

Financialization and the wage-labor nexus: the case of France

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Abstract:

Global financialization processes in recent decades have multiplied the financial factors constraining the decisions of diverse economic actors. This has even affected the behavior of non-financial firms, which are gradually being altered by financial forces.

This paper analyzes how the financialization of non-financial firms in the French economy affected wages from 1995 to 2010. Financialization of French non-financial corporations has increased their payments to capital markets in the form of interest payments, dividends and share buybacks. We will examine the effects of these financial payments on wages using a panel data model of 4200 French non-financial firms, linking wages to payout ratios. The results confirm that corporations with higher payout ratios to financial markets also tend to have lower wages.

Key words: financialization, wages, labor markets, neoliberalism.

JEL classification: G10, J30

1.- Introduction: methodology and research structure

The evolution of financialization in recent decades has led to concern regarding its impact on economic growth, investment, macroeconomic dynamics, state economic policies and episodes of instability and crisis. Although some studies consider the relationship of financialization to wages to be an important factor, in the specialized literature insufficient attention has been given to this subject.

The questions addressed in this study seek to shed some light on this issue. What are the links between the process of financialization and wage levels? How have wage dynamics been affected by financialization trends? Our research focuses specifically on the French economy, which in the last three decades has experienced one of the most intense liberalization and financialization tendencies among OECD countries. This makes it an especially appropriate case for studying the consequences of financialization on wage dynamics.

Within the sphere of the French economy, we have chosen to examine large, non-financial corporations. In contrast with most studies of financialization, we do not analyze the entire process of accumulation or overall national macroeconomic dynamics. Since our intent is to study the links between the process of financialization and wage levels, it is reasonable to focus our analysis on the “meeting point” of these issues: corporations, especially large corporations, are a particularly interesting sphere for analyzing the relations between financial capital and salaried work, and for determining how the hegemony of financial capital affects wages.

Specifically, we seek to determine how the financialization that took place between 1995 and 2010 in large non-financial corporations affected the wage-labor nexus in general and salaries in particular. For this purpose we designed a microeconomic study using panel data from corporations in order to evaluate how the financialization of corporate strategies affected salaries. Certain studies in specialized literature have adopted this methodology for examining the consequences of the financialization process on corporate investment (Orhangazi, 2008; Demir, 2009). Nevertheless, this methodology has not been used to evaluate the wage dimension.

After this introduction, the second section provides a review of the literature on financialization, especially as it relates to analyzing its effect on wage levels. In the third section we examine the financialization process of recent decades in French corporations and its possible impact on wages. In the fourth section we estimate a panel data model to empirically evaluate our hypothesis. Finally, the main conclusions are provided in the fifth section.

2.- Theoretical framework: financialization and its relationship to wages

The concept of *financialization* has become pervasive in economic circles, and refers in one way or another to the growing influence that financial forces, markets and investors have had on world economic dynamics since the late 1970s (Bellamy and Magdoff, 2009; Duménil and Levy, 2004 and 2011; Chesnais, 2004; Krippner, 2005; Epstein, 2005; Lapavistas, 2009a; Stockhammer, 2004; Orhangazi, 2008; Crotty, 2005; Onaran *et al.*, 2009; Palley, 2007; Dallery, 2009 and 2010; Dallery and van Treeck, 2009; Hein, 2008). Nonetheless, in the specialized literature there is no single common definition for this phenomenon.

Financialization can be examined from diverse perspectives that emphasize different aspects, and the various definitions need not be seen as mutually exclusive. Some authors have highlighted the rapid liberalization of international financial markets, the growing instability of these markets, the de-intermediation and mercantilization of the financial systems traditionally centered on banking, the formation of enormous stock market and credit bubbles

or the impact that all this has on the macroeconomic functioning of national economies (Lapavistas, 2009a; Medialdea, 2009; Palley, 2007; Hein, 2008). Other authors give special attention to the great weight institutional investors now have in the global economy (Goyer and Hancké, 2006; Chesnais, 2004) and the parallel process of international financial liberalization. Another set of studies emphasizes the development of the new corporate governance model based on maximizing shareholder value and financial profitability in close association with the expansion of capital markets and institutional investors (Dallery, 2009; Aglietta, 2000; Plihon, 2004; Stockhammer, 2004).

This study is aligned with the definition proposed by Epstein (2005:3): “financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies”. The many indicators of the financialization process in the last thirty years (Álvarez and Medialdea, 2010) include: 1) the great increase in the stock market capitalization of the main financial centers, which now represents several times the size of some national Gross Domestic Products (GDP); 2) the fact that the value of financial transactions has increased much more rapidly than commercial or productive activity; 3) a significant expansion in credit and 4) the large increase in the relative weight of financial income vis-à-vis total national income.

Financial activity is expanding rapidly, while changes are occurring in its relationship to production, its market composition, its products, the main agents involved, etc. Medialdea (2009: 117-118) indicated that “in truth we cannot label financialized logic as novel, since it really involves certain features inherent to the logic of capital that are then intensified to the extreme [...], these changes have sufficient depth to affect the logic that rules the functioning of the economic sphere. [...] The expansive tendency of financial capital, exacerbated in this new context, causes it to rise above the strictly financial role and attempt to subject the whole realm of economic activity to its logic.”

In fact, according to Hilferding’s analysis from a political economy perspective, the concept of financialization has been used to refer to the resurgence of financial capital, which represents the fraction of the dominant class that is directing the accumulation process. This rise is reflected in the greater economic and political power of financial agents (Dumenil and Levy, 2004; Husson, 2008).

As we have mentioned, in the literature relatively little attention has been given to the links between the process of financialization and the wage-labor nexus. Nevertheless, recent post-Keynesian studies (Stockhammer, 2004 and 2006; Palley, 2007; Dallery, 2009 and 2010; Hein, 2008 and 2009) develop interesting analysis of corporations, a sphere seen as the context for confrontation between the interests of stockholders, management and workers. These studies identify from a class perspective the impact of financialization on corporate decisions to manage profits, and thereby on the logic of accumulation, employment and wages. These authors argue that corporations face new restrictions, particularly in non-financial sectors of the economy, that have slowed down the dynamic of capital accumulation, and with it the creation of jobs and increases in income for salaried workers (Stockhammer, 2004 and 2006; Palley, 2007). Those studies focused on the impact of financialization on income distribution are of particular interest (Dünhaupt, 2010; Hein, 2009).

Along similar lines, some Marxist economists have argued that the “financial puncture” is the specific mechanism by which financialization affects the process of accumulation, entrepreneurial activity and labor in developed economies. Chesnais (2001 and 2004), as well as Duménil and Levy (2004) have theoretically and empirically analyzed how financial markets ‘puncture’ the value created in the productive process. They examined payments of non-financial corporations to financial markets in the form of interest, dividends and share buybacks, and concluded that this puncture has reached such a significant level in the last

decades that retained profits have actually decreased. The rate of accumulation and job creation has decreased in tandem with this.

Other Marxist (Lapavitsas, 2009a, 2009b and 2010; Bellamy and Magdoff, 2009; Bellamy, 2010) have argued that the process of financialization does not imply a puncture of corporate resources by the financial markets. Rather, the financialization process results in the transfer of idle capital to financial markets, where this capital finds greater profitability. The liberalization and deregulation of financial markets allows capital to find better forms of valorization in the financial markets (Lapavitsas, 2009a). Contrary to what was suggested by Duménil and Lévy (2004) or Chesnais (2004), it is not the financialization process that slows capital accumulation, but rather the stagnation of the accumulation process that has led to a search for financial benefits in the sphere of circulation (Lapavitsas, 2009a; Bellamy and Magdoff, 2009).

We concur with Husson (2009) in considering that these two approaches are not mutually exclusive. Both offer relevant contributions to understanding the financialization of corporate strategies and the impact of that process on the wage-labor nexus. The ‘financial puncture’ and the ‘flight’ of relatively idle capital to the financial sphere are the specific instruments by which capital has sought to maintain the rate of profit. The ensuing struggle between productive and financial capital –both understood as economic categories rather than specific social subjects– would then be passed on directly to the sphere of wages, which become the adjustment variable. Wage freezes in recent decades may have served to accommodate tensions arising between the financial and productive spheres. Financialization can be understood in this light as a social recomposition lever capable of altering relations between the various social classes.

