.013)	(0.010)	(0.028)	(0.014)	(0.011)	(0.021)	(0.016)
ln(Q)i,t-1	0.070***	0.053***	0.064***	0.070***	0.057***	0.062***	0.073***	0.061***	0.069***	0.056***	0.045***	0.046***
	(0.007)	(0.009)	(0.012)	(0.007)	(0.009)	(0.012)	(0.009)	(0.015)	(0.017)	(0.010)	(0.012)	(0.016)
ln(INTEXP/K)i,t-1	0.003	-0.128***	0.016	0.005	-0.136***	0.008	-0.005	-0.124**	0.023	0.003	-0.050	-0.007
	(0.017)	(0.048)	(0.021)	(0.016)	(0.046)	(0.019)	(0.022)	(0.053)	(0.022)	(0.020)	(0.070)	(0.025)
ln(INTINC/K)i,t-1	0.006	-0.045	0.021	0.008	-0.059	0.023	0.090**	0.048	0.072	-0.075*	-0.068	-0.073
	(0.025)	(0.076)	(0.031)	(0.025)	(0.075)	(0.029)	(0.043)	(0.084)	(0.058)	(0.040)	(0.075)	(0.052)
ln(DIV/K)i,t-1	-0.050*	-0.082	-0.007	-0.045	-0.074	-0.012	-0.081**	-0.064	-0.044	0.004	-0.142	0.017
	(0.029)	(0.099)	(0.045)	(0.029)	(0.100)	(0.046)	(0.032)	(0.062)	(0.058)	(0.037)	(0.124)	(0.065)
ln(STKISSUE/K)i,t-1	0.020***	0.010	0.018***	0.020***	0.009	0.017***	0.027***	0.011	0.029***	0.009*	0.008	0.012
	(0.004)	(0.013)	(0.006)	(0.004)	(0.012)	(0.006)	(0.005)	(0.014)	(0.008)	(0.005)	(0.015)	(0.009)
ln(STKREP/K)i,t-1	-0.009	-0.021*	-0.011	-0.009	-0.023**	-0.013	-0.015*	-0.030*	-0.014	-0.002	-0.017	-0.005
	(0.007)	(0.011)	(0.016)	(0.007)	(0.011)	(0.016)	(0.008)	(0.018)	(0.022)	(0.010)	(0.014)	(0.024)
ln(NETDEBT	0.007***	0.013***	0.001	0.007***	0.013***	0.001	0.003	0.015**	-0.002	0.009***	0.018**	0.005
ISSUE/K)i,t-1	(0.002)	(0.005)	(0.004)	(0.002)	(0.005)	(0.003)	(0.003)	(0.007)	(0.005)	(0.002)	(0.007)	(0.004)
ln(INTERNF/K)i,t-1	0.043***	0.039***	0.069***	0.046***	0.040***	0.068***	0.033***	0.025	0.064***	0.054***	0.043**	0.066***
	(0.007)	(0.012)	(0.012)	(0.007)	(0.011)	(0.012)	(0.010)	(0.020)	(0.015)	(0.009)	(0.017)	(0.016)
ln(COREOFF)i,t-1				0.026**	0.013	0.011	0.023	0.061*	0.044	0.010	0.023***	-0.038
				(0.013)	(0.012)	(0.033)	(0.014)	(0.035)	(0.037)	(0.011)	(0.009)	(0.037)
ln(NONCORE				-0.039**	0.014	-0.059	-0.029	-0.037	0.002	0.030**	0.019*	0.095
NONENERGYOFF)i,t-1				(0.018)	(0.012)	(0.045)	(0.018)	(0.028)	(0.045)	(0.015)	(0.011)	(0.079)
N. obs	30562	7643	7640	30562	7643	7640	16299	3783	4284	14263	3860	3356
N. firms	4674	1019	1910	4674	1019	1910	2659	586	1090	2687	616	1006
Instruments	375	375	375	433	433	433	433	433	433	433	433	433
ar1p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
ar2p	0.060	0.893	0.258	0.058	0.877	0.332	0.081	0.657	0.572	0.285	0.323	0.699
hansenp	0.001	0.027	0.441	0.000	0.037	0.591	0.000	0.073	0.198	0.013	0.239	0.517
Time effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Age	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Large and small are those firms in the upper and lower 25% of total asset. High and low offshoring sectors are those belonging upper and lower median of non-core non-energy offshoring. Estimations are all obtained by the Arellano-Bond two-step difference GMM. All instruments include up to two-years lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansep is the Hansen-Sargan test of overidentifying restrictions. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

Chapter 6: Explaining the investment slowdown. An empirical analysis of the joint effects of financialisation, offshoring and intangibles in advanced economies

1. Introduction

In the previous chapter we examined the financialisation-offshoring nexus as a possible explanation for the profit-investment puzzle and found strong and promising results. The negative relation between payouts and capital expenditures is stronger in those sectors who are more involved in global value chains. In this section we will focus on a complementary explanation: the role played by intangible assets.

After all, the changing nature of investment may explain the weakening of the profit-investment link, intangible investment being the omitted variable in the puzzle. On the other hand, in Chapter 2, we already explained in a Post-Keynesian framework that the profit-investment puzzle can be solved by an increase of profit per unit of investment, and we also stressed the role of monopoly capitalism to explain the rise of surplus in the Marxian framework. Intangibles may be at the origin of these increases, due to the specificity of intangible assets and/or by raising market power. Overall, at the firm level, an increase in intangible investment should be associated with a decrease in capital expenditures, either in a substitution effect (changing the business model), or by rising market power (thus diminishing the need of tangible capital expenditures for a given level of profit), or a combination of both.

The main question of this chapter is therefore related to the differences in terms of investment dynamics in tangible and intangible assets and their consequences for the profit-investment puzzle. Does financialisation[72] exist for each kind of investment? Or is intangible investment the missing piece of the puzzle? In other words, do firms compensate the decrease in capital expenditures by an increase in intangible investment? In this case, is it only a substitution effect or do monopoly tendency/market power/rent-seeking activities explain the accumulation of intangible assets? To answer to these questions, we will rely on the results obtained in the previous chapter. As we will detail in the literature review, the growth in intangible assets can be understood as an interrelated process to that of offshoring in the sense of specialization and substitution of tasks and activities performed by firms (the substitution effect). But also, due to the specificities of these assets (return to scale, data centralization, intellectual property), they allow growing monopolistic or monopsonistic

[72] Understood in the sense given in Chapter 3, that is, as investment being displaced by payouts.

positions in global value chains. Firms' intangible intensity makes it possible to capture more value along these chains. It is therefore important to consider the respective role of both GVC participation and intangible assets to understand the dynamic in tangible and intangible investment in advanced economies.

To put it in a nutshell, the contribution of this chapter is to consider one additional explained variable (the intangible investment) and other explanatory variables (intangible intensity, market power) that could shed light on the profit-investment puzzle we brought to the fore. The chapter is organized as follows. Section 2 reviews the literature on the specificities of intangible assets and their relations with tangible assets. Section 3 introduces our hypothesis. Section 4 discusses data and indicators. Section 5, our descriptive statistics. Sections 6 and 7 present model specification, methodology and econometric results respectively. Section 8 concludes.

2. Literature review

In this section we will first explain how intangible investment is defined and measured. We will then show that the fundamental difference between tangible and intangible investment is the rent-seeking characteristic of the latter, which is highlighted by both the mainstream and heterodox literature. Moreover, intangible investment is usually associated with financial and tax motives in the heterodox literature and to miscellaneous variables in corporate finance, when it is not simply conflated with real investment in Tobin's *q* models. The connection between offshoring and intangible investment is also highlighted by the literature, in the form of a substitution effect (specialization) or by considering the monopoly power associated with intangible investment. We conclude that the financialisation literature on intangible investment is relatively scarce.

a. Definition and measurement

The growing importance of intangible assets identified in Chapter 3 had an early effect in the economic literature, especially in terms of definition and measurement. In their seminal work on intangibles assets, Corrado, Hulten and Sichel (2005) grouped the different items into three categories. 'Computerized information' reflects knowledge embedded in computer programs and computerized databases, especially the purchase and development of software. 'Scientific and creative property' reflects knowledge acquired through scientific R&D and nonscientific inventive and creative activities, that is, both the scientific knowledge embedded in patents, licenses and non-patented know-how and also the innovative and artistic content in commercial copyrights, licenses and designs. 'Economic competences' reflects the knowledge embedded in firm-specific human and structural resources, including marketing and branding, organizational capital and training.

One particular difficulty with these assets is the way in which they have been traditionally treated under accounting rules:

> Internally generated intangibles—through R&D (patents and trademarks), marketing (brands, customer relations), development (business processes), or training (human resources)—are treated like regular expenses (charged immediately to income), whereas the same intangibles, if acquired, either directly, like patents or brands, or through corporate acquisitions (R&D-in-process, customers lists), are considered assets and capitalized and, then, some are amortized. (Lev & Gu, 2016, p. 83).

To calculate in-house spending it is necessary to measure not only spending, but also how that spending is divided between the creation of long-lived assets and the support of current activities and the adjustment for inflation and quality changes (Haskel & Westlake, 2017, ch. 3). Opaqueness in financial statements needs also to be dealt with. While R&D is reported, other major investments in intangibles such as information technology, brands and trademarks, among others are buried in the category selling, general, and administrative (SG&A).

Lev and Gu (2016, p. 89) track the relevance of intangible assets. They show that the explanatory power (measured by R^2) of annual earnings and book value for the market value of firms becoming public in the US, went from more than 80% in the 1950s to roughly 25% in the 2000s. Intangible intensity (measured as R&D+SG&A as % of sales) meanwhile increased from 20% to 30%. The authors argue that this intangible intensity is one of the main causes for the deterioration of financial information usefulness. In order to amend this kind of bias, Lev and Radhakrishnan (2005, p. 78) originally proposed to use SG&A as a proxy for organization capital. This methodology was also followed by others although taking different percentages of SG&A[73] (Döttling, Ladika, & Perotti, 2018; Eisfeldt & Papanikolaou, 2013; Falato, Kadyrzhanova, & Sim, 2013; Peters & Taylor, 2017). To calculate the stock of intangibles, authors usually apply a perpetual-inventory method to both types of intangible investment (R&D and a percentage of SG&A) and then add it to the original firm's balance sheet information.

b. Fundamental differences between intangible and tangible investment

The fundamental question of this chapter is whether there are differences in terms of the investment dynamics in tangible and intangible assets and, consequently, the role these differences played in the profit-investment puzzle. Haskel and Westlake (2017, ch. 5) tackle this issue and focus on the *scalability* and *spillovers* generated by these assets. While lead firms are able to create scalable assets and appropriate most of the benefit, those left behind might be in an opposite situation. The net effect could be lower aggregate rates of investment but higher returns on made investment. Lastly, the

[73] The remaining part of SG&A is interpreted as operating costs.

authors consider the possibility that the nature of intangible investment has changed and is more related to rent-seeking activities (Haskel & Westlake, 2017, p. 114).

We find one of these intrinsic characteristics of intangible assets, their *scalability*, specially interesting and relevant to the puzzle. Different from tangible investment, where the amount of production is physically determined by the stock of property, plant and equipment; in the case of intangibles that relation is weakened if not broken. An intangible asset can generate a potential infinite number of commodities.

The rent-seeking purpose associated with intangibles is the dominant position in heterodox traditions. As monopolies, firms are able to obtain increased profitability without higher investment. Following this line, Orhangazi (2018) identifies four distinct functions of intangible assets. First, intangible assets such as patents can generate absolute monopolies for certain products. Second, in industries such as high-technology and telecommunications they can act as barriers to entry. Third, assets like brand names and trademarks can give pricing power. Finally, assets like copyrights for software can generate artificial scarcity for products that have a cost of reproduction that tends to zero. Pagano (2014) refers to this generalized process as "intellectual monopoly capitalism". Compared to traditional monopoly capital, an intellectual monopoly capital "is not simply based on the market power due to the concentration of skills in machines and management; it becomes also a legal monopoly over some items of knowledge, which extends well beyond national boundaries." (Pagano, 2014, p. 1411)

Schwartz (2016) and Durand and Milberg (2018) also highlight the role of intangibles as enablers in the coordination of and value extraction from global value chains. While global competition pushes downward the value share captured in the production segments, stricter international IP norms put upward pressure on both sides of the chain (R&D, design in the first part; marketing and after-sales in the last one) generating the so-called smile curve. Similarly to Orhangazi (2018), Durand and Milberg (2018) distinguish different types of rents associated with intangible assets, though they mainly focus on non-legal rents. Legal monopoly rents are derived from patents, copyrights and trademarks which ration production via exclusive rights on products. Natural monopoly rents appear as a result of network externalities in the presence of return to scale and sunk costs. They also identify dynamic innovation and intangible-differential rents associated with data centralization and uneven returns to scale on intangibles respectively.

Serfati (2008) highlights the double-sided character of these assets. While recognizing, as in the previous cases, their relation with market power and value capture, Serfati also points to the dominance of a financial logic as a driver of the rise of intangible assets (the quest for high valuation of their stocks) and their inclusion into stock market valuation. The case of goodwill, to which we made reference to in Chapter 3, is a pure creation of stock markets and represents fictitious capital in Marxian terminology. Palan (2013) also emphasizes this side of intangibles, and especially goodwill,

as a device to increase the wealth of asset holders. However, goodwill may also be interpreted as a consequence of the distribution of wealth to shareholders since it is the difference between the book value and the acquisition price. Goodwill is nothing else than the market value plus a control premium paid to owners during a takeover. According to Mayer (2013), M&As is the main way by which money is transferred to shareholders due to overbids during takeovers, when an acquirer seeks agreement from managers or shareholders to sell the company. Goodwill may be the mere consequence of this overbid process.

Apart for financial strategies, there are also tax manipulation incentives (Bryan, Rafferty, & Wigan, 2017). One way in which NFCs can shift profits to low or no-tax locations is by assigning common expenses such as R&D to high tax countries (Huizinga & Laeven, 2008). The growing importance of intangibles have made more complex the problem in terms of manipulation of transfer prices, as noted by Caroline Sylberztein (2011) -director by that moment of the OECD Centre for Tax Policy and Administration- due to the recognition and valuation of intangible assets which facilitates NFCs to obtain legal tax avoidance. Pozsar (2018, pp. 4–7) shows that those US multinationals which rely on revenues deriving from intellectual property assets in tax havens such as information technology (hardware and software) and pharmaceuticals are more efficient in shielding their earning from tax authorities. On the contrary, the strategy to book revenues linked to IP assets is harder to apply in other industries such as auto, energy, industrial and medical equipment manufacturing.