3.- The financialization of corporate strategies in France

3.1 – Financialization, institutional investors and corporate governance

One of the most significant changes in the international financial arena was the rise of institutional investors (investment funds, retirement funds, insurance companies, hedge funds, etc.) at the end of the 1970s. This key moment in time marked a turning point out of which a new corporate management model emerged.

Institutional investors were able to reorganize the savings and retirement funds of households on a global scale, transforming them into capital that could be valorized in the financial sphere and impose new management criteria. In 1980, these actors controlled only 3 trillion dollars, which represented 35% of the GDP of the Organization for Economic Cooperation and Development (OECD) countries. By 2009, they managed immense financial value, controlling assets worth 62 trillion dollars or the equivalent of 150.2% of the OECD GDP. In France, assets managed by these investors increased from 10.7% to 166.7% of GDP during that period.

Institutional investors operate in international financial markets with three objectives (Batsch, 2002): to obtain the highest return possible, to maintain the highest feasible liquidity for their assets and to spread investment risk throughout different sectors and geographical locations. As a result, the main investors, principally from the United States or United Kingdom, rapidly diversified their investments throughout various financial markets around the globe, entering a broad range of asset markets and activity sectors.

Anglo-Saxon institutional investors have acquired large equity stakes in French corporations, achieving a spectacular degree of foreign penetration especially after 1995 (Morin and Rigamonti, 2002). They also imposed new corporate governance criteria, which are now commonplace throughout France (Heidrick & Struggles, 2007). This created a transition from a *managerial* or *stakeholder* type of management based on strong internal control of the

company by the board of directors and managers, to a *shareholder* model based on external control by liberalized financial markets (Aglietta and Ribérioux, 2004; Jeffers and Plihon, 2001). The process of financialization put a new corporate management model in place, based on the objective of maximizing shareholder value to provide the greatest financial profits for the owners. This gave shareholders new instruments for the valorization of capital.

The extreme liquidity of international financial markets offers immense power to institutional investors, who can instantaneously sell stocks and thus punish corporations that do not meet the profitability or management criteria established by these markets. Such maneuvers can lead to sudden falls in a company's stock value, hostile takeovers, etc. The new role of the financial investors arrived after 1995 to the French corporations has led to profound changes in corporate strategies. The tension created in the struggle over appropriation of profits for use as either productive or financial capital has been transmitted to the wage-labor nexus. To examine this conflict and its impact on wages, we will analyze data on French non-financial corporations to see how and where profits are generated, and then pose questions regarding the use of profits.

3.2- The financial income of non-financial corporations

A good part of the literature that has analyzed the financialization of corporate strategies assumes non-financial corporations to be passive agents that 'suffer' the consequences of financial liberalization and deregulation. However, large non-financial corporations have participated actively in the financialization of economic activities.

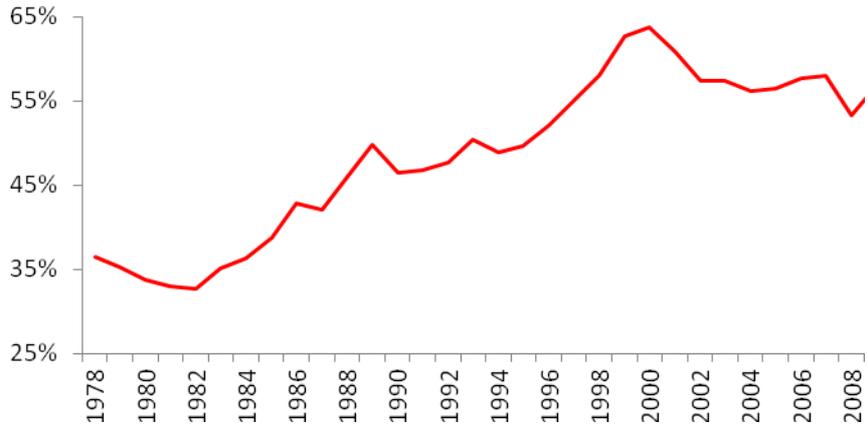
Available company funds can be invested in the acquisition of either real assets or financial assets. When the business prospects in financial markets are significantly better than those in goods and services markets, as has been the case in France for the last two decades, there is a strong incentive for corporations to invest more in financial assets than in real assets. This potentially contradictory relationship between financial and real investment was identified as far back as the 1960s, in the work of Tobin (1965). Other studies (Orhangazi, 2007; Crotty, 2005; Stockhammer, 2004 and 2007, Palley, 2001 and 2007; Milberg and Winkler, 2010; Krippner, 2005) indicate that increased investment in financial assets by non-financial corporations tended to crowd out real investment¹.

According to Crotty (2005), this 'flight' to the financial sphere was due to a stagnation of corporate profits in the productive sector throughout the 1980s and 90s. Moreover, the adoption of the new corporate governance criteria imposed a corporate preference for short-term profits (Stockhammer, 2004). Financialization pushed the directors of non-financial corporations to behave, in part, as financial investors.

In studying the United States, Krippner (2005) considered the increase in financial investments by non-financial corporations in recent decades to be the main indicator of corporate financialization. The same process took place in France. Thus, the amount of financial assets in the hands of French non-financial corporations increased sharply in France (Graph 1). In 1978, financial assets only accounted for 36.4% of total assets, but by 2009 they had reached 56.9% of the total.

¹ Tobin pointed out that at a macroeconomic level investment in financial assets cannot replace investment in real assets, since financial assets ultimately relate to the productive investments of companies.

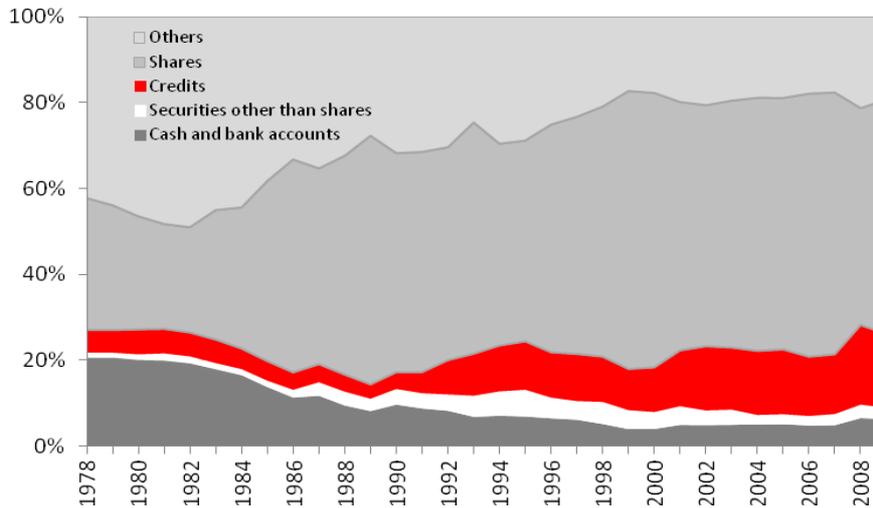
Graph 1: Financial assets of NFCs (*), 1978-2009
(% of total assets)



(*) NFCs refer to 'non-financial corporations' throughout this paper.
Source: INSEE, *Comptes nationaux, Comptes de patrimoine de SNF*.

What sort of activities were at the center of this spectacular increase? Graph 2 indicates that French firms increased their financial investments in stocks, especially those of other corporations², while also offering loans to other non-financial corporations.

Graph 2: Composition of NFC portfolios of financial assets, 1978-2009
(Total % of financial assets)



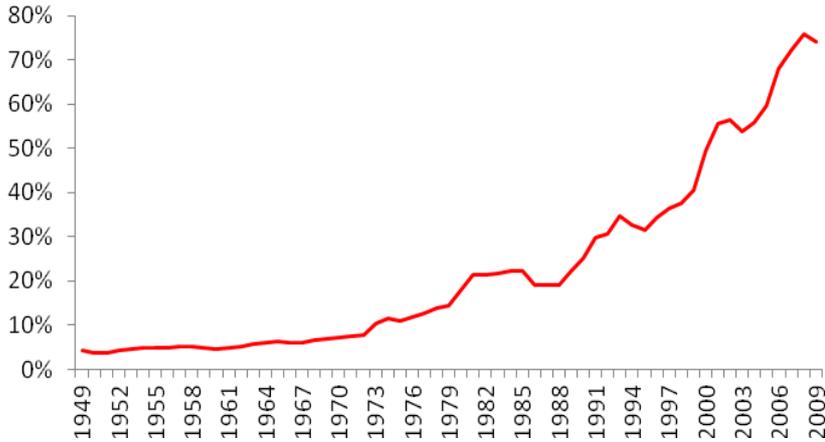
Source: INSEE, *Comptes nationaux, Comptes de patrimoine de SNF*.

² It is reasonable to argue that an increase in financial assets as a percentage of total assets –mainly due to stock purchases– is overvalued as these stocks are accounted for at market prices. Firmin (2008: 49) calculated the increase in stocks in corporate portfolios by volume at 1977 prices for the French case. This calculation makes it possible to observe how the increase in financial assets over total non-financial assets remains verifiable, even though its value is, logically, inferior.

As might be expected, a strong increase in financial investments means that an increasing percentage of company income is derived from financial activities. Dividends received increase due to the amount of shares held in other corporations, while greater amounts offered in loans and credit generate more income from interest.

Graph 3 shows how the financial income of non-financial corporations as a percentage of gross operating surplus increased from 5-8% during the 1950s and 60s to 74.1% in 2009. This is very illustrative of the concept of financialization coined by Krippner (2005: 174), who defined it “as a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production”.

Graph 3: Financial income of NFCs, 1949-2009
(% Gross Operating Surplus)



* Financial income is considered here to be the sum of the dividends and interest received by NFCs.
Source: INSEE, *Comptes nationaux, Compte des sociétés non financières*.

3.3- Interest, dividends and share buybacks: payments to financial markets

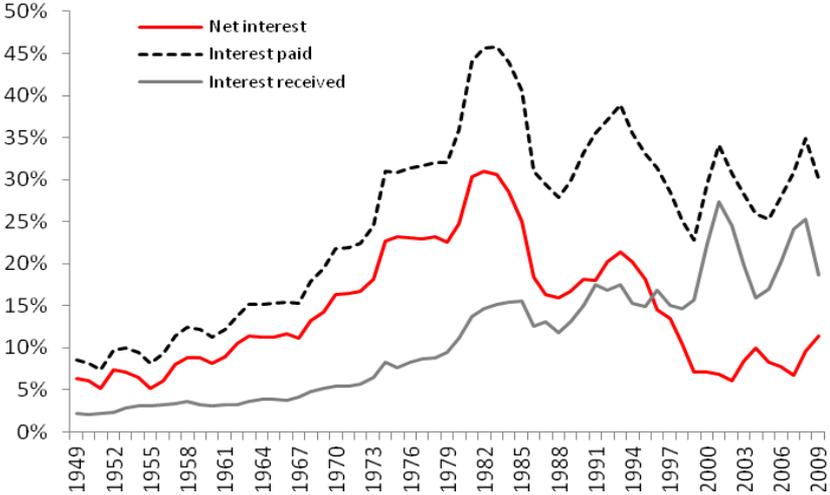
The financialization of corporate strategies has generated new profit sources for non-financial corporations and has also led to a different manner of managing the returns obtained. Numerous studies, from a Marxist (Duménil and Lévy, 2004; Chesnais, 2004; Cámara, 2009) or post-Keynesian perspective (Stockhammer, 2004; Orhangazi, 2008, Crotty, 2005; Dallery, 2010 and 2009; Dallery and van Treeck, 2009; Hein, 2009 and 2008) suggest that the process of financialization will increase the payments made by corporations to financial markets. These authors explain how corporate profits, rather than being reinvested within the company as accumulation of productive capital, are instead used for three different types of payments: corporate interest payments, dividend payouts and the repurchase of company shares³.

As a result of the new international financial context, real interest rates in France remained high, around 5-6%, from 1980 through the first half of the 1990s. From 1995 until 2009, real interest rates averaged around 2%. So, during the 1980s French corporations faced a steep increase in their financial costs due to high interest rates throughout the OECD countries. In fact, even though real interest rates began to fall in the early 1990s, and by the end of that decade were at levels similar to the 1960s, we can see in Graph 4 how interest paid by non-financial corporations since the 1980s constitutes a very high percentage of gross operating surplus. This is due to the rise of unconsolidated gross debt over the last two decades,

³ Many of these studies only consider the gross flows and do not take into account net payments of companies to financial markets. An exception in this regard is the work of Skott and Ryoo (2007).

particularly debt placed on financial markets and debt with other non-financial agents. The continuous increase in unconsolidated gross corporate debt kept the percentage of gross operating surplus dedicated to paying interest at about 30% between 1990 and 2009, a figure well above that of the 1950s and 1960s.

Graph 4: Interest paid and received by NFCs, 1949-2009
(% of Gross Operating Surplus)



Source: INSEE, *Comptes nationaux, Compte des sociétés non financières*.

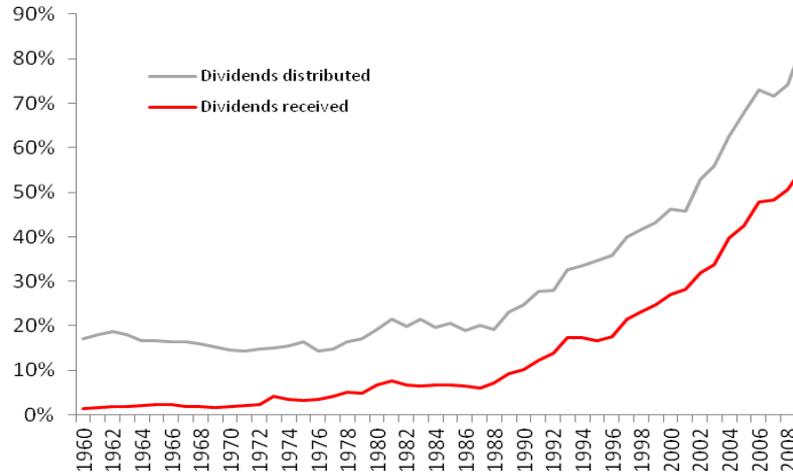
An analysis of the net evolution of interest flows in non-financial corporations (Graph 4) leads to new issues. The evolution of the interest payments received by non-financial corporations shows a parallel tendency to that of interest paid. After the 1980s, the percentage of interest received grew to between 10% and 20% of gross operating surplus, with occasional peaks such as that of 2001, when it reached 25%. Thus, corporations experienced not only a growing gross financial burden due to the changes in their external financing, but also actually became lenders, and received increasing income from that activity, as mentioned already.

As non-financial corporations became lenders to other economic agents, their net interest payments gradually decreased throughout the 1990s. After the peak in the 1980s, the net interest paid by non-financial corporations in France returned to levels similar to those of the 1950s and 1960s. However this decrease in the net interest burden may mask the reality: though showing record levels of interest received, non-financial corporations were also dedicating greater resources to paying interest.

After 1995 the payment of dividends and share buybacks replaced interest rates as the mechanisms for financial ‘puncturing’ in France. Thus, in the historical tension between reinvesting profits or paying dividends, shareholders imposed a new balance characterized by a significant increase in the dividend distribution rate. The increase in dividends distributed, particularly after the 1990s, continues to channel resources towards the financial sphere.

Graph 5 shows how both the dividends distributed by corporations and the dividends received by firms buying shares in other companies experienced a steep rise in France after the stock market was liberalized in the early 1990s. Thus the proportion of gross operating surplus distributed as dividends increased from 20% in the 1960-1990 period to 83% in 2009. Dividends received before 1980 represented 2-4% of the gross operating surplus; by 2009 they had increased dramatically to 55.5%.

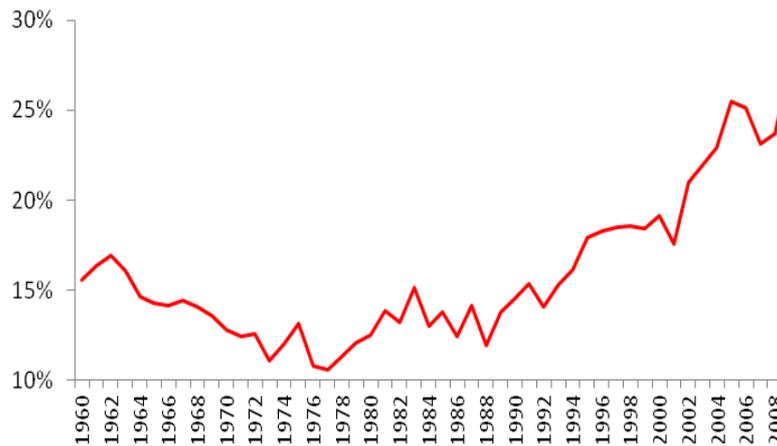
Graph 5: Dividends distributed and received by NFCs, 1960-2009
(% of Gross Operating Surplus)



Source: INSEE, *Comptes nationaux, Compte des sociétés non financières*.