In some cases, the difference between tangible and intangible assets and investment is recognized but not necessarily associated with monopolistic, financial or tax incentive rents. Mainstream literature has focused, among others, on the differences in terms of financing of this type of investment. Almeida and Campello (2007) claim that since intangible assets cannot be easily liquidated and, therefore, be used as collateral to raise debt, then asset tangibility influences the credit status of the firm and the sensitivity of investment to cash flow. Intangible assets are harder to sell compared to tangible ones (like a machine tools) and usually specific to the company that makes them. Brown, Fazzari and Petersen (2009) show that R&D investment is done almost entirely with internal or external equity due to, apart from the lack of collateral, information problems and uncertain returns. Similarly, although not focused specially on investment, Falato et al. (2013), indicate that the rise in cash holdings is to insure that intangible-intensive firms have sufficient liquidity to face unexpected shocks and to exploit investment opportunities.[74] Relative to firms using few intangibles, Döttling, Ladika, & Perotti (2018) show that firms with high intangibles have higher free cash flows, cash holdings and lower net leverage. Eisfeldt and Papanikolaou (2013), focusing on organizational capital, highlight that it is embodied in highly specialized labor which is movable across firms and therefore

[74] This kind of argument reinforces our claim in Chapter 3 against the financial turn of accumulation hypothesis.

able to extract payments from shareholders equal to potential outside offers. This exposes shareholders to additional risks and they demand higher risk premia.

In other cases, there does not seem to be fundamental differences between tangible and intangible investment, or at least, such difference is not made reference to. Peter and Taylor (2017, p. 252) claim, for example, that "[l]ike physical capital, intangible capital is costly to obtain and helps produce future profits, albeit with some risk. For this fundamental reason, it makes sense to treat intangible capital as capital in the neoclassical framework." They include intangibles, along with tangibles when assessing the validity of Tobin's *q*. According to their estimations, when physical and intangible investments are taken together, the *q* is a better predictor. Baker, Stein and Wurgler (2003) find that stock prices have a stronger impact on the investment of firms that rely more on external equity to finance marginal investments and show that these results carry over three measures of investment: CAPX, CAPX+R&D, CAPX+R&D+SG&A.

Besides the question of whether there is a fundamental difference between tangible and intangible investment, we are also interested in the relation between these two types of investments. Alexander and Eberly (2018) show a sectoral shift in investment: it has remained stronger in non-tradeable industries, where it cannot be off-shored, while in other growing sectors, with skill-biased technological change, physical investment was substituted by intangible investments. Gutiérrez and Phillipon (2017) also find that industries with a higher share of intangibles exhibit lower physical investment. Döttling, Gutiérrez and Philippon (2017) find weak investment in Europe and the USA. While in the case of the former investment follows Tobin's *q*, in the case of the latter investment decreased in those sectors with lower competition, while high intangible firms invest less in capital expenditures than low intangible ones. For the case of the retail sector, Crouzet and Eberly (2018) show a rise in productivity which coincided with a rise in concentration, growing importance of intangible capital and decrease of physical investment.

The idea of a substitution between the two types of investment can be drawn back to the focalization in core activities we made reference to in the previous chapter (Gereffi et al., 2005; Milberg & Winkler, 2013; Prahalad & Hamel, 1990). As we indicated there, the fact that firms started turning to their core activities meant dropping and offshoring others at the same time. In this sense, the rise in intangible investment is also linked to the participation in global value chains (World Intellectual Property Organization, 2017).

c. Intangible investment and financialisation

Finally, which type of relation should we expect between the financialisation of non-financial corporations and intangible investment? Throughout this thesis we have focused on the prominent literature, both theoretical and empirical, that showed the negative consequences of higher payouts to

shareholders on physical investment. However, the effects in terms of intangible investment are comparatively understudied. Case studies with comparisons between share buybacks and R&D expenses are available for US pharmaceutical and biopharmaceutical (Lazonick & Tulum, 2011; Mazzucato, 2015) and ICT industries (Lazonick, 2009; Lazonick, Mazzucato, & Tulum, 2013), among others. They tend to show a negative relation between intangible investment and financial payouts. To the best of our knowledge, only Bhargava (2013) and Bens et al (2002) carried econometric exercises, finding a negative relation of both share repurchases and stock options granted with R&D.

Other studies have focused on the relation between R&D and types of ownership structure. As in the case of capital expenditures, some studies find a negative effect of the short-term pressure exerted by institutional investors on innovation (Graves & Waddock, 1990; Majumdar & Nagarajan, 1997) or negative effects when ownership structures are more concentrated (Rapp & Udoieva, 2017; Rossi & Cebula, 2016). Cases in which there is no systematic relationship between corporate governance and innovation can also be found (Gonzales-Bustos & Hernández-Lara, 2016). Besides the heterogeneity (Belloc, 2012), most studies do find a *positive* relation between the degree of institutional ownership and R&D expenditures (Aghion, Van Reenen, & Zingales, 2013; Brossard et al., 2013; Choi, Park, & Hong, 2012; Eng & Shackell, 2001). These studies sometimes distinguish between institutional investors and their corresponding effects. For example, they find that investors with high portfolio turnover ('impatient' investors) have negative effects (Brossard et al., 2013; Bushee, 1998), that activist institutional investors exert pressure on managers to increase R&D (David, Hitt, & Gimeno, 2001) and that public pension funds prefer internal innovation but professional investment funds, external through the acquisition of other firms (Hoskisson, Hitt, Johnson, & Grossman, 2002). Therefore, evidence of the effect of the maximization of shareholder value governance on R&D is not conclusive in the literature.

3. Hypotheses

In the previous section we have seen that intangible investment has been related to market power (or rent-seeking activities) and value extraction in global value chains. The rest of this chapter is dedicated to the empirical exploration of whether there are different dynamics involved in tangible and intangibles investment and their relation with mark-up (our proxy for market power), financialisation and GVC participation.

The intellectual monopoly story (Durand & Milberg, 2018; Pagano, 2014) points toward the fact that higher intangible intensity allows firms to increase their mark-up and capture rents. This provides incentive to decrease capital expenditure but to increase intangible investment to preserve their position. This argument results in two hypotheses:

H1: More intangible intensive firms invest (a) less in capital expenditures and (b) more in intangibles.

H2: Higher mark-up (a) is positively correlated to intangible investment and (b) negatively to tangible investment.

We have also seen in the literature review, nevertheless, that apart from the monopolization story, there is also the argument of a substitution between the two types of assets, especially in those cases where firms are involved in GVC (Alexander & Eberly, 2018; Crouzet & Eberly, 2018). This again translates into a positive effect on intangible investment and negative on tangible investment and gives the following hypothesis:

H3: Firms in advanced economies that participate more in global value chains invest (a) less in capital expenditures and (b) more in intangibles.

It is important to highlight that this last hypothesis may be true in the case of firms belonging to the global north mainly, i.e., the ones of our sample. Many firms from the global south are also highly engaged in GVCs, but this participation would have a positive impact in their tangible investment.

In terms of the financialisation effects, we expect the usual results reviewed in previous chapters for tangible investment. For intangible investment, most studies find a positive relation between the degree of institutional ownership and R&D expenditures (Choi et al., 2012; Eng & Shackell, 2001). However, since short term shareholders (Brossard et al., 2013) and stock options granted and share repurchases are negatively correlated to R&D (Bens et al., 2002; Bhargava, 2013), we could expect a negative correlation between intangible investment and traditional measure of financialisation. We have then the following hypothesis:

H4: Higher payouts to shareholder have (a) a negative relation with tangible investment and (b) either positive or negative with intangible investment.

4. Data and indicators

We use firm-level data from Standard & Poor's COMPUSTAT North America and COMPUSTAT Global. We use information from all active and inactive, publicly listed non-financial U.S. corporations, excluding financial firms identified by the primary SIC codes from 6000 to 6799, firms without sectoral information, and firms whose exchange ticker is over the counter.

We remove firms with no information for all years of capital expenditure, net property plant and equipment and profits. We also removed aberrant observations such as negative values of revenues, capital expenditures, long term debt, dividends and total assets. We also restrict our sample to firms

that have, at least, five consecutive years, a common feature in micro-econometric literature (Bond et al., 2003).

We use annual data from 2000-2014, period covered by the 2016 WIOD revision, which follows the ISIC 4th revision. The WIOD allows us to build industry-level information on GVC participation. Compustat, on the other hand, has the SIC and NAIC codes of each firm. The correspondence between the two classifications was based on the concordance tables provided by the U.S. census bureau. Three issues appeared when making the correspondence between NAIC and ISIC 4th revision.

The first one is that, whatever edition of NAIC we take to use as base for conversion (2007, 2012 and 2017), there will be missing codes when comparing with Compustat, either some firms have old NAIC that are not used any more, or some firms have new codes. Considering that the WIOD goes from 2000 to 2014, we take NAIC 2007 as the starting point (but is doesn't change the final outcome if we take other). For those cases in which Compustat has a previous NAIC, we take the equivalent one in 2007. For those cases in which the firm uses a more recent classification, we check in the 2012 and 2017 conversion lists.

The second issue is that is some cases (few, however), firms present an aggregated NAIC code (2, 3, 4 or 5 digit instead of 6). The more aggregated, the more difficult to convert it in a precise way to an ISIC code because there might be many possibilities. Therefore, we eliminate those cases.

The final issue is that, in some cases, one NAIC code (even the 6 digit code) can have more than 1 option as regards to the ISIC code that corresponds. In these cases, we check the SIC codes of the firms in Compustat. In those cases where there is either only one option or a clear majority, we convert the SIC into ISIC and put that one. In those cases where the SIC codes are more distributed in different option or the sic codes also have different ISIC possibilities we eliminate the observations.

Based on this world-level, rather than national information, Koopman et al (2010) provide a methodology that deals effectively with the back-and-forth nature of global value chains. By decomposing gross output produced in country *a* between intermediate and final goods used at home or abroad Koopman et al (2010), calculate the Leontief inverse matrix, or total requirement matrix, that indicates the amount of gross output in producing country *a* required for a one-unit increase in final demand in country *b*. Once this requirement matrix is calculated, it is possible to measure the domestic and foreign value added in production and trade for each sector in each country.

To calculate these indexes, we subtract Mining and Manufacture of coke and refined petroleum products, following Taglioni and Winkler (2016, p. 102). We also exclude agro and basic metals: primary products are defined as products produced by the agriculture industry (WIOD industries 1,2,3 – ISIC A01,02,03), mining industry (WIOD industry 4, ISIC B) the petroleum refining (industry 10 ; ISIC C19) and basic metal (industry 15 ; ISIC C24).

With this information, we are able to calculate our measure of GVC participation:

$$\frac{(XDVA) * (1 - ppX) + ipM * (1 - ppM)}{VA} \quad (1)$$

"XDVA" is domestic value added in gross exports, "ppX" is the share of primary products in total exports, "ipM" is gross imports of intermediate products and "ppM" the share of primary products in total imports. Following Carballa, Knauss and Durand (2016), this indicator is consistent with an analytical definition of GVCs as a specific form of the division of labour characterized by a degree of transnational command over production.

Our measure of intangibles follows Peters and Taylor (2017, p. 256-257) discussed in the literature review. We compute intangible investment (*II*) by taking R&D plus 30% of SG&A, in order to combine knowledge investment and organization investment.[75] We capitalize each year this value (with a depreciation rate of 20%) and add it to the original balance sheet stock of intangibles in order to have a new measure of intangible capital (*INTAN*)[76]. Goodwill is usually excluded from the computation of intangible assets. We follow this measure since we are more interested by the productive changes implied by intangible assets, rather than by the financial components of goodwill, as explained in the literature review.

Other variables will be described in Section 6 (Model specification and methodology) and are detailed in appendix (Table A6.1).

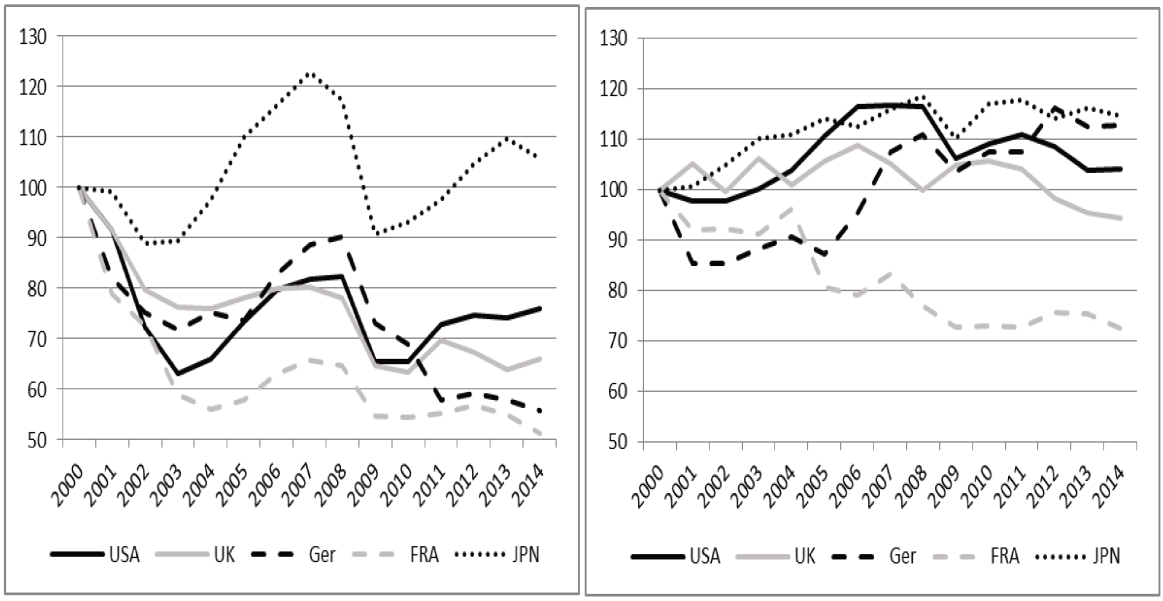
5. Descriptive statistics

Next we present the stylized facts of our sample. Figure 6.1 shows the evolution of capital expenditures, or tangible investment, (left) and intangible investment (right). It can be observed the different dynamics displayed by each of them. In the case of physical investment, all countries but Japan have an oscillating but negative trend. For intangible investment, all countries but France show a stable or increasing trend.

[75] In Compustat, R&D expenses and SG&A expenses are included in the variables *xrd* and *xsga*. However, most of the time, *xrd* is included in *xsga*. When *xrd* is superior to *xsga*, we compute total intangible investment as (*xrd*+0.*3xsga*), and as (*xrd*+0.3(*xsga*-*xrd*)) otherwise.