Signs of financialization of entrepreneurial activity are evident both on the payment and income side of corporate ledgers. However, whether generating or distributing profits, the process of financialization is not innocuous to the activities of corporations. Graph 6 shows the significant increase in funds ultimately distributed by non-financial corporations, with net dividends rising from 12.5% of gross operating surplus in 1980 to 27.6% in 2009.

Graph 6: Net dividends distributed by NFCs, 1960-2009
(% of Gross Operating Surplus)

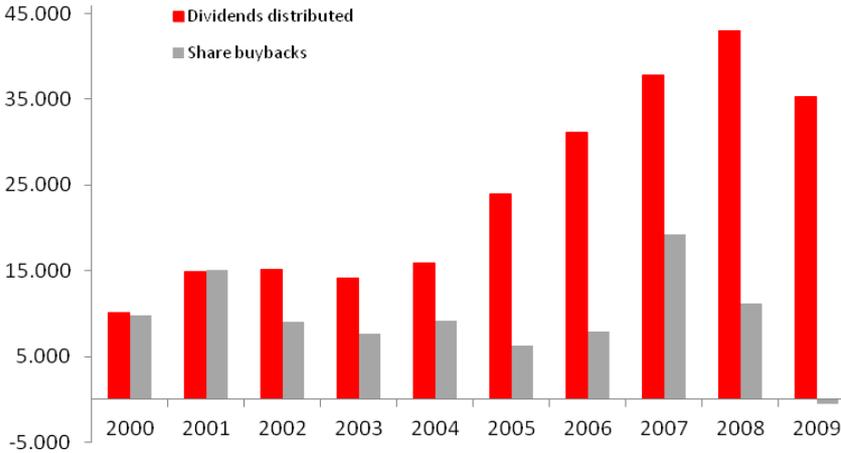


Source: INSEE, *Comptes nationaux, Compte des sociétés non financières*.

The third intervening mechanism in the transfer of resources from the productive to the financial sphere in France over the last decade is the repurchasing or buyback of shares. This instrument was legalized in France in July of 1998 and since then has been very actively used by corporations seeking to increase the value of their stocks. A share buyback immediately raises stock prices because total capitalization remains constant while the number of outstanding stocks diminishes, which automatically increases the market value of each share.

Since 1998, company repurchasing of its own stock has been widely used among large French corporations, who seek to distribute liquidity among shareholders and thus meet the market requirements of institutional investors. Graph 7 shows how the annual share buybacks by CAC-40 corporations between 2000 and 2009 reached very significant proportions and in some years even approached the total amount of dividends distributed.

Graph 7: Dividends and share buybacks by CAC-40 companies, 2000-2009 (millions of Euros)



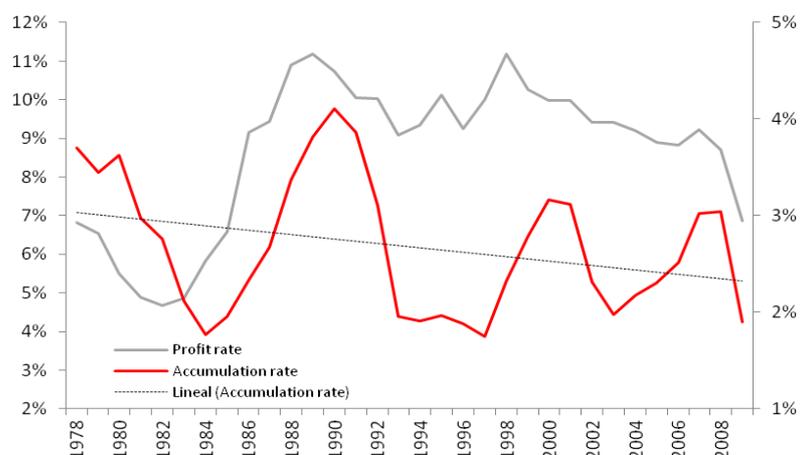
Source: Vernimmen.net

3.4- Financialization, the transfer of resources to financial capital and the struggle over distribution

From 1980 to 2010, more and more resources were transferred from the productive to the financial sphere of the French economy in the form of interest, dividends and share buybacks. Also, non-financial corporations became more heavily involved in financial activities and investments. Stockhammer (2006) suggested that corporations should be seen as the ‘battlegrounds’ rather than the ‘victims’ of this process: greater shareholder negotiating power implies greater pressure for rentier income share from dividends, interest or stock buybacks. Thus, resources used for productive investment decreased (Dallery, 2009; Dallery and van Treeck, 2009; Plihon, 2004; Orhangazi, 2008; Stockhammer, 2004).

Profit rate was re-established after the crisis of the 1970s. In spite of this, Graph 8 shows how the pattern of the accumulation rate for non-financial corporations continued to decline. Such a divergence would be the result of lower corporate reinvestment of profits in productive activities (Graph 9), since profits were instead distributed in the form of dividends or invested in financial assets.

Graph 8: Profit and accumulation rates for NFCs, 1978-2009 (%)



* The profit rate is shown on the left axis and the accumulation rate on the right one. .

Source: INSEE, *Comptes nationaux, Compte des sociétés non financières, Comptes de patrimoine de SNF.*

Graph 9: Profits reinvested by NFCs, 1950-2009
(Gross Fixed Capital Formation / Gross Operating Surplus, %)



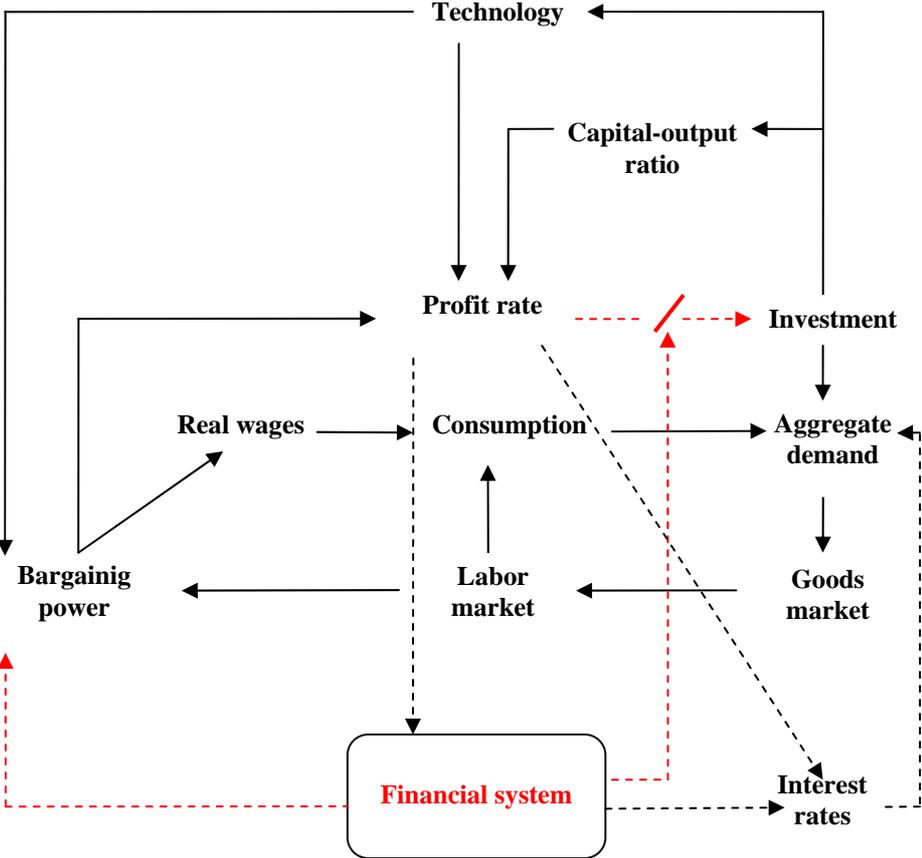
Source: INSEE, *Comptes nationaux, Compte des sociétés non financières.*

The increased pressure exerted by financial capital has outcomes that go beyond corporate investment to affect labor and wage increases. Wages become the variable that can be adjusted within the company to relieve tensions between the financial sphere and the productive sphere. In corporations that experience less pressure from international financial capital, there is greater room to maneuver, capacity for negotiation and possibilities of wage increases. Thus, financialization becomes a lever for social recomposition that alters relations between social classes⁴.