[76] Assuming an annual depreciation rate of 20%, for each firm *i* at year *t*, the stock of capitalized intangible investment is computed as $CII_{it} = 0.8CII_{it-1} + II_t$. If *t* is the first year of firm *i* in the sample, then $CII_{it} = II_t$. The stock of intangible assets is then given by $INTAN_{it} = CII_{it} + BSI_{it}$, *BSI* being the balance sheet value of intangible assets.

Figure 6.1. Tangible (left) and Intangible (right) Investment in selected countries, 2000-2014, 2000=100

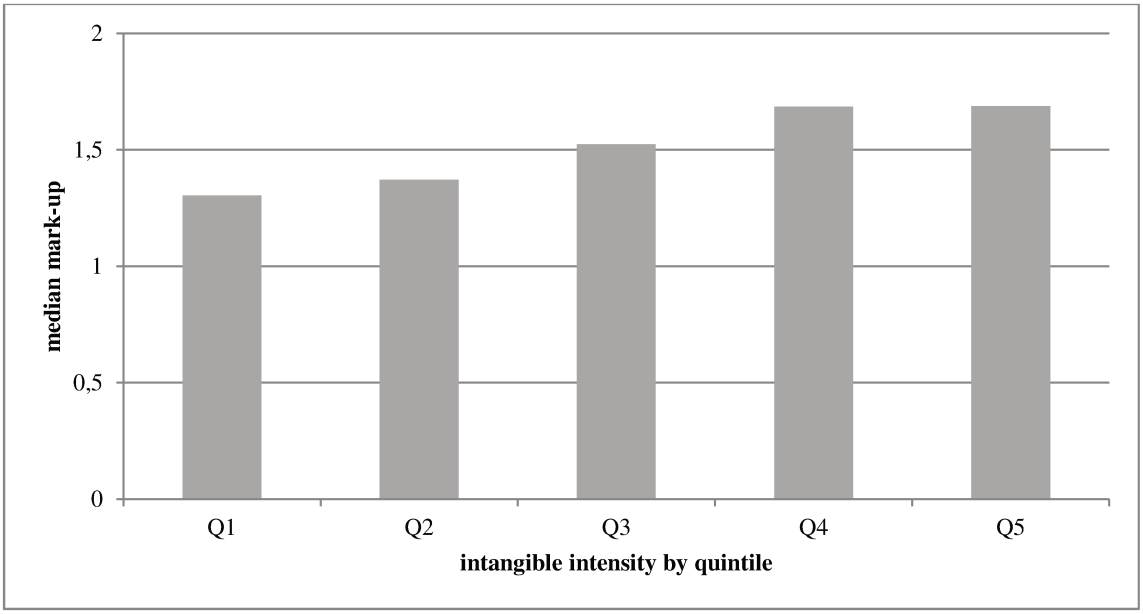


Note: tangible and intangible investment calculated as a proportion of total tangible and intangible capital.

Source: Compustat. Authors' calculations.

Although it is not one of the specific objectives of this paper to estimate the determinants of market power, throughout the text we have indicated that intangible intensity allows firms to be in monopolistic positions. Figure 6.2 provides evidence which goes in this direction. Organized by quintiles of intangible intensity, the median mark-up increases across them, especially throughout the first four quintiles. As shown by the figure 6.3, the evolution of mark-up has been driven by intangible intensive firms, despite a strong dispersion among intangible intensive firms.

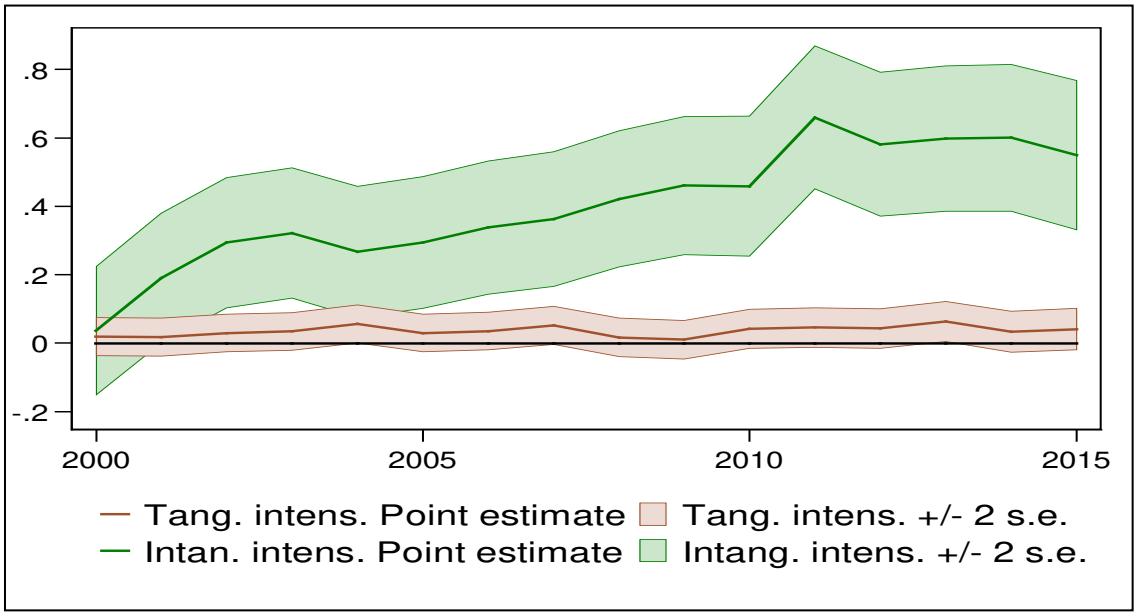
Figure 6.2. Markup by quintiles of intangible intensity.



Note: mark-up calculated as the ratio of sales over cost of goods sold, intangible intensity calculated as a proportion of total tangible and intangible capital. Median values.

Source: Compustat. Authors' calculations.

Figure 6.3. Evolution of mark-up by intangible intensity, 2000-2015.

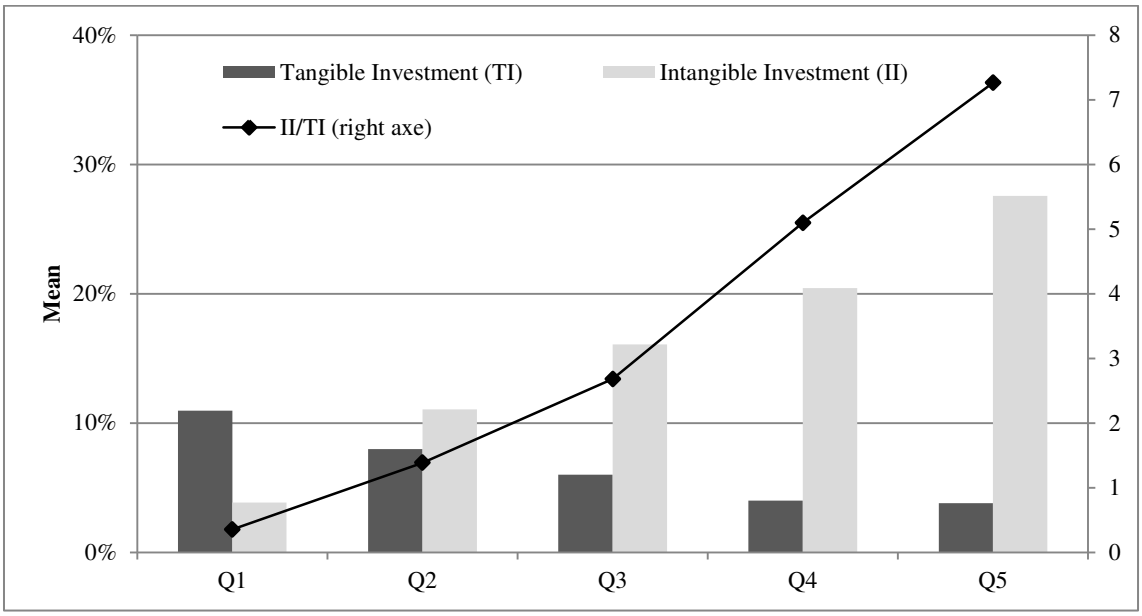


Note: The figure reports the time effects in the regression: $yi, t = \alpha i + \delta t + \epsilon i, t$, where i is a listed firm belonging either to France, Germany, Japan, UK, or USA, t is a year, $y\, i, t$ is the mark-up defined as the ratio of sales over cost of goods sold. The time effects are a measure of the evolution of the markup implied by firm fixed effects and relative to the level of markups in 1999. Authors' calculations.

Source: Compustat.

Moving now to our 1st hypothesis, we carry a similar exercise as before. Also dividing the sample among quintiles of intangible intensity, we now compare the median of tangible and intangible investment. Figure 6.4 clearly indicates the substitution effect highlighted by the literature: those firms more involved in tangible investment tend to be, at the same time, less intensive in intangibles. Moreover, by looking at the intangible investment we see that this pattern of investment reinforces itself: those sectors with a higher intangible intensity tend to invest more in intangibles.

Figure 6.4. Tangible and intangible investment by quintiles of intangible intensity

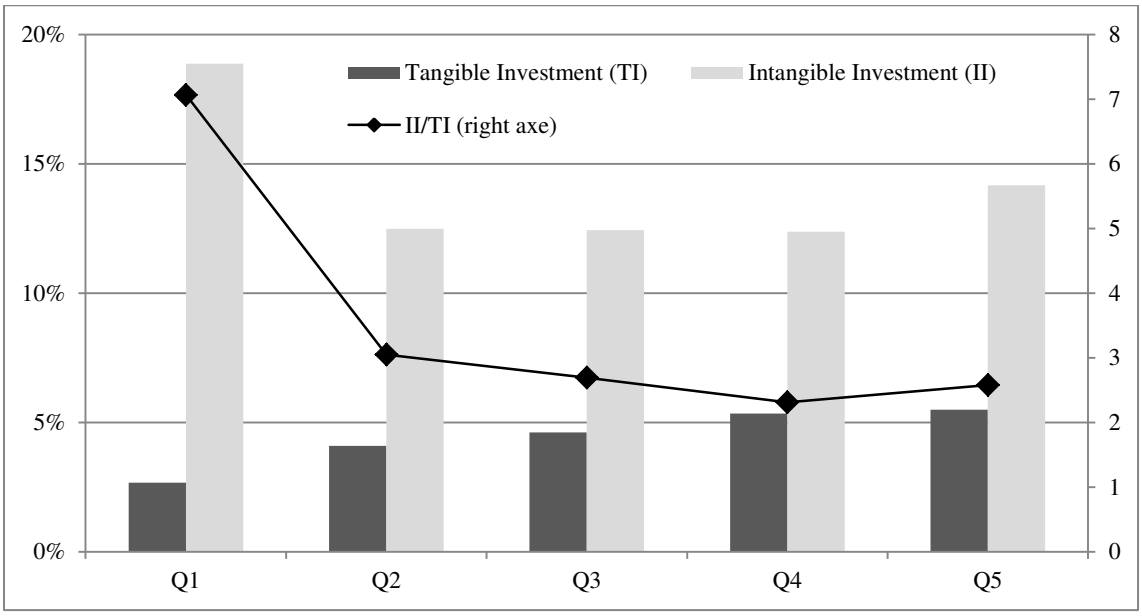


Note: tangible investment, intangible investment and intangible intensity calculated as a proportion of total tangible and intangible capital. Median values.

Source: Compustat.

When ordered by the payouts quintiles, Figure 6.5 does not seem to support our hypothesis. For intangible investment, the evolution is non-linear: those firms in the lower quintile of payout distribution are those carrying the higher amount of intangible investment. All the rest show a lower median which, nevertheless, present the highest value in Q5.

Figure 6.5. Tangible and intangible investment by quintiles of payouts



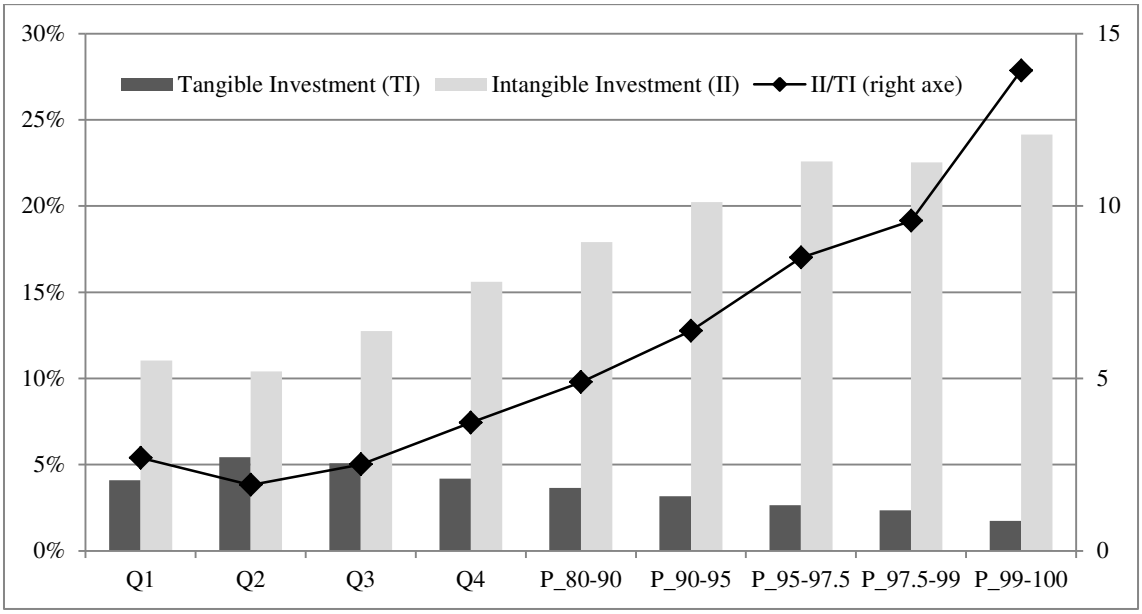
Note: tangible investment, intangible investment and payouts calculated as a proportion of total tangible and intangible capital. Median values.

Source: Compustat.

Results are more puzzling for tangible investment. Figure 6.5 indicates a relatively stable increase of it throughout the different quintiles of payouts. This may be an indicator, in line with Chapter 5 that rather than being payouts on their own, it is actually their interaction with other variables the responsible of the decrease in investment.

In terms of markup, Figure 6.6 is very clear and we once again see an asymmetric relation among tangible and intangible investment. The former diminishes not only throughout quintiles of mark-up but also in the top percentiles when Q5 is disaggregated in different percentiles. For intangible investment the relation is the exact opposite. While Q1 and Q2 display a similar level (lightly higher for the former), then intangible investment increases as the markup also increases.

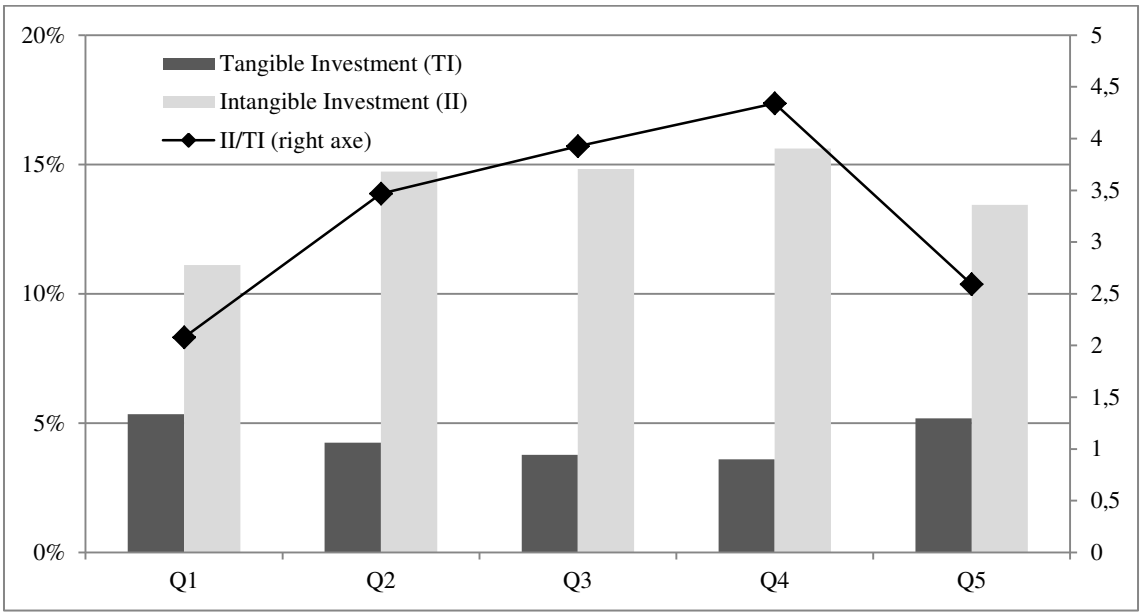
Figure 6.6. Tangible and intangible investment by quintiles and percentiles of mark-up



Note: tangible investment, intangible investment calculated as a proportion of total tangible and intangible capital. Mark-up calculated as the ratio of sales over cost of goods sold. Median values.
Source: Compustat.

Finally, in terms of GVC participation, the descriptive statistics show an interesting dynamic (Figure 6.7). Up to Q4, results seem to go in line with our hypotheses: there is a decrease (albeit small) for physical investment and an overall increase for intangible investment. These trends however flip when focusing on Q5. The most involved firms in GVC invest less than other quintiles in intangible assets and, at the same time, are forced to invest relatively more in tangible assets. This pattern is reminiscent to that explained by Crotty (Crotty, 1993, Chapter 2 of this thesis): for firms intensive in tangible assets, global competition should be associated with a coerced investment pattern. In any case, we will evaluate our hypothesis in Section 7.

Figure 6.7. Tangible and intangible investment by quintiles and percentiles of GVC participation



Note: tangible investment, intangible investment calculated as a proportion of total tangible and intangible capital. GVC participation calculated as indicated in equation (1). Median values.
Source: Compustat and WIOD. Authors' calculations.

6. Model specification and methodology

We base our analysis in a basic investment model as proposed by Fazzari and Mott (1986) to which we add financial determinants aimed to capture financialisation effects, intangible intensity and participation in GVC. Following our hypothesis, we are interested in estimating how tangible and intangible investment react to the same set of variables. Therefore we have:

$$\frac{TI}{K^*} = f(\frac{INTAN}{K^*}, \frac{INTERNF}{K^*}, \frac{S}{K^*}, \frac{\pi}{K^*}, mark-up, \frac{LONGDEBT}{K^*}, \frac{FININC}{K^*}, \frac{PAYOUTS}{K^*}, GVCpart)$$

$$\frac{II}{K^*} = g(\frac{INTAN}{K^*}, \frac{INTERNF}{K^*}, \frac{S}{K^*}, \frac{\pi}{K^*}, mark-up, \frac{LONGDEBT}{K^*}, \frac{FININC}{K^*}, \frac{PAYOUTS}{K^*}, GVCpart)$$

TI is tangible investment; *II* is intangible investment; *K* is net property, plant and equipment; *INTAN* is the stock of intangible assets, K^* is $K + INTAN$, *INTERNF* is firm's balance sheet value of cash and short-term securities; *S* is sales; π is operating income before R&D expenditures; *mark-up* is the sales to cost of goods sold ratio; *LONGDEBT* is long debt; *FININC* is interest and related income; *PAYOUTS* are the common and preferred stock dividends paid plus the repurchase of common and preferred stock, and *GVCpart* is our measure for participation in GVC. Compustat data items corresponding to each of these variables can be found in the appendix (Table A6.1), along with description of variables used in Figures and other Tables. As it is standard in this literature we take

lags of explanatory variables both to avoid endogeneity issues and capture the adjustment process inherent to investment. We move to our hypothesis.

In terms of intangible intensity (*H1*), we expect that firms with higher intensity will tend to invest more in intangibles $\left(\left(\frac{II}{K^*}\right)_{\frac{INTAN}{K^*}} > 0\right)$ and less in tangible assets $\left(\left(\frac{TI}{K^*}\right)_{\frac{INTAN}{K^*}} < 0\right)$.

In terms of mark-up (*H2*), we expect it to be positively correlated with intangibles $\left(\left(\frac{II}{K^*}\right)_{mark-up} > 0\right)$ and negatively with tangible investment $\left(\left(\frac{TI}{K^*}\right)_{mark-up} < 0\right)$.

In terms of participation in global value chains (*H3*), we expect that firms with higher participation will tend to invest more in intangibles $\left(\left(\frac{II}{K^*}\right)_{GVCpart} > 0\right)$ and less in tangible assets $\left(\left(\frac{TI}{K^*}\right)_{GVCpart} < 0\right)$.

In terms of financialisation (*H4*), we showed the literature is not conclusive for intangibles $\left(\left(\frac{II}{K^*}\right)_{payouts} \gtrless 0\right)$ and negatively with tangible investment $\left(\left(\frac{TI}{K^*}\right)_{payouts} < 0\right)$.

The statistical specifications will be the following:

$$\ln\left(\frac{TI}{K^*}\right)_{ijt} = \alpha_0 + \alpha_1 \ln\left(\frac{INTAN}{K^*}\right)_{i,t-1} + \alpha_2 \ln\left(\frac{INTERNF}{K^*}\right)_{i,t-1} + \alpha_3 \ln\left(\frac{S}{K}\right)_{i,t-1} + \alpha_4 \ln\left(\frac{\pi}{K^*}\right)_{i,t-1} + \alpha_5 \ln(mark-up)_{i,t} + \alpha_6 \ln\left(\frac{LONGDEBT}{K^*}\right)_{i,t-1} + \alpha_7 \ln\left(\frac{FININC}{K^*}\right)_{i,t-1} + \alpha_8 \ln\left(\frac{PAYOUTS}{K^*}\right)_{i,t-1} + \alpha_9 \ln(GVCpart)_{j,t-1} + \gamma_{jt} + \sum_{t=1996}^{t=2011} \beta_t + \varepsilon_{it} + \omega_i \qquad (2)$$

And

$$\ln\left(\frac{II}{K^*}\right)_{ijt} = \varphi_0 + \varphi_1 \ln\left(\frac{INTAN}{K^*}\right)_{i,t-1} + \varphi_2 \ln\left(\frac{INTERNF}{K^*}\right)_{i,t-1} + \varphi_3 \ln\left(\frac{S}{K}\right)_{i,t-1} + \varphi_4 \ln\left(\frac{\pi}{K^*}\right)_{i,t-1} + \varphi_5 \ln(mark-up)_{i,t} + \varphi_6 \ln\left(\frac{LONGDEBT}{K^*}\right)_{i,t-1} + \varphi_7 \ln\left(\frac{FININC}{K^*}\right)_{i,t-1} + \varphi_8 \ln\left(\frac{PAYOUTS}{K^*}\right)_{i,t-1} + \varphi_9 \ln(GVCpart)_{j,t-1} + \gamma_{jt} + \sum_{t=1996}^{t=2011} \beta_t + \varepsilon_{it} + \omega_i \qquad (3)$$

where *ln* is a logarithmic function used to account for potential non-linearities between explained and explanatory variables,[77] $\alpha_0 ... \alpha_9$ and $\varphi_0 ... \varphi_9$ are parameters, the *i,j* and *t* subscripts denotes firm, industry and time period. γ_{jt} is a coefficient that controls industry specific trends. β_t are coefficients of a set of time dummies, while ε_{it} represents nonobservable shocks and ω_i inobservable individual-specific effects. The regression variables are divided by capital stock to correct for heteroscedasticity and control for firm size. As we mentioned in the previous chapter, it is important to control for the size of the corporation because small and recently listed firms usually don't pay dividends (Fama & French, 2001) and do investment thanks to the cash they raise on the stock exchange (Lazonick, 2009). Also as in the previous chapter, we will estimate equations (2) and (3) for the complete sample and for the subsamples of large firms, taking into account the larger effects of financialisation-related variables for the latter.

Equations (2) and (3) are estimated using a within-effects model with firm-level and year fixed effects. Profiting from the panel structure of our data, this estimation technique makes it possible to control for unobservable firm-specific characteristics which are relevant for describing its behaviour in terms of our dependent variables and constant over time such as managerial capability. We also control for elements that vary over time but affect firms in the same way such as macroeconomic shocks as well as industry specific factors.

7. Results

Table 6.1 presents the results of the estimation of equation (2) for the whole sample and each specific country, as well as for the top 25% in size of K*. Variables are presented directly in logarithms so the effects can be interpreted as elasticities. Control variables such as the internal finance, sales, profit rate and long term debt have the expected signs.

In terms of *H1*, the effect of intangible intensity on tangible accumulation, we see a negative effect for the whole sample both for all firms as well as the bigger ones. It is in the latter, nevertheless, where we find stronger effects. The increase in 1% point in intangible intensity is associated with a decrease in tangible investment which is 3 times bigger for the whole sample of bigger firms compared with the case in which no distinction of size is made. In both cases, the effect is significant at the 1% level. In Japan the effect is more than twice for bigger firms and also significant at the 1% while for Germany it is only significant for larger firms at the 5% level.

[77] As in the previous chapter, our log transformation avoids censorship of firms with variables equal or inferior to zero (those with negative earnings or without stock issues or financial payouts for example): for any variable *var*, we compute ln(*var*) = -ln(*var* + 1) if *var*≤0, and ln(*var*) = ln(*var*+1) if *var*>0.

The effects of mark-up, *H2*, are less consistent: it is only in the sample containing all firms and for the US case where we find statistically significant, at the 5% and 1% respectively, and negative cases. The effect, nevertheless, seems to be minor from an economic point of view. The increase in 1% point in mark-up is associated with a decrease of 0.003% in tangible investment for the whole sample and 0.004% in the USA.

Something similar happens with the effects of GVC participation, the negative effects are also restricted to the US case. As it was the case with intangible investment, we also find here differences in terms of size: effects are more than 2 times higher for bigger firms and more significant in statistical terms as well (1% vs. 5%). However, in the rest of the countries, the effect is non-significant or even positive as in the case of Japan when all firms are considered.

Financialisation effects, *H4*, go in line with those found in the literature (Orhangazi, 2008; Tori & Onaran, 2018): results are stronger for the subsample of big firms in almost all countries. Our findings in these regards support the fact that the pervasive effect of the distribution of funds in relation to tangible investment happen especially for those bigger firms. For all countries, USA and the UK the effects are statistically significant at the 1% level while for Japan, at the 10% level. The latter is the only case when effects are statistically significant both for all and big countries and it is in the latter where effects are higher.

Although our hypothesis in relation with financialisation was restricted to the effect of financial payouts, we are also interested in analyzing financial income. As it was also the case in Chapter 5, the financial income does not have significant effects except for big firms in France where it has a negative and relevant effect both in statistical terms (5%) as well as economic.

Table 6.2, on the other hand, shows the results of the estimation of equation (3) in a similar fashion as in the tangible case: the table is divided by the whole sample and each specific country, as well as for the top 25% in size of K*. Variables are also presented directly in logarithms.

Intangible intensity is a very strong determinant of intangible investment. In all the cases results are positive and significant although systematically weaker for bigger firms, both in economic and statistical terms. For the whole sample, effects are always statistically significant at the 1% and higher than 0.1%.

The mark-up has the expected positive sign but, as in the case of tangible investment, results are restricted mainly for the whole sample and firms in the USA and Japan. In the case of the latter, bigger firms also present positive and significant results (at the 5% level). The economic effect is relatively small as with tangible investment: an increase in 1% point in mark-up is associated with a 0.003% and 0.004% points increase in intangible investment for the whole sample of firms and the USA respectively.

Results for GVC are more robust than in tangible investment, with positive and statistically significant results at the 5% and 1% results for the sample of all firms, the USA and Germany. When the sample of bigger firms is considered results are weaker both in statistical significance (2 out of 3 cases results are only significant at the 10% level) and economic effect.

Results for payouts are also negative as in the case of tangible assets, suggesting that they are being done also at the expense of intangible investment. Negative and statistically significant results (always equal or higher than the 5%) are found for the whole sample of firms, the USA and the UK as well as for the bigger firms in those cases. Results are also higher for bigger firms as it was the case for tangible investment. This means that financialisation occurs both for tangible and intangible investment. In relation to financial income, when statistically significant, it presents a positive effect for all firms and different countries.

In tables 6.3 and 6.4 we carry a GMM estimation. This is a good starting point for a robustness analysis because, with this methodology, we allow the introduction of a dynamic effect both for tangible and intangible investment and the estimation technique differs in other substantial aspects: variables are in differences rather than deviations from mean, we also introduce variables in levels (using a system GMM), among others (see Chapters 4 for a full description of the methodology).