⁴ In this regard the work of Martin *et al.* (2008) is especially interesting, as it analyzes how the financial liquidity of capital markets impose discipline on the negotiating capacity of labor.

In macroeconomic terms, using the Kaleckian-Marxist synthesis scheme proposed by Palley (1999), we could say that deregulated financial markets have had two significant effects upon the French economy in the last decades (see Figure 1). First, they have partially altered the historical relationship between investment and profit rate; second, they have resulted in a lower bargaining power of workers, who are affected by the tensions resulting from the liberalization and expansion of financial markets.

Figure 1: Incorporation of finances into the Kaleckian-Marxist synthesis



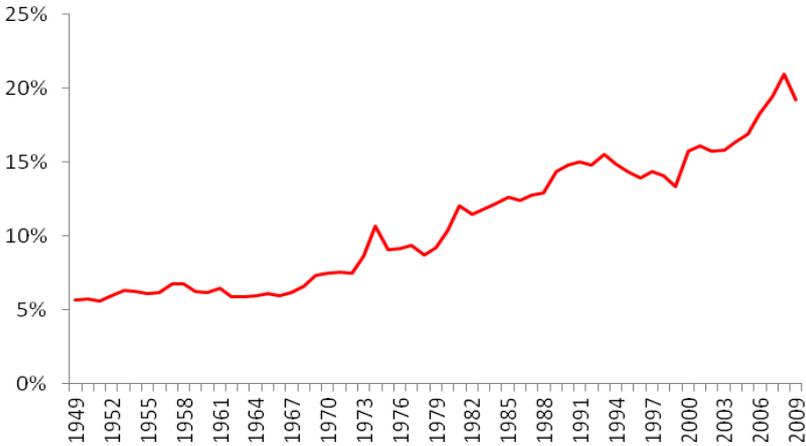
Source: Author's own elaboration based on Palley (1999)

Figure 1 illustrates how finances have impacted the labor market, acting as an instrument for imposing labor discipline (Palley, 1999). Our analysis of the impact of finances on the distributive conflict reveals that corporate profits have to some extent been restored at the expense of wages and did not result in greater corporate investment. Capital not reinvested within non-financial corporations went instead to financial rent-seeking, which experienced formidable growth.

Power *et al.* (2003) and Jayadev and Epstein (2007) define ‘rentier income’ as profits accrued by financial corporations, plus interest received by non-financial corporations and households. In our analysis, we included in that definition the dividends received by the non-financial private sector (corporations and households), but were unable to include capital gains resulting from portfolios of financial assets due to insufficient statistical information. This indicator therefore shows the evolution of income captured by financial capital, which is understood as a fraction of the dominant class. Graph 10 presents the evolution of rentier income attracted in France by the owners of financial capital. Rentier income share remained

constant in the 1950s and 1960s, began to increase in the 1970s and has continued to do so ever since.

Graph 10: Rentier income share, 1949-2009
(% of GDP)



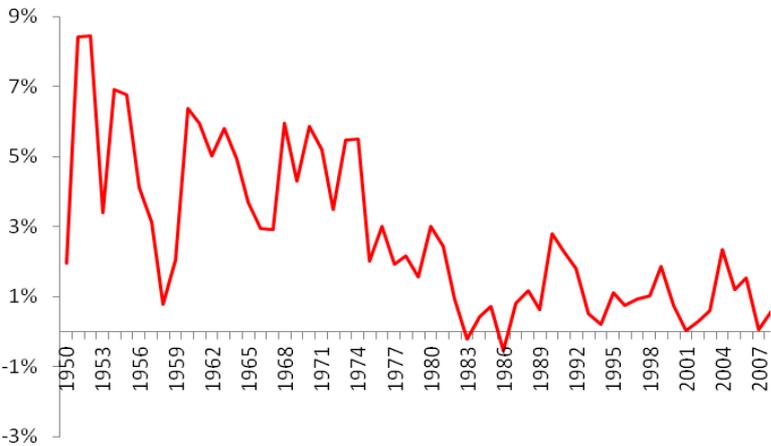
*We define rentier income share as the profits accrued by financial corporations, plus the interest and dividends received by non-financial corporations and households, in relation to total size of the economy.
Source: INSEE, *Comptes nationaux, Compte des sociétés non financières, Compte des sociétés financières, Compte des ménages.*

It is important to note that in the concept of financial rent-seeking we include all institutional sectors that own financial assets or whose profits are obtained by intermediation in financial activities. In other words, this definition of financial rent-seeking goes beyond strictly financial agents to include other non-financial agents whose income is also obtained through financial sources.

4.- Financialization and wages: a microeconomic study with panel data

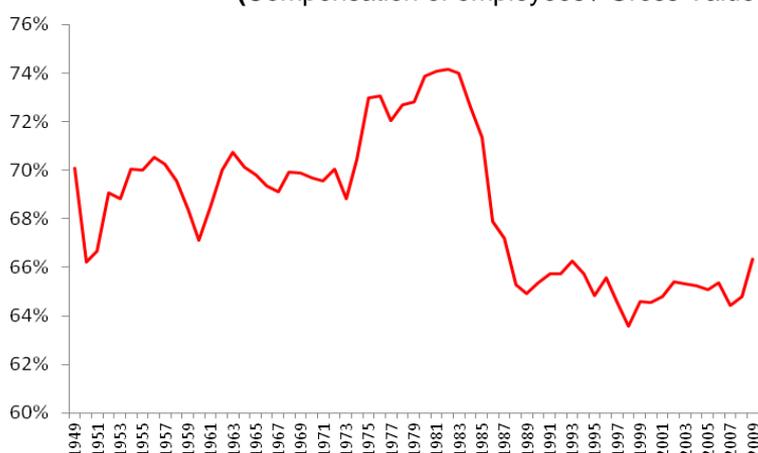
Wage growth has been almost frozen within French non-financial corporations (Graph 11) for many years, which implies a significant reduction of wages as a proportion of corporate value added (Graph 12).

Graph 11: Wage growth in non-financial corporations, 1949-2009
(real average salary, annual growth rate %)



Source: INSEE, *Comptes nationaux, Compte des sociétés non financières.*

Graph 12: Wage share in non-financial corporations, 1949-2009
(Compensation of employees / Gross Value Added)



* Compensation of employees includes gross wages and social expenses paid by the company.

Source: INSEE

Is it reasonable to think that this reduction in wage growth is in some way linked to the financialization of corporate strategies? Is it possible that the pressure exerted on French corporations by international financial capital may explain, in conjunction with other factors, how wages have become the adjustment variable? In the next section we shall carry out a panel data model estimation in an attempt to answer these questions and evaluate to what extent wages may be higher in corporations that experience less pressure from international financial capital.

4.1 Statistical specifications of the model, variables and sample data

For this study we specified an econometric model that could explain the effects of financialization on wages, taking two phenomena into account. The first is that the pressure exerted by financial markets in terms of shareholder value results in an increased demand for high returns. Based on this, it is not unreasonable to assume that some corporations have satisfied this demand for profits by adjusting salary costs. The profitability requirement then acts as a channel for transmitting the financial demands of investors to wages, affecting their evolution. Consequently, we looked at corporate profitability trends to evaluate the impact of financialization on wages.

Second, corporations that are under pressure from financial investors face a struggle over the distribution of the profits obtained. It is not enough for the company to be profitable; the profits must be distributed to the shareholders and lenders. This pressure –or financial puncture– may also affect wages in the firm, to the extent that making greater payments to financial markets reinforces pressure on the wage bill. We included this second dimension in our model: the two proxy variables used for evaluating the impact of financialization on wages are corporate profitability and financial puncture.

In addition to these two variables, our model incorporated other dimensions affecting wages in corporations. To establish control variables, we included dimensions traditionally considered to be explanatory of corporate wage levels, such as the size of the firm, how competitive it is, and its productivity. The statistical specifications for our model are defined in the following expression, where i represents the individual corporations surveyed and t the years:

$$(W/K)_{i,t} = \alpha + \beta_1(L/K)_{i,t} + \beta_2(S/K)_{i,t} + \beta_3(Y/K)_{i,t} + \beta_4(P/K)_{i,t} + \beta_5(Pf/K)_{i,t} \quad [1]$$

In this formula, W is the wage; L represents labor or the number of employees in the company; S is the volume of sales; Y is the output; P are the company profits and Pf are payments to financial markets.