Our main results are, nevertheless, maintained and even improved. For tangible investment, intangible intensity has a more permanent and statistically significant negative effect in almost all specifications. We also find negative and statistically significant effects for payouts both for the sample of all firms in different countries and for bigger firms. In terms of GVC participation we find negative and statistically significant effects at the 1% level for the USA, both for all and big firms. This is also the case of the UK for large firms but, on the other hand, we have positive and statistically significant effects for the sample of all firms, Germany and Japan (also for big firms in the latter country). It is only in terms of mark-up where we do not find statistically significant effects.

For intangible investment, results are also maintained. When significant (in 5 out of 6 cases at the 1% level), intangible intensity always has a positive sign. Positive effects are also found for GVC participation (in 3 out of 4 at the 1% level), although limited to the sample of all firms and in different countries but not for bigger firms. Contrary to tangible investment, markup is found to have positive and statistically significant effects in different countries and for different sizes of firms. Finally, financial payouts only have a negative and statistically significant effect for all firms in the USA but in no other case.

We carry another robustness analysis in Tables A6.2 and A6.3, going back to fixed effect estimation, by dropping some non-core financialisation variables such as financial income and long term debt. All the results in terms of our main hypothesis are maintained both for tangible and intangible investment.

Another exercise is to take a standard measure of GVC participation such as foreign value added in exports (Tables A6.4 and Table A6.5). For tangible investment we find only a negative and statistically significant at the 1% level for big firms in the USA (in a similar fashion as with our variable) but positive effects for France (at the 10% level for all firms) and Japan (both all firms, at the 1% level and big ones, at the 10% level). For intangible investment we find positive and statistically significant results at the 1% level for all and German firms but negative for all Japanese firms.

Overall, the evidence goes in line with our hypothesis. In the case of intangible intensity, our results showed that those firms with a higher proportion of intangible assets in their total capital tend to accumulate less tangible assets and more intangible, especially among big firms. These findings support the "substitution effect" showed in Figure 6.4. Moreover, the fact that firms which are already intangible intensive tend to accumulate more those kind of assets indicates that the pattern tends to reinforce itself.

The idea of a reinforcement regarding tangible and intangible accumulation can be also drawn from the results of mark-up and GVC participation. When statistically significant, a higher market power measured in terms of mark-up depresses tangible accumulation and increases intangible one. The participation in global value chains also allows firms to downsize their tangible assets by relying on other firms for doing that and focusing, on the contrary, on intangible accumulation.

Regarding the effects of financialisation measured as payouts to shareholders, those firms which distribute more payouts tend to do it at the expense of both types of accumulation.

Table 6.1. Estimation results based on equation (2). Period: 2000-2014.

Dependent variable: ln(TI/(K+INTAN))i,t	All	USA	UK	FR	GER	JPN	All-Top25%	USA-Top25%	UK-Top25%	FR-Top25%	GER-Top25%	JPN-Top25%
ln(INTAN/(K+INTAN))i,t-1	-0.010***	-0.001	-0.005	-0.015	-0.005	-0.034***	-0.029***	-0.012	-0.011	0.052	-0.056**	-0.068***
	(0.003)	(0.003)	(0.010)	(0.014)	(0.015)	(0.006)	(0.008)	(0.010)	(0.024)	(0.043)	(0.023)	(0.015)
ln(cash/(K+INTAN))i,t-1	0.036***	0.034***	0.045***	0.045***	0.042***	0.032***	0.028***	0.032***	0.034**	0.079***	0.062**	0.021***
	(0.002)	(0.002)	(0.005)	(0.009)	(0.008)	(0.004)	(0.004)	(0.006)	(0.013)	(0.027)	(0.025)	(0.007)
ln(sales/(K+INTAN))i,t-1	0.027***	0.023***	0.026***	0.053***	0.041***	0.018***	0.018***	0.013***	0.036***	0.035**	0.003	0.022***
	(0.002)	(0.002)	(0.006)	(0.007)	(0.008)	(0.004)	(0.004)	(0.005)	(0.011)	(0.015)	(0.020)	(0.006)
ln(newπ/(K+INTAN))i,t-1	0.019***	0.026***	-0.001	0.001	0.011	0.049***	0.077***	0.075***	0.042*	0.039	0.133***	0.099***
	(0.003)	(0.003)	(0.008)	(0.010)	(0.010)	(0.008)	(0.009)	(0.011)	(0.022)	(0.031)	(0.048)	(0.015)
ln(markup)i,t-1	-0.003**	-0.004***	-0.001	0.005	-0.004	0.012	-0.003	-0.010	0.004	-0.005	0.006	0.010
	(0.001)	(0.001)	(0.002)	(0.006)	(0.008)	(0.009)	(0.004)	(0.006)	(0.005)	(0.013)	(0.012)	(0.009)
ln(LONGDEBT/(K+INTAN))i,t-1	-0.007***	-0.005**	-0.007	0.007	-0.009	-0.018***	-0.007**	-0.005	-0.015**	-0.003	0.009	-0.000
	(0.002)	(0.002)	(0.005)	(0.007)	(0.010)	(0.006)	(0.003)	(0.003)	(0.008)	(0.013)	(0.013)	(0.008)
ln(FININCOME/(K+INTAN))i,t-1	0.040	-0.001	-0.072	-0.185	-0.096	0.093	0.073	-0.029	0.039	-0.753**	-0.045	0.128
	(0.028)	(0.035)	(0.071)	(0.123)	(0.110)	(0.076)	(0.068)	(0.098)	(0.110)	(0.334)	(0.175)	(0.252)
ln(PAYOUTS/(K+INTAN))i,t-1	0.002	-0.001	0.015	-0.035	0.047**	-0.039*	-0.024***	-0.017***	-0.039***	0.013	-0.006	-0.088*
	(0.003)	(0.003)	(0.016)	(0.023)	(0.021)	(0.021)	(0.006)	(0.007)	(0.014)	(0.036)	(0.022)	(0.047)
ln(GVCpart)j,t-1	-0.002	-0.023**	-0.002	0.026	0.001	0.035***	-0.011	-0.056***	0.015	-0.027	0.002	0.008
	(0.005)	(0.011)	(0.012)	(0.033)	(0.045)	(0.010)	(0.007)	(0.015)	(0.026)	(0.037)	(0.042)	(0.016)
Constant	0.042***	0.053***	0.057***	0.044**	0.072***	0.017**	0.061***	0.081***	0.042**	0.029	0.077**	0.035***
	(0.003)	(0.004)	(0.009)	(0.021)	(0.026)	(0.008)	(0.006)	(0.008)	(0.018)	(0.038)	(0.030)	(0.011)
N. obs	104258	51799	10144	4178	4676	33461	26551	13178	2582	1081	1174	8536
r2	0.120	0.120	0.160	0.259	0.229	0.099	0.152	0.149	0.241	0.342	0.344	0.173
r2_a	0.120	0.119	0.154	0.248	0.218	0.097	0.149	0.145	0.222	0.306	0.311	0.167
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6.2. Estimation results based on equation (3). Period: 2000-2014

Dependent variable: ln(II/(K+INTAN))i,t	All	USA	UK	FR	GER	JPN	All-Top25%	USA-Top25%	UK-Top25%	FR-Top25%	GER-Top25%	JPN-Top25%
ln(INTAN/(K+INTAN))i,t-1	0.129***	0.135***	0.126***	0.126***	0.111***	0.118***	0.053***	0.047***	0.087***	0.037*	0.071**	0.052**
	(0.003)	(0.004)	(0.010)	(0.017)	(0.015)	(0.005)	(0.007)	(0.008)	(0.018)	(0.021)	(0.029)	(0.025)
ln(cash/(K+INTAN))i,t-1	0.032***	0.039***	0.030***	0.017*	0.018**	0.019***	0.013***	0.018***	0.007	0.019*	0.011	0.012**
	(0.002)	(0.003)	(0.007)	(0.010)	(0.008)	(0.003)	(0.004)	(0.006)	(0.009)	(0.010)	(0.014)	(0.005)
ln(sales/(K+INTAN))i,t-1	0.042***	0.048***	0.040***	0.054***	0.026***	0.038***	0.028***	0.022***	0.032***	0.006	0.042**	0.044***
	(0.002)	(0.003)	(0.007)	(0.009)	(0.009)	(0.003)	(0.003)	(0.004)	(0.009)	(0.019)	(0.021)	(0.006)
ln(newπ/(K+INTAN))i,t-1	-0.001	-0.013***	0.005	-0.000	0.022*	0.029***	0.047***	0.045***	0.050***	0.112***	0.023	0.026**
	(0.004)	(0.005)	(0.010)	(0.012)	(0.013)	(0.005)	(0.006)	(0.008)	(0.014)	(0.033)	(0.033)	(0.012)
ln(markup)i,t-1	0.003**	0.004**	0.000	0.005	0.006	0.013***	0.005	0.008	-0.002	0.020	0.010	0.018**
	(0.002)	(0.002)	(0.003)	(0.006)	(0.006)	(0.005)	(0.004)	(0.006)	(0.004)	(0.013)	(0.012)	(0.008)
ln(LONGDEBT/(K+INTAN))i,t-1	0.009***	0.009***	0.013**	0.004	0.013	0.014***	0.002	-0.001	0.003	0.031***	0.011	0.001
	(0.002)	(0.002)	(0.006)	(0.010)	(0.009)	(0.003)	(0.002)	(0.003)	(0.005)	(0.009)	(0.008)	(0.006)
ln(FININCOME/(K+INTAN))i,t-1	0.219***	0.222***	0.145*	0.283**	0.138	0.011	0.051	0.031	-0.050	0.106	-0.011	0.008
	(0.035)	(0.048)	(0.078)	(0.142)	(0.127)	(0.065)	(0.055)	(0.094)	(0.109)	(0.154)	(0.099)	(0.107)
ln(PAYOUTS/(K+INTAN))i,t-1	-0.008**	-0.009**	-0.040***	0.050	0.028	0.000	-0.014***	-0.010**	-0.042***	0.028	0.001	-0.047
	(0.004)	(0.004)	(0.013)	(0.033)	(0.023)	(0.018)	(0.004)	(0.004)	(0.014)	(0.020)	(0.035)	(0.036)
ln(GVCpart)j,t-1	0.015***	0.041***	0.004	-0.001	0.104**	0.001	0.009*	0.019*	-0.018	0.006	0.019	0.016**
	(0.006)	(0.011)	(0.014)	(0.032)	(0.043)	(0.004)	(0.006)	(0.011)	(0.014)	(0.018)	(0.024)	(0.006)
Constant	0.023***	0.020***	0.065***	0.002	0.014	-0.003	0.030***	0.027***	0.051***	0.007	0.011	0.014
	(0.003)	(0.005)	(0.010)	(0.022)	(0.026)	(0.006)	(0.006)	(0.008)	(0.013)	(0.030)	(0.025)	(0.012)
N. obs	104258	51799	10144	4178	4676	33461	26551	13178	2582	1081	1174	8536
r2	0.292	0.275	0.321	0.239	0.256	0.519	0.212	0.234	0.263	0.302	0.298	0.318
r2_a	0.291	0.274	0.317	0.227	0.246	0.518	0.210	0.230	0.245	0.264	0.262	0.314
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6.3. Estimation results based on equation (2) including the lag of the dependent variable. GMM estimation. Period: 2000-2014

Dependent variable: ln(TI/(K+INTAN))i,t	All	USA	UK	FR	GER	JPN	All-Top25%	USA-Top25%	UK-Top25%	FR-Top25%	GER-Top25%	JPN-Top25%
ln(TI/(K+INTAN))i,t-1	0.431***	0.447***	0.365***	0.417***	0.319***	0.426***	0.517***	0.470***	0.489***	0.495***	0.374***	0.556***
	(0.016)	(0.019)	(0.056)	(0.086)	(0.077)	(0.031)	(0.026)	(0.033)	(0.126)	(0.120)	(0.142)	(0.044)
ln(INTAN/(K+INTAN))i,t	-0.041***	-0.017***	-0.043***	-0.042*	-0.111***	-0.070***	-0.067***	-0.050***	-0.078***	-0.021	-0.073*	-0.088***
	(0.004)	(0.004)	(0.014)	(0.026)	(0.029)	(0.009)	(0.008)	(0.011)	(0.023)	(0.047)	(0.043)	(0.019)
ln(cash/(K+INTAN))i,t	0.048***	0.038***	0.079***	0.068***	0.100***	0.014	0.055***	0.051***	0.090**	0.114**	0.040	0.019
	(0.005)	(0.005)	(0.022)	(0.025)	(0.031)	(0.009)	(0.012)	(0.014)	(0.036)	(0.051)	(0.047)	(0.016)
ln(sales/(K+INTAN))i,t	0.011***	0.017***	0.010	0.014	0.035*	-0.003	-0.001	-0.003	0.009	0.031	0.025	0.017
	(0.003)	(0.005)	(0.012)	(0.020)	(0.019)	(0.007)	(0.006)	(0.008)	(0.020)	(0.041)	(0.034)	(0.012)
ln(newπ/(K+INTAN))i,t	0.056***	0.047***	0.032*	0.035	0.020	0.129***	0.107***	0.095***	0.077*	0.004	0.072	0.138***
	(0.007)	(0.009)	(0.018)	(0.029)	(0.030)	(0.016)	(0.016)	(0.016)	(0.041)	(0.102)	(0.076)	(0.033)
ln(markup)i,t	0.002	0.000	-0.001	0.004	0.017	-0.001	-0.008	-0.008	-0.008	0.029	-0.001	0.010
	(0.003)	(0.003)	(0.006)	(0.009)	(0.018)	(0.012)	(0.007)	(0.008)	(0.012)	(0.041)	(0.037)	(0.023)
ln(LONGDEBT/(K+INTAN))i,t	0.009**	0.008*	0.006	0.019	0.071**	0.002	0.011	0.001	0.021	-0.013	0.039	-0.002
	(0.004)	(0.004)	(0.013)	(0.018)	(0.029)	(0.010)	(0.007)	(0.007)	(0.015)	(0.039)	(0.042)	(0.015)
ln(FININCOME/(K+INTAN))i,t	-0.013	0.044	-0.290	0.063	-0.623	-0.027	0.115	0.039	0.283	-1.501	-0.369	0.051
	(0.069)	(0.072)	(0.236)	(0.404)	(0.421)	(0.217)	(0.162)	(0.229)	(0.217)	(1.108)	(0.473)	(0.424)
ln(PAYOUTS/(K+INTAN))i,t	-0.038**	-0.034**	-0.016	-0.061	0.024	-0.197***	-0.087***	-0.048**	-0.185***	0.091	-0.049	-0.282*
	(0.016)	(0.016)	(0.057)	(0.080)	(0.075)	(0.059)	(0.020)	(0.021)	(0.066)	(0.141)	(0.136)	(0.161)
ln(GVCpart)j,t	0.010***	-0.021***	-0.004	-0.000	0.028***	0.015***	0.006***	-0.028***	-0.012**	-0.007	-0.012	0.019***
	(0.001)	(0.003)	(0.004)	(0.009)	(0.010)	(0.004)	(0.002)	(0.007)	(0.005)	(0.013)	(0.026)	(0.006)
N. obs	104258	51799	10144	4178	4676	33461	26551	13178	2582	1081	1174	8536
N. firms	10662	5540	1142	492	518	2970	2826	1454	318	131	144	779
Instruments	98	96	95	90	93	93	96	95	92	85	86	89
ar1p	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.002	0.001	0.025	0.000
ar2p	0.088	0.900	0.818	0.396	0.717	0.054	0.580	0.003	0.400	0.190	0.091	0.089
hansenp	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.060	0.017	0.002	0.000
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Estimations are all obtained by the Arellano-Bond two-step systenn GMM. All instruments include up to two-years lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansep is the Hansen-Sargan test of overidentifying restrictions. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

Table 6.4. Estimation results based on equation (3) including the lag of the dependent variable. GMM estimation. Period: 2000-2014

Dependent variable: ln(II/(K+INTAN))i,t	All	USA	UK	FR	GER	JPN	All-Top25%	USA-Top25%	UK-Top25%	FR-Top25%	GER-Top25%	JPN-Top25%
ln(II/(K+INTAN))i,t-1	0.615***	0.589***	0.597***	0.608***	0.609***	0.596***	0.668***	0.741***	0.582***	0.455***	0.817***	0.846***
	(0.014)	(0.019)	(0.039)	(0.048)	(0.043)	(0.031)	(0.033)	(0.036)	(0.145)	(0.090)	(0.078)	(0.067)
ln(INTAN/(K+INTAN))i,t	0.024***	0.042***	0.017	0.021	-0.012	0.038***	0.055***	0.045***	0.077*	0.044	-0.003	0.007
	(0.008)	(0.011)	(0.018)	(0.033)	(0.027)	(0.012)	(0.010)	(0.010)	(0.045)	(0.045)	(0.020)	(0.016)
ln(cash/(K+INTAN))i,t	0.051***	0.057***	0.070***	0.030	-0.003	0.005	0.020***	0.025**	0.026	-0.024	-0.014	0.007
	(0.005)	(0.006)	(0.019)	(0.025)	(0.031)	(0.005)	(0.008)	(0.011)	(0.029)	(0.029)	(0.011)	(0.008)
ln(sales/(K+INTAN))i,t	0.006*	0.012**	0.022*	0.038*	0.015	0.020***	0.020***	0.020***	0.019	0.041	0.005	0.007
	(0.004)	(0.006)	(0.011)	(0.020)	(0.013)	(0.007)	(0.004)	(0.007)	(0.017)	(0.029)	(0.015)	(0.008)
ln(newπ/(K+INTAN))i,t	0.001	0.004	-0.012	-0.048	0.016	0.004	-0.003	-0.019	0.007	0.102*	0.023	0.013
	(0.008)	(0.012)	(0.016)	(0.033)	(0.026)	(0.013)	(0.011)	(0.017)	(0.037)	(0.053)	(0.032)	(0.019)
ln(markup)i,t	-0.002	-0.005	0.001	0.023**	0.024*	0.046***	0.014**	0.020***	-0.001	0.035	-0.001	0.012
	(0.004)	(0.005)	(0.007)	(0.010)	(0.012)	(0.016)	(0.006)	(0.008)	(0.009)	(0.024)	(0.016)	(0.016)
ln(LONGDEBT/(K+INTAN))i,t	0.001	0.010**	-0.012	0.003	-0.025	0.013**	0.000	0.008*	-0.009	-0.015	0.002	0.005
	(0.004)	(0.005)	(0.012)	(0.016)	(0.016)	(0.006)	(0.004)	(0.005)	(0.018)	(0.027)	(0.012)	(0.007)
ln(FININCOME/(K+INTAN))i,t	0.018	0.042	-0.177	-0.128	0.413	-0.252**	-0.094	-0.115	-0.273	0.005	0.045	-0.066
	(0.068)	(0.083)	(0.198)	(0.378)	(0.435)	(0.115)	(0.136)	(0.190)	(0.291)	(0.480)	(0.170)	(0.218)
ln(PAYOUTS/(K+INTAN))i,t	-0.028	-0.056***	-0.013	0.007	-0.016	0.021	-0.005	0.006	0.004	-0.083	-0.034	-0.069
	(0.017)	(0.019)	(0.046)	(0.075)	(0.075)	(0.042)	(0.012)	(0.014)	(0.057)	(0.073)	(0.054)	(0.046)
ln(GVCpart)j,t	0.010***	0.020***	0.008**	0.005	0.011	0.008***	0.002	0.008	0.001	0.006	0.005	0.005
	(0.001)	(0.003)	(0.004)	(0.006)	(0.007)	(0.003)	(0.002)	(0.005)	(0.005)	(0.007)	(0.007)	(0.004)
N. obs	104258	51799	10144	4178	4676	33461	26551	13178	2582	1081	1174	8536
N. firms	10662	5540	1142	492	518	2970	2826	1454	318	131	144	779
Instruments	98	96	95	90	93	93	96	95	92	85	86	89
ar1p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
ar2p	0.234	0.831	0.107	0.163	0.387	0.757	0.122	0.307	0.377	0.799	0.985	0.008
hansenp	0.000	0.000	0.000	0.016	0.001	0.000	0.001	0.000	0.013	0.005	0.007	0.000
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Estimations are all obtained by the Arellano-Bond two-step systenn GMM. All instruments include up to two-years lags. ar1p and ar2p are Arellano-Bond test of first order and second order autocorrelation in the errors. hansep is the Hansen-Sargan test of overidentifying restrictions. P-values are reported for all tests. * indicates significance at 10%, ** significance at 5% and *** significance at 1%

8. Conclusion

In this chapter we have provided evidence on the different dynamics involved in tangible and intangible accumulation and how they relate to the profit-investment puzzle. Economics have been traditionally focused on tangible investment and throughout this thesis we studied it as well. The puzzle of high profitability and low levels of accumulation therefore needs to be understood mainly in terms of physical accumulation.

Intangible accumulation provides hints in order to solve the puzzle. Some of the same variables affecting negatively tangible investment have an opposite effect on intangibles such as intangible intensity, mark-up and GVC participation. As we mentioned in the previous chapter, GVC participation allow firms to increase the output per unit of investment (since it is other firms those which are actually investing and producing) and/or a decrease in costs (since it is offshored to lower wages countries). Intangible accumulation is correlated with monopoly power which, on the other hand, implies an increase in profit per unit of investment. Moreover, both phenomena seem to be related: the offshoring of production has gone in hand with a turn to core activities which involve intangibles accumulation. In this sense, there has been a substitution of tangible by intangible investment, the latter being partly associated with monopolistic positions.

Finally, this chapter leaves open questions that deserve further research. First, our results show that the distribution of funds to shareholders has been done also at the expense of intangible accumulation. Although some of the characteristics of these assets make them more independent from the volume of production, the effects of financialisation and the potential harm to the firm's prospects deserve more attention.

Second, the interaction among GVC participation, intangible intensity and market power also deserves further attention. In this chapter we studied their individual effects over tangible and intangible investment while, in fact, multiple possibilities in terms of the different combination might have different effects on both types of investment, like, for example, intangible intensity and GVC participation.

Third, apart from the explanation related to monopolistic positions achieved thanks to intangible assets, one also needs to consider some of the characteristic of these assets reviewed in this chapter, especially those related to theire scalability. Different from tangible investment, where the amount of production is physically determined by the stock of property, plant and equipment, in the case of intangibles that relation is weakened if not broken. Therefore, even with high profit rates, firms are less forced to invest. The higher uncertainty involved in this type of investment, compared to tangible investment reinforces this. Results from Table 6.4, with no effect of the profit rate might be an indication of this.

Recognizing the role played by intangible assets also relativizes the profit-investment puzzle in the sense that firms are now investing but in different types of assets. Therefore, accounting rules and national accounts need to keep on updating to allow a better measurement. We say “relativize” rather than, for example, “reject”, because even when these two types of investment are taken into account, overall investment decreased as it can be told from Figure 6.2. In the general conclusion of this thesis we will come back to these points.

Appendix of Chapter 6

Table A6. 1. Definitions of variables in figures and tables

Variable	Name	Source	Calculation
TI	Capital Expenditures	Compustat Data Item 128	-
II	Intangible Investment	Compustat Data Item 46, 132	Research and development (R&D) + 0.3 × selling, general, and administrative (SG&A) spending (Peters and Taylor 2017)
K	Net property, plant and equipment	Compustat Data Item 8	-
INTAN	Stock of intangibles	Compustat Data Item 33, 204	Intangibles-goodwill+intangible accumulation using the perpetual inventory method (Peters and Taylor 2017)
INTERNF	Cash and short-term investments	Compustat Data Item 1	-
Sales	Revenue	Compustat Data Item 12	-
newπ	Operating surplus	Compustat Data Item 13, 46	Operating income before depreciation + R&D
mark-up	Mark-up	Compustat Data Item 12, 41	Sales/Cost of Good Sold
LONGDEBT	Long-term debt	Compustat Data Item 9	-
FININCOME	Interest Income	Compustat Data Item 62	-
PAYOUTS	Financial Payouts (dividends+share buybacks)	Compustat Data Item 115, 117	-
GVCpart	Global Value chain participation	WIOD	Carballa, Durand, Knauss (2016)

Table A6.2. Estimation results based on equation (2), less variables. Period: 2000-2014.

Dependent variable: ln(TI/(K+INTAN))i,t	All	USA	UK	FR	GER	JPN	All-Top25%	USA-Top25%	UK-Top25%	FR-Top25%	GER-Top25%	JPN-Top25%
ln(INTAN/(K+INTAN))i,t-1	-0.010***	-0.001	-0.005	-0.017	-0.005	-0.032***	-0.027***	-0.011	-0.009	0.050	-0.055**	-0.069***
	(0.003)	(0.003)	(0.010)	(0.014)	(0.015)	(0.006)	(0.008)	(0.010)	(0.025)	(0.046)	(0.023)	(0.015)
ln(cash/(K+INTAN))i,t-1	0.037***	0.034***	0.042***	0.041***	0.039***	0.031***	0.029***	0.030***	0.033**	0.068***	0.062**	0.022***
	(0.002)	(0.002)	(0.005)	(0.009)	(0.006)	(0.004)	(0.005)	(0.006)	(0.015)	(0.025)	(0.026)	(0.007)
ln(sales/(K+INTAN))i,t-1	0.027***	0.023***	0.025***	0.052***	0.041***	0.017***	0.018***	0.013***	0.035***	0.033**	0.002	0.022***
	(0.002)	(0.002)	(0.006)	(0.007)	(0.008)	(0.004)	(0.004)	(0.005)	(0.011)	(0.015)	(0.021)	(0.006)
ln(newπ/(K+INTAN))i,t-1	0.019***	0.026***	-0.001	0.002	0.012	0.050***	0.077***	0.075***	0.039*	0.035	0.131***	0.100***
	(0.003)	(0.003)	(0.008)	(0.010)	(0.010)	(0.008)	(0.009)	(0.011)	(0.022)	(0.032)	(0.048)	(0.015)
ln(markup)i,t-1	-0.003**	-0.004***	-0.001	0.004	-0.003	0.013	-0.003	-0.010	0.004	-0.006	0.006	0.010
	(0.001)	(0.001)	(0.002)	(0.006)	(0.008)	(0.010)	(0.004)	(0.006)	(0.006)	(0.013)	(0.012)	(0.009)
ln(PAYOUTS/(K+INTAN))i,t-1	-0.000	-0.003	0.007	-0.036	0.043**	-0.047**	-0.026***	-0.019***	-0.048***	0.006	-0.006	-0.080
	(0.003)	(0.003)	(0.015)	(0.024)	(0.021)	(0.021)	(0.006)	(0.007)	(0.015)	(0.034)	(0.022)	(0.049)
ln(GVCpart)j,t-1	-0.002	-0.023**	-0.002	0.027	0.002	0.036***	-0.009	-0.057***	0.017	-0.022	-0.002	0.008
	(0.005)	(0.011)	(0.012)	(0.033)	(0.045)	(0.010)	(0.007)	(0.014)	(0.026)	(0.035)	(0.042)	(0.016)
Constant	0.042***	0.053***	0.059***	0.051**	0.072***	0.013	0.060***	0.080***	0.042**	0.025	0.084***	0.035***
	(0.003)	(0.004)	(0.009)	(0.021)	(0.026)	(0.008)	(0.006)	(0.008)	(0.019)	(0.040)	(0.030)	(0.011)
N. obs	104258	51799	10144	4178	4676	33461	26551	13178	2582	1081	1174	8536
r2	0.120	0.119	0.159	0.257	0.228	0.097	0.151	0.149	0.237	0.333	0.343	0.172
r2_a	0.119	0.118	0.153	0.246	0.218	0.096	0.149	0.145	0.219	0.298	0.312	0.167
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A6.3. Estimation results based on equation (3), less variables. Period: 2000-2014.