To address the bias resulting from variations in corporation size, the regression variables were deflated by the capital stock of each company (variable K). This is a common method used in microeconomic studies involving corporate level data⁵, to correct for heteroscedasticity. The L/K ratio allows us to approximate the size of the company; S/K is a proxy for the level of competitiveness of the company; the Y/K ratio measures the productivity of the firm; and the P/K and Pf/K ratios measure corporate profitability and the relative weight of payments to financial markets, respectively.

As a starting point, we expected the following causal relationships in our model:

$$(W/K)_{L/K} > 0 ; (W/K)_{S/K} < 0 ; (W/K)_{Y/K} > 0 ; (W/K)_{P/K} < 0 ; (W/K)_{Pf/K} < 0 \quad [2]$$

We expected the L/K ratio to be positively correlated with wages, given that the number of workers is directly related to the bargaining power of the labor force. Similarly, corporations with higher levels of efficiency (Y/K) were expected to have some possibility of translating their greater efficiency into better wages. We did not have a clear hypothesis for the sign of the coefficient associated with corporate competitiveness (S/K), since it seems to be related to wages in contradictory ways. Very competitive corporations will obtain high returns due to their position of leadership, and will in turn be able to pay employees higher wages. However, analysis commonly used to understand competitiveness are not entirely aligned with reality. Thus, efforts to reach corporate competitiveness may involve actions such as wage restraint or even wage cuts (Álvarez and Luengo, 2009). When this occurs, an increase in the S/K ratio will not necessarily be linked to higher wages, but instead may result from greater wage restraint. Finally, we expected the two variables for evaluating the impact of financialization on wages –corporate profitability (P/K) and financial puncture (Pf/K)– to have negative coefficients.

Our panel was designed from the Orbis database⁶ and includes data from 2000 to 2008. We used the following variables to estimate the model expressed in Formula [1]:

- Wages (W): corresponding to the *cost of employees* variable, which includes wage costs paid by corporations as well as social payments or costs, expressed in thousands of euros.
- Employees (L): number of *employees* in each company.
- Sales (S): net volume of *sales*, in thousands of euros.
- Output (Y): corresponding to the *added value* generated by the company in a specific time period, in thousands of euros.
- Profits (P): Corresponding to the *Ebitda* (Earnings Before Interest, Taxes, Depreciation and Amortization), in thousands of euros.

⁵ See, Fazzari *et al.* (1988) and Orhangazi (2008).

⁶ Orbis is a global database from Bureau van Dijk Electronic Publishing which has information on approaching 60 million companies worldwide. We chose the Orbis database because alternative sources (Amadeus, Diane or Compustat) do not offer sufficient information regarding dividends distributed by French companies.

- Financial puncture (*Pf*): expressed as the sum of financial *interest paid* by corporations and *ordinary dividends* distributed⁷, both in thousands of euros.
- Capital stock (*K*): corresponding to the *total company assets*, in thousands of euros.

The nominal values of all the variables were divided by the deflator of the GDP, so that we only worked with real values. Moreover, the sample we took from Orbis only includes those companies classified as “*very large companies*”⁸ in the database. Since we were interested in studying non-financial corporations, we excluded from our sample all corporations with SIC codes between 6000 and 6799. The real estate sector was also excluded due to its unique characteristics during the 2000-2008 period.

For the model variables, we eliminated all observations presenting excessive standard deviation from the mean. To remove outliers from the sample, we calculated the mean and standard deviation of each of the variables and then selected and eliminated all those with scores above or below four times the standard deviation from the mean ($\mu \pm 4\sigma$). After purging from our database all financial and real estate corporations, all outliers and all corporations not showing data for the variables selected, we obtained a sample size of 4256 corporations⁹ with the descriptive statistics listed in Chart 1:

Chart 1: Summary statistics of the regression variables

Variable	Obs	Mean	Std. Dev.	Min	Max
W/K	25942	.2769254	.2696617	6.26e-06	1.869865
L/K	25942	.0073588	.011507	2.01e-07	.1469359
S/K	25942	1.865907	1.704379	5.62e-07	32.03643
Y/K	25942	.3688734	.2942456	-1.310967	2.186829
P/K	25942	.0944705	.1114182	-.6982266	.8626853
Pf/K	25942	.0160951	.0288239	1.83e-07	1.307963

n=4256
T =9

This corporation sample constitutes an unbalanced panel, since the corporations included were not required to provide data for all the periods. Nonetheless, panel data makes our analysis more robust and significant, with sufficient observations to allow for a disaggregated analysis by sectors and by corporation size. Chart 2 shows the correlation matrix of the selected variables.

⁷ The “financial puncture” (variable Pf) includes data on interest and dividends paid by companies, but not data on stock buybacks, since the Orbis database does not provide that information.

⁸ Orbis, defines *very large companies* as those meeting at least one of the following four criteria: their operating revenues are above 100 million euros, their total assets are valued at or above 200 million euros, they have at least 1000 employees or they are listed on the stock exchange. Excluded from this category are all companies with Operating Revenue per Employee ratio or Total Assets per Employee under 1000 euros.

⁹ For further details regarding the observations and companies eliminated in each of the methodological decisions, see Tables 1 and 2 of the statistical annex.

Chart 2: Correlation matrix of the regression variables

	W/K	L/K	S/K	Y/K	P/K	Pf/K
W/K	1.0000					
L/K	0.7769 (0.0000)	1.0000				
S/K	0.0796 (0.0000)	0.0641 (0.0000)	1.0000			
Y/K	0.8986 (0.0000)	0.7063 (0.0000)	0.0793 (0.0000)	1.0000		
P/K	0.0200 (0.0013)	0.0258 (0.0000)	0.0193 (0.0019)	0.3501 (0.0000)	1.0000	
Pf/K	-0.0477 (0.0000)	-0.0351 (0.0000)	-0.0114 (0.0657)	-0.0250 (0.0001)	-0.0065 (0.2981)	1.0000

* Significance in parentheses

4.2-Model estimation and main results

Our sample showed both heteroscedasticity and autocorrelation, in spite of the combination of longitudinal and cross-section data, which mitigates the risk of these estimation problems. Using Wooldridge and Breusch-Pagan/Cook-Weisberg tests to detect autocorrelation and heteroscedasticity in panel data, respectively, both phenomena were found to be present in our sample, as indicated in Chart 3. The multicollinearity test revealed the absence of a linear relationship between the model variables.

Chart 3: Autocorrelation, heteroscedasticity and collinearity tests for the pooled model (OLS)

```

*wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
F( 1, 3329) = 61.450
Prob > F = 0.0000

*Cook-weisberg (Score) tests for heteroscedasticity
using fitted values of w/k
Ho: Constant variance
chi2(1) = 4270.26
Prob > chi2 = 0.0000

* Collinearity Diagnostics
Variable VIF Tolerance
-----
L/K 2.25 0.4449
S/K 1.01 0.9935
Y/K 2.56 0.3902
P/K 1.28 0.7796
Pf/K 1.00 0.9985
-----
Mean VIF 1.62

```

It was necessary to find an estimation method that would correct the heteroscedasticity and autocorrelation errors. The most efficient way was to model the functional form of both the heteroscedasticity and autocorrelation, so that more efficient and precise estimates could be obtained for the parameters (Cameron and Trivendi, 2009). For this purpose we used Feasible

Generalized Least Squares (FGLS) estimation, as well as Panel Corrected Standard Errors (PCSE) estimates.

There is a long-standing debate as to whether FGLS or PCSE models are more suitable and precise¹⁰. For our purposes, both methods were useful for correcting the heteroscedasticity and autocorrelation that were detected. We controlled for heteroscedasticity in both cases and included a first order autoregressive term in both estimates. The results of the FGLS estimation, corrected for heteroscedasticity and autocorrelation, are shown in Charts 4 and 6, and the results of the PCSE estimation can be seen in Charts 5 and 7. In both cases our model is estimated for the various economic sectors (Charts 4 and 5) and the various subsamples ordered according to company size (Charts 6 and 7).

¹⁰ See Beck and Katz (1995), as well as Beck (2001).