Dependent variable: ln(II/(K+INTAN))i,t	All	USA	UK	FR	GER	JPN	All-Top25%	USA-Top25%	UK-Top25%	FR-Top25%	GER-Top25%	JPN-Top25%
ln(INTAN/(K+INTAN))i,t-1	0.128***	0.134***	0.126***	0.127***	0.110***	0.117***	0.053***	0.047***	0.086***	0.026	0.072**	0.052**
	(0.003)	(0.004)	(0.010)	(0.017)	(0.015)	(0.006)	(0.007)	(0.008)	(0.017)	(0.023)	(0.029)	(0.024)
ln(cash/(K+INTAN))i,t-1	0.037***	0.044***	0.035***	0.023**	0.023***	0.020***	0.014***	0.019***	0.006	0.025**	0.012	0.012**
	(0.002)	(0.003)	(0.006)	(0.009)	(0.007)	(0.004)	(0.004)	(0.006)	(0.009)	(0.010)	(0.014)	(0.005)
ln(sales/(K+INTAN))i,t-1	0.043***	0.048***	0.041***	0.055***	0.026***	0.039***	0.028***	0.022***	0.032***	0.006	0.041**	0.044***
	(0.002)	(0.003)	(0.007)	(0.009)	(0.009)	(0.003)	(0.003)	(0.004)	(0.009)	(0.020)	(0.020)	(0.006)
ln(newπ/(K+INTAN))i,t-1	-0.002	-0.014***	0.004	-0.002	0.021	0.028***	0.047***	0.045***	0.051***	0.114***	0.021	0.026**
	(0.004)	(0.005)	(0.010)	(0.012)	(0.013)	(0.005)	(0.006)	(0.008)	(0.014)	(0.034)	(0.033)	(0.011)
ln(markup)i,t-1	0.003*	0.004**	0.000	0.005	0.005	0.012**	0.005	0.008	-0.002	0.019	0.010	0.018**
	(0.002)	(0.002)	(0.003)	(0.006)	(0.006)	(0.005)	(0.004)	(0.006)	(0.004)	(0.014)	(0.012)	(0.008)
ln(PAYOUTS/(K+INTAN))i,t-1	-0.002	-0.005	-0.027**	0.056*	0.034	0.010	-0.013***	-0.010**	-0.041***	0.043**	0.003	-0.046
	(0.004)	(0.004)	(0.013)	(0.034)	(0.022)	(0.018)	(0.004)	(0.004)	(0.014)	(0.021)	(0.036)	(0.035)
ln(GVCpart)j,t-1	0.015***	0.044***	0.003	-0.002	0.103**	0.001	0.010*	0.019*	-0.018	0.005	0.016	0.016**
	(0.006)	(0.011)	(0.014)	(0.032)	(0.043)	(0.004)	(0.006)	(0.011)	(0.014)	(0.018)	(0.024)	(0.006)
Constant	0.027***	0.025***	0.071***	0.005	0.024	0.000	0.032***	0.027***	0.053***	0.021	0.017	0.015
	(0.003)	(0.005)	(0.010)	(0.021)	(0.026)	(0.006)	(0.005)	(0.008)	(0.012)	(0.031)	(0.025)	(0.011)
N. obs	104258	51799	10144	4178	4676	33461	26551	13178	2582	1081	1174	8536
r2	0.289	0.272	0.319	0.235	0.254	0.517	0.212	0.234	0.262	0.289	0.296	0.318
r2_a	0.288	0.271	0.315	0.224	0.244	0.516	0.210	0.230	0.245	0.252	0.262	0.314
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A6.4. Estimation results based on equation (2), alternative measure of GVCpart. Period: 2000-2014.

Dependent variable: ln(TI/(K+INTAN))i,t	All	USA	UK	FR	GER	JPN	All-Top25%	USA-Top25%	UK-Top25%	FR-Top25%	GER-Top25%	JPN-Top25%
ln(INTAN/(K+INTAN))i,t-1	-0.010***	-0.001	-0.005	-0.015	-0.006	-0.033***	-0.029***	-0.012	-0.011	0.052	-0.055**	-0.068***
	(0.003)	(0.003)	(0.010)	(0.014)	(0.015)	(0.006)	(0.008)	(0.010)	(0.025)	(0.043)	(0.023)	(0.014)
ln(cash/(K+INTAN))i,t-1	0.036***	0.034***	0.045***	0.045***	0.042***	0.032***	0.028***	0.032***	0.034**	0.079***	0.063**	0.021***
	(0.002)	(0.002)	(0.005)	(0.009)	(0.008)	(0.004)	(0.004)	(0.006)	(0.013)	(0.027)	(0.025)	(0.007)
ln(sales/(K+INTAN))i,t-1	0.027***	0.023***	0.026***	0.052***	0.042***	0.017***	0.018***	0.014***	0.036***	0.034**	0.002	0.021***
	(0.002)	(0.002)	(0.006)	(0.007)	(0.008)	(0.004)	(0.004)	(0.005)	(0.011)	(0.015)	(0.020)	(0.006)
ln(newπ/(K+INTAN))i,t-1	0.019***	0.026***	-0.001	0.001	0.011	0.049***	0.077***	0.075***	0.042*	0.040	0.134***	0.099***
	(0.003)	(0.003)	(0.008)	(0.010)	(0.010)	(0.008)	(0.009)	(0.011)	(0.022)	(0.031)	(0.047)	(0.015)
ln(markup)i,t-1	-0.003**	-0.004***	-0.001	0.004	-0.004	0.012	-0.003	-0.010	0.004	-0.005	0.007	0.010
	(0.001)	(0.001)	(0.002)	(0.006)	(0.008)	(0.009)	(0.004)	(0.006)	(0.006)	(0.013)	(0.012)	(0.009)
ln(LONGDEBT/(K+INTAN))i,t-1	-0.007***	-0.005**	-0.007	0.008	-0.010	-0.018***	-0.007**	-0.004	-0.015**	-0.003	0.008	0.000
	(0.002)	(0.002)	(0.005)	(0.007)	(0.010)	(0.006)	(0.003)	(0.003)	(0.008)	(0.013)	(0.013)	(0.008)
ln(FININCOME/(K+INTAN))i,t-1	0.040	-0.001	-0.072	-0.186	-0.098	0.092	0.072	-0.031	0.039	-0.742**	-0.047	0.121
	(0.028)	(0.035)	(0.071)	(0.123)	(0.110)	(0.075)	(0.068)	(0.098)	(0.110)	(0.331)	(0.173)	(0.250)
ln(PAYOUTS/(K+INTAN))i,t-1	0.002	-0.001	0.015	-0.035	0.046**	-0.040*	-0.024***	-0.017***	-0.039***	0.013	-0.007	-0.091*
	(0.003)	(0.003)	(0.016)	(0.023)	(0.021)	(0.021)	(0.006)	(0.007)	(0.014)	(0.036)	(0.022)	(0.047)
ln(FVA)j,t-1	0.000	-0.056	0.004	0.217*	-0.235	0.266***	-0.019	-0.189***	-0.105	-0.027	-0.236	0.183*
	(0.022)	(0.042)	(0.046)	(0.125)	(0.170)	(0.057)	(0.031)	(0.066)	(0.065)	(0.106)	(0.177)	(0.093)
Constant	0.042***	0.052***	0.059***	0.031	0.108***	0.014	0.060***	0.081***	0.061***	0.020	0.116***	0.029**
	(0.003)	(0.004)	(0.010)	(0.021)	(0.028)	(0.008)	(0.006)	(0.008)	(0.021)	(0.037)	(0.031)	(0.012)
N. obs	104258	51799	10144	4178	4676	33461	26551	13178	2582	1081	1174	8536
r2	0.120	0.120	0.160	0.260	0.230	0.100	0.152	0.149	0.241	0.342	0.345	0.173
r2_a	0.120	0.119	0.154	0.249	0.219	0.098	0.149	0.145	0.222	0.306	0.312	0.168
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A6.5. Estimation results based on equation (3), alternative measure of GVCpart. Period: 2000-2014.

Dependent variable: ln(II/(K+INTAN))i,t	All	USA	UK	FR	GER	JPN	All-Top25%	USA-Top25%	UK-Top25%	FR-Top25%	GER-Top25%	JPN-Top25%
ln(INTAN/(K+INTAN))i,t-1	0.129***	0.135***	0.126***	0.126***	0.111***	0.118***	0.053***	0.047***	0.088***	0.038*	0.071**	0.051**
	(0.003)	(0.004)	(0.010)	(0.017)	(0.015)	(0.005)	(0.007)	(0.008)	(0.018)	(0.021)	(0.029)	(0.025)
ln(cash/(K+INTAN))i,t-1	0.032***	0.039***	0.030***	0.016*	0.017**	0.019***	0.013***	0.018***	0.007	0.019*	0.011	0.012**
	(0.002)	(0.003)	(0.007)	(0.010)	(0.008)	(0.003)	(0.004)	(0.006)	(0.009)	(0.009)	(0.014)	(0.005)
ln(sales/(K+INTAN))i,t-1	0.042***	0.048***	0.040***	0.054***	0.026***	0.039***	0.028***	0.022***	0.032***	0.006	0.042**	0.044***
	(0.002)	(0.003)	(0.007)	(0.009)	(0.009)	(0.003)	(0.003)	(0.004)	(0.009)	(0.019)	(0.021)	(0.006)
ln(newπ/(K+INTAN))i,t-1	-0.001	-0.014***	0.005	-0.000	0.021*	0.029***	0.047***	0.045***	0.050***	0.112***	0.022	0.027**
	(0.004)	(0.005)	(0.010)	(0.012)	(0.013)	(0.005)	(0.006)	(0.008)	(0.014)	(0.033)	(0.033)	(0.012)
ln(markup)i,t-1	0.003**	0.004**	0.000	0.006	0.005	0.013***	0.005	0.008	-0.002	0.020	0.010	0.018**
	(0.002)	(0.002)	(0.003)	(0.006)	(0.006)	(0.005)	(0.004)	(0.006)	(0.004)	(0.013)	(0.012)	(0.008)
ln(LONGDEBT/(K+INTAN))i,t-1	0.009***	0.009***	0.013**	0.004	0.013	0.014***	0.002	-0.001	0.003	0.031***	0.011	0.001
	(0.002)	(0.002)	(0.006)	(0.010)	(0.009)	(0.003)	(0.002)	(0.003)	(0.005)	(0.009)	(0.008)	(0.006)
ln(FININCOME/(K+INTAN))i,t-1	0.219***	0.223***	0.145*	0.283**	0.138	0.012	0.051	0.034	-0.051	0.102	-0.006	0.015
	(0.035)	(0.048)	(0.078)	(0.141)	(0.127)	(0.065)	(0.055)	(0.094)	(0.109)	(0.153)	(0.099)	(0.107)
ln(PAYOUTS/(K+INTAN))i,t-1	-0.008**	-0.009**	-0.040***	0.049	0.029	0.001	-0.014***	-0.010**	-0.042***	0.027	0.002	-0.045
	(0.004)	(0.004)	(0.013)	(0.033)	(0.023)	(0.018)	(0.004)	(0.004)	(0.014)	(0.021)	(0.035)	(0.036)
ln(FVA)j,t-1	0.077***	0.061	-0.049	-0.193	0.379***	-0.109***	0.036	0.007	-0.004	-0.029	0.146	-0.053
	(0.023)	(0.040)	(0.063)	(0.123)	(0.132)	(0.024)	(0.023)	(0.042)	(0.074)	(0.074)	(0.117)	(0.032)
Constant	0.023***	0.029***	0.076***	0.028	0.020	0.002	0.031***	0.031***	0.047***	0.014	0.001	0.021*
	(0.003)	(0.005)	(0.011)	(0.022)	(0.022)	(0.006)	(0.005)	(0.007)	(0.013)	(0.027)	(0.025)	(0.012)
N. obs	104258	51799	10144	4178	4676	33461	26551	13178	2582	1081	1174	8536
r2	0.292	0.274	0.321	0.239	0.255	0.519	0.212	0.234	0.262	0.302	0.299	0.318
r2_a	0.291	0.274	0.317	0.228	0.245	0.519	0.210	0.230	0.244	0.264	0.264	0.313
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Conclusions of Part 3

In **Part 3** we have provided evidence that supports the role played by changes in the organization of production in explaining our remaining research questions: why are not firms investing in spite of high profitability? How can they remain profitable with low levels of investment?

In **Chapter 5** we showed that the negative correlation between payouts and investment in capital expenditures underlined by the literature is valid mainly for firms belonging to industries with high offshoring in non-core non-energy activities. Moreover, investment of firms in low offshoring sectors is not significantly correlated to their financial payouts. These results suggest that financialisation and offshoring are related phenomenon and for corporations that distribute financial payouts at the expense of their capital accumulation, the real source of the cash distributed to shareholders should be found, partly, in GVCs. Through offshoring, firms are less dependent on their own facilities freeing those funds from productive needs and leaving an open space to distribute them to shareholders.

In **Chapter 6** we provided a complementary story to that of **Chapter 5** by introducing intangible accumulation into the analysis. In this chapter we showed that some of the same dynamics that push tangible investment backwards foster intangible investment such as the participation in global value chains, market power and intangible intensity. This not only reinforces the role played by production offshoring but also points towards further solutions to our two remaining questions: monopoly rents. While offshoring allows an increase in output without increasing firms' facilities and also to lower their costs, monopoly rents allow firm to artificially increase the price at which commodities are sold.

After finishing with this last part of the thesis, we will turn next to our general conclusions. There we will go back to the original theories revised in **Chapter 2**, indicating how each of them is affected by our findings. Finally, we will finish with some of the implications of this thesis as well as its limits and further lines of research open.

General Conclusions

Financialisation as a current stage of capitalism is characterized, among other things, by the concomitance of low levels of accumulation with constant or increasing profit rates in developed economies. Taking into account the expected positive relation among them, the current situation represents what has been defined as the *profit-investment puzzle*. At the firm level, the puzzle involves, in fact, various puzzles or questions simultaneously: a) why are not firms investing in spite of high profitability?, b) what are they doing with those funds?, c) how can they remain profitable with low levels of investment?

Of course we have not been the first to point towards these questions, not even to propose answers to them. **The main contribution of this thesis has been, on the contrary, to provide a thorough empirical examination of the existing answers found in the literature**. **Moreover, we have also showed, theoretically and empirically, the need to provide comprehensive answers which are able to tackle, simultaneously, all the questions listed before.**

One common answer is that which emphasizes the role played by the maximisation of shareholder value as guiding principle for corporate governance. The theoretical problem of this explanation is that, while it can answer questions a), and b), it provides no answer (and goes against) question c). The narrative needs to account not only for the distribution of funds to shareholders *instead of*, but also *in spite of* (not) investing them; and therefore needs to be necessarily linked with other explanations. We called this the *supply-side* face of the profit-investment puzzle.

Another answer to the puzzle, not mutually exclusive with the previous one, claims there has been a mimicking of finance carried by NFCs. This we defined as the *financial turn of accumulation* hypothesis. Contrary to the previous answer, this one is able to tackle all the questions at the same time. However, according to our analysis and despite its wide recognition, it is not valid as a general trend in the USA, neither in Latin America. In the case of the former, the hypothesis wrongly considers FDI, intangible assets and goodwill as financial assets. Moreover, the liquid financial assets which did increase have not been tied to an increase in financial income which has been fairly low and, more importantly, even decreasing in the last years. In the case of Latin American (taken as an example of a group of emerging market economies), the increase in liquid financial assets has not risen either due to a quest for financial profitability.