Chart 4: Estimation results by economic sector (*)
(FGLS model controlling for heteroscedasticity and autocorrelation)

	(A) ALL	(B) AGRO_EXT	(C) INDUST	(D) MANUFACT	(E) SERVIC	(F) UTILIT	(G) TRADE	(H) OT_SERVIC
L/K	4.8902*** (0.0383)	9.3519*** (1.0883)	15.1868*** (0.1242)	14.7661*** (0.1154)	2.9484*** (0.0453)	16.8991*** (0.2987)	6.2063*** (0.0799)	1.3927*** (0.0735)
S/K	0.0004*** (0.0001)	0.0811*** (0.0074)	0.0113*** (0.0004)	0.0119*** (0.0004)	0.0003*** (0.0001)	0.0158*** (0.0008)	0.0016*** (0.0000)	0.0206*** (0.0013)
Y/K	0.7581*** (0.0018)	0.1542*** (0.0162)	0.4429*** (0.0036)	0.4240*** (0.0038)	0.8479*** (0.0023)	0.3721*** (0.0091)	0.6850*** (0.0040)	0.9011*** (0.0040)
P/K	-0.6764*** (0.0013)	-0.2155*** (0.0212)	-0.4065*** (0.0036)	-0.3922*** (0.0039)	-0.7540*** (0.0026)	-0.3671*** (0.0096)	-0.5656*** (0.0041)	-0.8625*** (0.0052)
Pf/K	-0.2887*** (0.0039)	0.1373 (0.0774)	-0.1297*** (0.0107)	-0.0592*** (0.0096)	-0.3022*** (0.0071)	-0.2087*** (0.0162)	-0.2755*** (0.0097)	-0.1500*** (0.0175)
N	25515	276	11530	10012	13685	2253	7756	3676
ll	60755.5910	642.2326	28344.3687	24293.3792	33251.1583	5438.8854	20795.3245	7351.4052

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

♦ The model includes a first order autoregressive term: AR(1)

(*) For further details regarding the SIC codes included in each group, see table 3 on the statistical annex.

Chart 5: Estimation results by economic sector (*)
(PCSE model controlling for heteroscedasticity and autocorrelation)

	(A) ALL	(B) AGRO_EXT	(C) INDUST	(D) MANUFACT	(E) SERVIC	(F) UTILIT	(G) TRADE	(H) OT_SERVIC
L/K	5.9530*** (0.2507)	5.4473*** (1.4746)	15.0004*** (1.1312)	14.7065*** (1.2164)	4.3720*** (0.2574)	15.0038*** (1.3089)	7.3053*** (0.6144)	2.2709*** (0.1901)
S/K	0.0034*** (0.0004)	0.0649*** (0.0157)	0.0127*** (0.0015)	0.0119*** (0.0015)	0.0018*** (0.0004)	0.0218*** (0.0028)	0.0023*** (0.0004)	0.0317*** (0.0044)
Y/K	0.6733*** (0.0106)	0.2707*** (0.0429)	0.4054*** (0.0181)	0.3897*** (0.0181)	0.7565*** (0.0130)	0.3616*** (0.0421)	0.5946*** (0.0211)	0.8260*** (0.0137)
P/K	-0.5870*** (0.0127)	-0.3396*** (0.0520)	-0.3625*** (0.0177)	-0.3532*** (0.0184)	-0.6590*** (0.0166)	-0.3503*** (0.0441)	-0.4799*** (0.0222)	-0.7854*** (0.0229)
Pf/K	-0.2931*** (0.0382)	0.2405 (0.1463)	-0.1941*** (0.0505)	-0.1243* (0.0533)	-0.3235*** (0.0488)	-0.1783*** (0.0427)	-0.2706*** (0.0663)	-0.3231** (0.1156)
N	25942	281	11665	10127	13962	2291	7891	3780
r ²	0.8529	0.6166	0.7897	0.7693	0.8857	0.8201	0.8332	0.9185

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

♦ The model includes a first order autoregressive term: AR(1)

(*) For further details regarding the SIC codes included in each group, see table 3 on the statistical annex.

Chart 6: Estimation results by company size
(FGLS model controlling for heteroscedasticity and autocorrelation)

	GROUP_1	GROUP_2	GROUP_3	GROUP_4
L/K	11.8434*** (0.1314)	8.1425*** (0.0813)	3.6400*** (0.0289)	2.3229*** (0.0491)
S/K	0.0113*** (0.0003)	0.0044*** (0.0002)	-0.0012*** (0.0001)	-0.0019*** (0.0001)
Y/K	0.4729*** (0.0044)	0.6710*** (0.0036)	0.8488*** (0.0010)	0.8664*** (0.0023)
P/K	-0.3722*** (0.0042)	-0.5741*** (0.0042)	-0.7950*** (0.0010)	-0.7336*** (0.0025)
Pf/K	-0.1065*** (0.0099)	-0.1660*** (0.0063)	-0.2770*** (0.0033)	-0.2530*** (0.0040)
N	4753	7641	5742	6379
ll	12653.8985	19821.6300	15885.4912	15367.0475

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

◆ The model includes a first order autoregressive term: AR(1)

GROUP 1: total assets above 300 million euros.
GROUP 2: total assets between 100 and 300 million euros.
GROUP 3: total assets between 50 and 100 million euros.
GROUP 4: total assets below 50 million euros.

Chart 7: Estimation results by company size
(PCSE model controlling for heteroscedasticity and autocorrelation)

	GROUP_1	GROUP_2	GROUP_3	GROUP_4
L/K	11.1686*** (1.2917)	10.0737*** (0.8814)	4.8933*** (0.5063)	3.1664*** (0.2361)
S/K	0.0202*** (0.0022)	0.0038*** (0.0008)	-0.0000 (0.0007)	-0.0006 (0.0005)
Y/K	0.4038*** (0.0375)	0.5837*** (0.0249)	0.7767*** (0.0188)	0.8067*** (0.0122)
P/K	-0.2909*** (0.0402)	-0.5117*** (0.0257)	-0.7214*** (0.0202)	-0.7036*** (0.0177)
Pf/K	-0.0731 (0.0618)	-0.3552** (0.1194)	-0.4450*** (0.1188)	-0.3108*** (0.0681)
N	4988	8042	6218	6694
r2	0.6772	0.8232	0.8923	0.9124

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

◆ The model includes a first order autoregressive term: AR(1)

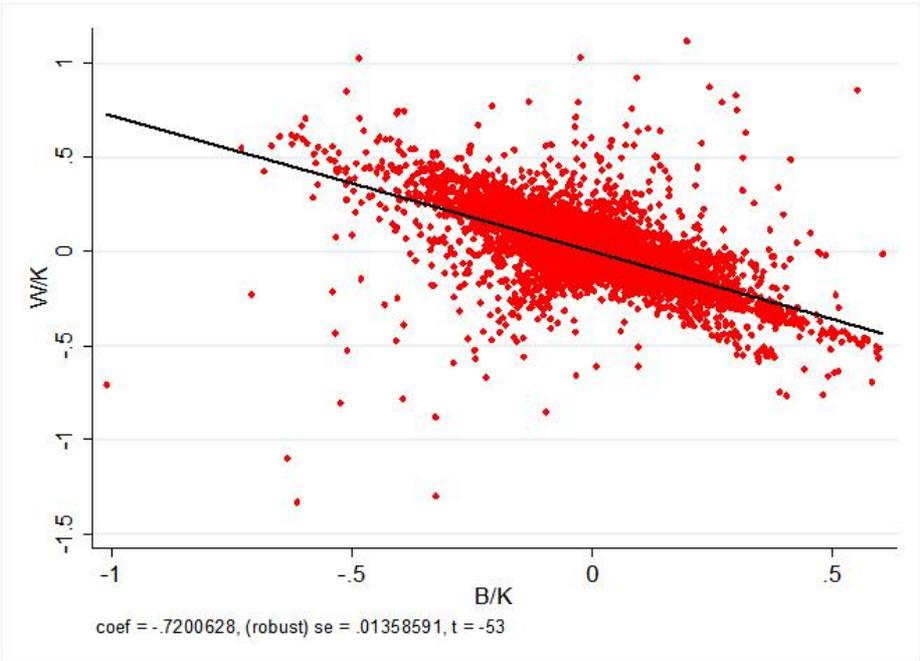
GROUP 1: total assets above 300 million euros.
GROUP 2: total assets between 100 and 300 million euros.
GROUP 3: total assets between 50 and 100 million euros.
GROUP 4: total assets below 50 million euros.

5.- Discussion of results and conclusions

The main results obtained from the estimations (Group A, ALL, in Charts 4 and 5) of the model confirmed our initial hypotheses: corporate profitability and financial puncture coefficients had significant negative values, indicating an inverse correlation with wages. The process of financialization of corporate strategies led to wage adjustments that increased profitability and payments to financial markets, at least between 2000 and 2008. Thus, the higher profitability of certain corporations and certain years, as well as greater profit distribution to the markets, were due to relatively lower worker retribution.

This conclusion is illustrated in Graphs 13 and 14, which represent the partial regressions of profitability and financial puncture in relation to wages¹¹. The slope of the regression is negative in both cases.

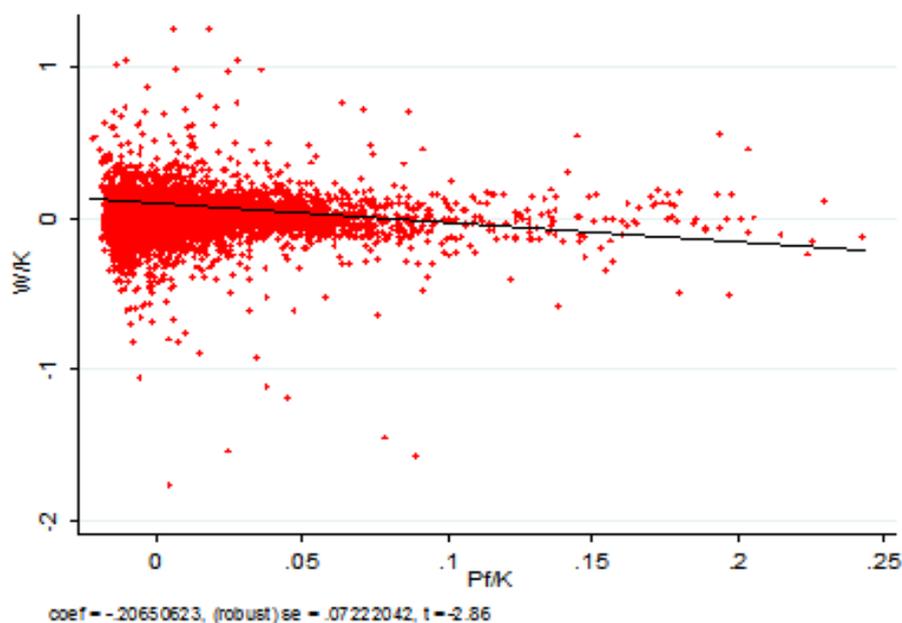
Graph 13: Partial regression of corporate profitability (P/K) against wages (W/K), (pooled OLS model)



Source: Orbis. Author's own elaboration.

¹¹ The regressions of the two variables represented in Graphs 13 and 14 (profitability and financial puncture) correspond to the partial regressions of the estimated model, adjusted for the other variables. In these graphs, the regression line has the same slope as the OLS estimation coefficient.

Graph 14: Partial regression of financial puncture (Pf/K) against wages (W/K), (pooled OLS model)



Source: Orbis. Author's own elaboration.

When we break down our estimates by economic sectors (Charts 4 and 5), we find that the main conclusions of our analysis are still supported. The coefficients associated with the proxy variables representing financialization show negative values for both the industrial sector (Group C, INDUST), and for services (Group E, SERVIC), with greater intensity in the latter. The regressive effects of financialization on wages are maintained within the industrial sector when we restrict our analysis only to the manufacturing sector (Group D, MANUFACT). In the service sector, our hypotheses are upheld in utilities (Group F, UTILIT), trade (Group G, TRADE) and 'other services' (Group H, OT_SERVIC), although with some differences in the values of the coefficient associated with profitability.

The only sector where our hypotheses are not fully supported is the agro-extractive sector (Group B, AGRO-EXT, which includes corporations with SIC codes between 0100 and 1499). Charts 4 and 5 show that the sign of the coefficient associated with profitability in this sector is still negative, though the value is smaller than in the other sectors. However, the coefficient associated with financial puncture is not statistically significant in the FGLS or in the PCSE estimation¹².

When the sample is divided into different company sizes, the sign of the coefficients remain unchanged. Charts 6 and 7 indicate that the coefficients evaluating the impact of financialization on wages are clearly significant and negative for the four groups of corporations analyzed. However, we also see that the values of these coefficients are somewhat smaller in the largest corporations (Groups 1 and 2). This slighter repercussion may be due to three phenomena that can cushion wage adjustments in the largest corporations.

¹² There may be several reasons behind the fact that our hypotheses are not upheld in this sector. Only 276 sample observations were used to estimate the agro-extractive sector, a number well below those of the other sectors. However, what really seems to be affecting these results is not so much the statistical effect but the peculiarities of the French extractive sector. There is greater room to bargain in this sector due to the privileged access of a few companies to monopolistic incomes, which would mitigate wage adjustments.

First, these companies have access to monopolistic incomes derived from their market position, which might imply less need to compress salaries in order to strengthen corporate profitability and make payments to the financial markets. Second, the largest corporations constitute more solid arenas for workers to enter wage negotiations, which makes it more difficult to transfer profitability demands to salaries. Finally, corporations in Groups 1 and 2 actively develop plans to remunerate part of their non-executive employees by means of stock options, which are included in the labor costs of the corporations. The statistical result of this would be a less regressive impact of financialization on wages¹³.

To conclude, we discuss the coefficients of the control variables. Two of them –size (L/K) and productivity (Y/K)– also supported the initial hypotheses, showing clearly significant positive values. That is, wages depended on the efficiency of the firm and the size of workforce, since labor has greater bargaining power in corporations with larger workforces.

Finally, the value of the S/K ratio coefficient is a point of interest. We had not established a clear hypothesis regarding the sign of this variable, as its relation to wages was rather contradictory, at least in theory. The results of our analysis appear to confirm this appraisal. Though the coefficient is positive and significant for all economic sectors (Charts 4 and 5), its influence on wages is fairly limited. Furthermore, its value is positive only for the largest corporations and negative in the smallest corporations (Charts 6 and 7), where corporate competitiveness seems to depend on wage restraint.

¹³ It is important to note that remuneration by stock options is only offered to a minority of non-executive employees, but may constitute amounts sufficient to alter our estimates.

Statistical Annex

Table 1: Summary statistics of the regression variables
(before and after eliminating outliers)

Variable	Obs	Mean	Std. Dev.	Min	Max
W/K	33752	.3085168	.3905704	9.29e-07	10.5
W/K (w/o outliers)	33225	.2748759	.2769328	9.29e-07	1.869865
L/K	28380	.0094104	.0347969	6.26e-08	3.4375
L/K (w/o outliers)	28245	.0082672	.0147372	6.26e-08	.1485729
S/K	35429	2.505553	76.31534	5.62e-07	13544.96
S/K (w/o outliers)	35423	1.865907	1.704379	5.62e-07	32.03643
Y/K	32024	.3981657	.4606599	-29.13218	24.83333
Y/K (w/o outliers)	31698	.3764705	.3224319	-1.310967	2.237799
B/K	36445	.0864442	.1976385	-13.03478	4
P/K (w/o outliers)	36308	.0890919	.1176759	-.7	.8626853
Pf/K	34329	.0204943	.4228778	1.83e-07	72.33049
Pf/K (w/o outliers)	34317	.0164317	.0318398	1.83e-07	1.605136

n=5297
T =9

Proportion of observations eliminated:

- Wages (W/K): 1.56%
- Employment (L/K): 0.47%
- Sales (S/K): 0.017%
- Output (Y/K): 1.01%
- Profits (P/K): 0.37%
- Financial Puncture (Pf/K): 0,035%

Table 2: Description of methodological decisions adopted for selecting the final corporation sample

Description of each methodological decision adopted in succession	Number of corporations remaining in the database after each methodological decision
Selection of Orbis corporations categorized as "very large companies"	8763
Elimination of corporations with SIC codes between 6000 and 6799 (financial and real estate corporations)	5297
Elimination of outliers	5278
Elimination of corporations without data for the variables selected	4256

Table 3: SIC codes included in each regression group of Charts 4 and 5

Group (economic sector)	SIC codes included
A (ALL)	0100-5999 and 7000-8999
B (AGRO_EXT)	0100-1499
C (INDUST)	1500-3999
D (MANUFACT)	2000-3999
E (SERVIC)	4000-5999 and 7000-8999
F (UTILIT)	4000-4999
G (TRADE)	5000-5999
H (OT_SERVIC)	7000-8999

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