The final answers we explored are related to changes that occurred in the productive sphere. Not only these alternatives offer answers to questions a), b) and c) but it was also here that we found the strongest and most promising explanations. The concomitance of low accumulation and high distribution of funds to shareholders was found to be especially intense in high offshoring industries. Moreover, the same factors negatively affecting physical investment have an opposite effect on intangible investment. The participation in global value chains is one of them but also market power. The combination of offshoring and a shift in accumulation to intangibles provides the answers we identified in order to solve the puzzle: higher production (done by other firms), lower costs and higher mark-up per unit of investment.

Taking all this into account, we now go back to the post-Keynesian and Marxian theories presented in Chapter 2 in order to discuss how the findings in this thesis affect them. We will then end up with the implications of this thesis, limitations and future lines of research.

1. Post-Keynesian theory

Studies on financialisation have traditionally focused on the effects of the MSV on investment, downplaying other phenomena that might affect investment, such as the globalisation of production. For example, Dallery (2009, p. 494) states that contrary to "Crotty (1993) who addresses globalisation through increased competition, I approach here globalization through its second dimension: the increasing power of finance." Krippner (2005) addresses the claim that financialisation might reflect spatial relocation of production but she dismisses it based on the fact that, in the comparison between US domestic portfolio income and foreign-source portfolio income, results from domestic economy dominate the trend for the global measure. Duménil and Lévy (2011, p. 301), who do not belong to the post-Keynesian school but also emphasize the MSV explanation, make reference to investment and globalisation of production when discussing the conditions for an alternative postcrisis US and international scenario. Nevertheless, globalisation of production is associated with deficit trade in the US and global imbalances, while financialisation is related to the decrease in investment.

It is interesting to mention that in many of the papers where the financialisation channels are discussed, the possibility that the decrease of investment could be explained by the delocalization of production was also considered. For example, Stockhammer (2004, p. 729) makes reference to it in a footnote but argues that he wants to focus specifically on financialisation.

We contributed to the post-Keynesian literature on financialisation by showing theoretically and empirically the need to link the MSV explanation with others that make it sustainable over time

and therefore avoid the *supply-side* face of the puzzle. At the empirical level, our findings confirm the original work done by Milberg (2008) and Milberg and Winkler (2009, 2013) who, from a post-Keynesian perspective, pointed towards the relation between offshoring of production and financialisation.

At the theoretical level, following the post-Keynesian theory of the firm, we showed that permanent decreases of accumulation coupled with international competition would either make firms enter in the positive-slope segment of the expansion frontier and/or shift it downwards. To either avoid or counterbalance this situation, firms need higher profitability per unit of investment. We proposed an explicit functional form of the expansion frontier that considers a) the sensitivity of the expected profit rate to the current rate of accumulation, b) the profit margin and c) the rate of accumulation that maximizes the expected rate of profit. While offshoring increases the amount of production and decreases costs per unit of investment, intangible accumulation is associated with monopoly rents that increase prices per unit of investment. As a result, in both cases, the EF is shifted upwards (i.e., higher profitability is obtained) but also 1) the expected profit rate is less related to current accumulation (flattening the EF) and 2) firms are able to maximize their expected profit rate with a lower rate of current accumulation.

2. Marxian theory

The findings we have made in this thesis are also relevant for the Marxian school of thought for various reasons. First, by showing that the financial turn of accumulation has not been a strategy followed by NFCs, at least in the USA, we contributed to the understanding of how NFCs (did not) overcome the problems experienced in the productive sphere in the 1970s and 1980s. Whether firms experienced a decrease in the rate of profit due to increased international competition or a decrease in profitable opportunities due to a monopoly state of the economy, the solution was not related to the accumulation of financial assets and increased financial profitability.

Second, we have effectively shown the pervasive effects related to increased distribution of funds to shareholders in the form of payouts and dividends. As we reviewed in Chapter 2, in some cases these effects have been either ignored or explicitly tried to be denied. Both in that chapter and in Chapter 3, when the uses of funds were studied, we indicated the magnitude of the distribution of funds. Moreover, in Chapters 5 and 6 we found systematically negative effects of payouts on investment.

Besides these empirical clarifications, we believe some interesting theoretical findings can also be drawn from this thesis when trying to answer the question of why an increase in the rate of

profit has not triggered higher accumulation. The answers can be found in the simple M-C-Pr-C'-M' circuit. As we indicated in Chapter 2, the goal of this circuit is the quantitative increase, or surplus-value, defined as M' = M + ΔM with the production (Pr) of new commodities (C') to obtain that surplus. We said that *investment* had to be interpreted as part of the process of extended reproduction. So, how do offshoring and the increasing role of intangibles fit?

The circuit basically assumes that it is the same unit of production that carries Pr and receives M'. This is not necessarily the case anymore. The disentangling of production processes separates those different steps so that those firms receiving M' do not necessarily have their own production that needs to be fed with newer investment. Investment happens but elsewhere. Accumulation only makes sense as a mean for M', but M' is now more and more independent from the firm's own accumulation as we have already indicated.

Nevertheless, even if one would accept this claim, then the next question would be why firms are not using those funds for intangible investment rather than tangible. Here we can find two answers. First, we saw that in many cases these assets are increasingly associated with monopoly rents which put firms in a privileged position. Second, and even in the absence of monopoly rents, part of the answer also needs to be found in the *materiality* of this type of assets. As we indicated in Chapter 6, they are characterized, among other things, by their scalability. This means intangible assets can be translated into potentially an infinite number of commodities, which is not the case for tangible investment.

Finally, as we reviewed in the previous chapter, intangible assets have a higher degree of uncertainty than tangibles in the sense that they a) are harder to sell, b) are usually firm-specific, c) have more uncertain results. If we combine these characteristics with their scalability and the connection with monopoly power, then it is easy to understand that the link between this type of assets and profitability is weaker than in the case of tangible assets.

3. Implications

We believe that in this thesis we provided elements in order to synthetize the differences between Marxian and post-Keynesian schools of thought in relation to the decrease in accumulation along with high profitability during financialisation. Following the post-Keynesian literature we reaffirmed the pervasive role of the maximization of shareholder value. However, when we asked about the sustainability of such dynamics, we brought into consideration phenomena emphasized by the Marxian literature such as monopoly rents or global production networks but highlighting that these changes experienced in the productive

sphere should be understood as *necessary* but not *sufficient* conditions for a change in accumulation.

In this sense, this thesis has contributed to a better understanding of the relation between profitability and accumulation during financialisation and those factors that *did* and *did not* play a role in the decrease in investment. Giving some tools in order to revert this decrease in accumulation, therefore, should be an ultimate goal of this thesis. We move in this direction next.

A natural candidate would be the "antifinancialisation" reform mentioned in Chapter 2. By putting together all the elements analyzed throughout this thesis our guess is that this measure should ameliorate the situation but would be surely insufficient. We have shown that the dependence on own investment for big firms in order to sustain high profits has decreased during the last years. Therefore, an antifinancialisation reform could end up in different scenarios not involving higher accumulation rates such as a) an increase in mergers and acquisitions, b) an increase in the accumulation of cash and liquid financial assets and/or c) reduced borrowing. Moreover, there is no guarantee either that the increase in investment resulting from this antifinancialisation reform might address some of the most urgent challenges we are facing as a society nowadays, typically climate change.

The antifinancialisation reform should not be limited either to, for example, curtailing only dividends or buybacks, but should rather involve a deeper change in corporate governance that puts back into consideration all the stockholders involved in the production process, especially workers (through higher wages) and the State (through higher taxes). As we showed in Chapter 6, intangibles assets facilitate profit shifting and tax evasion. In this sense, a part of the funds being distributed to shareholders come, in fact, from those non-paid taxes. Another part of those funds are related to the low wages payed in countries where production is offshored.

Along this thesis we have permanently asked about the conditions for making the distribution of funds with low rates of accumulation sustainable from *the point of view of the firm*. We have also indicated the sustainability conditions from a *macroeconomic point of view* such as the increase in capitalists' consumption or government deficits and external surpluses (although we did not specifically focused on them). However, something that we have not reflected on is the sustainability from a *socio-political point of view*. And it is here where the limit seems to be closer and closer. Contrary to micro and macroeconomic sustainability, the current dynamics in terms of capital accumulation and uses of funds seem to be less and less sustainable from a socio-political point of view as they boost the increase in inequality and social exhaustion we see in many countries, both from the global north and south.

4. Limitations and future lines of research

This thesis has followed the ambitious objective of studying capital accumulation and its changing relation with profitability. Moreover, each of our empirical chapters has focused on one particular hypothesis which could be an entire thesis in itself. In this sense, all chapters have the limit of leaving some open questions which offer, at the same time, promising lines for future research. We will go chapter by chapter.

In **Chapter 1** we located the historical context in which the profit-investment puzzle appears in the beginning of the 1980s. According to our review, the 1970s and also part of the 1980s were particularly hard for US firms in terms of competition with Japanese and German firms. As we mentioned there it is also in the 1980s that payouts start to increase. One limit of the research carried in this thesis is that the empirical exercises carried in Part 3 start in the second half of the 1990s. In that sense, the previous period (i.e., the 1980s) still represents a puzzle with the additional problem that the solutions we found do not entirely fit. Increasing trends in globalisation start in the 1990s while hardening intellectual property rights linked to intangible accumulation are frequently associated with the creation of the World Trade Organization in 1994 and the agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs) in 1995. The literature reviewed in that chapter points towards the attack on labor conditions as the most likely answer but it would be nevertheless relevant to carry some type of empirical study -like the one performed in this thesis- to corroborate that.

In **Chapter 2** we reviewed the relation between investment and profits for different theories. One common feature is that all of them present *a theory* of investment. The literature on global value chains has shown that, in the organization of global production, there are different types of firms who play different roles. Therefore, looking forward, this should be taken into account by acknowledging that there are probably *theories* of investment, depending on the type of firm we analyze, rather than *a theory* of investment.

In **Chapter 3** and **Chapter 4** we showed that financial accumulation was not a motive behind the accumulation of liquid financial assets. However, we did not provide a positive explanation for the accumulation of those types of assets which, moreover, could also be used to increase investment. In a similar fashion than investment, although the accumulation of financial assets is transversal to different sizes of firms, the drivers behind that decision will probably be different according to the type of firm.

Also in relation to **Chapter 3**, although we showed there that the *financial turn of accumulation* is not a strategy followed in general, further studies should focus on the determinants of those cases in which NFCs *do* mimic FCs. In that chapter we indicated two ways in order to do that.

First, it would be necessary to focus on those cases with a significant proportion of 'receivables' and 'other investments and advances'. Second, we provided a list of NFCs with information regarding income from their financial division showing that, for them, financial income plays a more relevant role.

In **Chapter 5** and **Chapter 6** we analyzed separately the participation in GVCs, intangible intensity and mark-up. As we have indicated there, we omitted the interrelation among those variables. This is not only a relevant path to follow but also will surely have implications in terms of accumulation dynamics. The relatively young field of intangible investment also offers many future lines of research. For example, in relation to financialisation: did financialisation have an impact on the type of knowledge developed by NFCs? How did financialisation affect the geographical distribution of knowledge production?

A transversal limitation of all our empirical chapters, with the exception of **Chapter 5**, is that our estimations were carried, and therefore our conclusions taken, indistinctly of sectoral dynamics. A more precise assessment of the relation between investment and profit should be carried taking into account these considerations. Also, all empirical chapters were based on quantitative analysis. A future line of research, complementary to that carried in this thesis, will be to carry semi-structured in-depth interviews to investor relations officers in order to know better firms' decisions in terms of capital expenditures.

All in all, we think that this thesis has shown that there is a need to re-elaborate the most basic economic concepts, reconceiving them in light of recent capitalism transformations and not limiting our analysis to micro nor to macroeconomics. In a globalized capitalism, theories should also aim to be global although acknowledging that global is not equal to undifferentiated. On the contrary, and looking at one of the aforementioned thoughts, we need to conciliate multiple theories of the firm and investment within a bigger explanation of the general dynamics of capital accumulation.

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Titre de la thèse

Le problème du profit sans l'investissement à l'ère de la financiarisation. *Une étude empirique sur l'accumulation productive et financière des sociétés non financières*.

Résumé

Cette thèse étudie par quels moyens les sociétés non financières cotées ont pu demeurer profitables malgré un investissement en déclin et une distribution accrue de leurs fonds aux actionnaires, à l'heure de la financiarisation. Ce faible lien entre profit et investissement est couramment dénommé le problème du profit sans l'investissement. La **première partie** de la thèse situe historiquement et théoriquement ce problème. Alors que la littérature sur la financiarisation se contente de montrer les effets négatifs de la distribution de fonds aux actionnaires sur l'investissement, cette thèse montre que la coexistence de hauts niveaux de profits (et de paiements financiers) avec de faibles niveaux d'investissement a été rendu possible par l'engagement simultané des sociétés non financières dans d'autres types d'activités. La **deuxième partie** examine l'un de ces engagements que l'on dénomme le tournant financier de l'accumulation. La solution au problème du profit sans l'investissement implique dans ce cas un déplacement des activités des sociétés non financières vers l'accumulation d'actifs et de profits financiers. Cependant, dans cette partie, nous fournissons des preuves empiriques substantielles qui rejettent cette alternative. La **troisième partie** de la thèse se focalise non plus sur la sphère financière mais productive, et porte sur la délocalisation de la production et l'accumulation d'actifs intangibles. Cette partie, contrairement à la précédente, fournit des résultats probants et prometteurs dans l'explication du problème du profit sans investissement.

Mots clés

Financiarisation; Accumulation de capital, Chaînes globales de valeur ; Gouvernance d'entreprise.

Title of the thesis

The Profit-Investment Puzzle under Financialisation. *An empirical enquiry on financial and productive accumulation by non-financial corporations*

Abstract

This thesis studies the different strategies that have allowed listed non-financial corporations to remain profitable while investing less and increasingly distributing funds to shareholders under financialisation. This feeble link between profitability and investment is usually denominated as the profit-investment puzzle. **Part 1** of this thesis locates historically and theoretically this puzzle. Whereas the financialisation literature has generally been limited to show the negative effects of the distribution of funds to shareholders for capital expenditures, we show that the coexistence of high levels of profits (and payouts) with low levels of investment was possible due to the simultaneous engagement of these non-financial corporations in other activities. **Part 2** examines one type of answer that we denominate the *financial turn of accumulation*. The solution to the puzzle in this case implies a shift in the activities of NFCs to financial accumulation and profits. However, throughout this part we provide substantive evidence that rejects this alternative. **Part 3** of the thesis moves away from financial accumulation and directs towards the realm of the productive sphere by focusing on production offshoring and intangible accumulation. This part, contrary to the previous one, provides strong and promising results in the explanation of the puzzle.

Keywords

Financialisation; Capital accumulation; Global value chains; Corporate governance.