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Financialization is marketization! A study on the respective impact of various dimensions of financialization on the increase in global inequality

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No. 15/3

maxpo discussion paper

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A Study on the Respective Impact of Various Dimensions
of Financialization on the Increase in Global Inequality

Olivier Godechot



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Abstract

In this paper, we study the impact of financialization on the rise in inequality in 18 OECD countries from 1970 to 2011 and measure the respective roles of various forms of financialization: the growth of the financial sector; the growth of one of its subcomponents, financial markets; the financialization of non-financial firms; and the financialization of households. We test these impacts using cross-country panel regressions in OECD countries. As dependent measures we use Solt's (2009) Gini index, the World Top Incomes Database, and OECD inter-decile inequality measures. We show first that the share of the finance sector within the GDP is a substantial driver of world inequality, explaining between 20 and 40 percent of its increase from 1980 to 2007. When we decompose this financial sector effect, we find that this evolution was mainly driven by the increase in the volume of stocks traded in national stock exchanges and by the volume of shares held as assets in banks' balance sheets. By contrast, the financialization of non-financial firms and of households does not play a substantial role. Based on this inequality test, we therefore interpret financialization as being mainly a phenomenon of marketization, redefined as the growing amount of social energy devoted to the trade of financial instruments on financial markets.

Keywords: Financialization, Marketization, Income inequality, OECD

Some of the figures and tables referred to in this paper are located in the following online appendix: <www.maxpo.eu/pub/maxpo_dp/maxpodp15-3_online-appendix.pdf>.

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Financialization is Marketization! A Study of the Respective Impacts of Various Dimensions of Financialization on the Increase in Global Inequality

1 Introduction

During the fall of 2011, in the largest financial centers in the world, the social movement #Occupy jointly denounced the excessive weight of finance and the enrichment of the richest (under the “We are the 99 percent!” slogan). This double denunciation meets the research program of the 2000s around the notion of financialization (Krippner 2005; Van der Zwan 2014). One of this program’s axes has been to go beyond the internal study of finance and to focus more on the consequences of finance’s development on economic and social cohesion. Now one of the most remarkable transformations in market societies over the last forty years is the increase in inequality, which translates into increasing shares of wages, income or wealth for the most affluent (Piketty/Saez 2003; Atkinson/Piketty 2010; Piketty 2014). Is financialization responsible for this major transformation?

The sector breakdown of the better-off fractions has already demonstrated that high salaries in finance contribute substantially to the increase in inequality, thus explaining between one-sixth and one-third of its rise in the United States (Philippon/Reshef 2012; Bakija/Cole/Heim 2010), half of it in France (Godechot 2012) and two-thirds of it in the UK (Bell/Van Reenen 2013). Is this movement specific to these few countries? We can now respond by relating aggregate data on inequality such as the World Top Incomes Database – fueled by Tony Atkinson, Thomas Piketty and their collaborators – and macroeconomic data on financial activity produced by international agencies. Kus (2013), Dünhaupt (2014), and Flaherty (2015) thus already showed that during the last twenty years, several financialization indicators significantly correlated in OECD countries with rising inequality, measured by the Gini indicator and by the top 1 percent share.

This paper both confirms and extends recent work by: more precisely analyzing the impact of financialization on the share of income at several levels of the income distribution (from the median-to-lower decile ratio up to the top 0.01 percent share); studying a wider range of time (1970–2012); and especially by more systematically analyzing the impact on rising inequalities of the different varieties of financialization identified so far. Indeed, the concept of financialization is multidimensional: it can refer to the

I am very grateful to Moritz Schularick for sharing his precious data on debt (Jordà et al. 2014). I would like to thank Alex Barnard, Emanuele Ferragina, Neil Fligstein, Elsa Massoc, Cornelia Woll, and Nicolas Woloszko for comments on this paper.

increase of the financial sector as a whole, that of financial market activities only, or beyond the finance sector to the financialization of non-financial institutional sectors, whether firms or households. We show, that measured through its impact on inequality, financialization is primarily a phenomenon of marketization, which we propose to define as the increase in social activity devoted to trade in securities on financial markets. Contrary to previous literature inspired by Marxist or heterodox economics, which generally focus on macro-social mechanisms in terms of financial regimes of accumulation (Krippner 2005), power resources, and global bargaining power (Flaherty 2015), we try to go further by pinning down the precise mechanisms at stake within the financial labor market. We underline that the capacity given to some workers on the financial markets to appropriate and move activity is a substantial driver of modern inequality.

The paper is organized as follows: in the first section, we review previous literature on the impact of financialization on inequality and we point out the underlying mechanisms of this link. In the second section, we describe the data and the models we use throughout the paper. In the third section, we study the financialization-inequality link by using the growth of the financial sector share in the GDP as a first proxy. In the fourth section, we go beyond this proxy by comparing the respective impacts of marketization and financialization of non-financial firms and that of households. The fifth section concludes with the role of marketization as the main driver of global inequality.

2 How financialization turns into inequality: A literature survey

The concept of financialization was first forged by post-Keynesian or neo-Marxist authors as a new “pattern of accumulation in which profit making occurs increasingly through financial channels rather than through trade and commodity production” (Krippner 2005). One of the achievements of this literature is to show that this accumulation shrinks that of productive capital (Stockhammer 2004; Orhangazi 2008; Hecht 2014; Tomaskovic-Devey/Lin/Meyers 2015; Alvarez 2015). Financialization remains a multifaceted notion – and one could even say a fuzzy one – when defined as “the increasing importance of financial markets, financial motives, financial institutions, and financial elites in the operation of the economy and its governing institutions, both at the national and international levels” (Epstein 2005: 3). Examining the impact of financialization on inequality thus helps to achieve two goals. It enables us first and foremost to measure the role of the main suspected drivers of this transformation of social cohesion. It could also help to clarify the notion of financialization (Van der Zwan 2014) by putting it systematically to the inequality test. Four types of financialization have been identified so far: the rise of the financial sector as a whole; the rise of the financial markets; the financialization of non-financial firms; and the financialization of households. We review previous results on their respective impacts on inequality and the possible channels of causality.

At first glance, the simplest way to measure this impact with accounting tools is to calculate the share of income, wages or profits achieved in the financial sector. The share of GDP achieved in this sector has thus multiplied by a factor of 1.7 in the United States since 1980, rising from 5 to 8 percent (Greenwood/Scharfstein 2013). It increased almost as fast in other OECD countries (Philippon/Reshef 2013). This development goes hand in hand, paradoxically, with the increasing cost of financial services (Philippon 2014; Bazot 2014) and shows the existence of rents (Tomaskovic-Devey/Lin 2011) fueled by financial deregulation (Krippner 2011; Philippon/Reshef 2012) and captured by its highest-paid employees (Godechot 2012; Bell/Van Reenen 2013; Boustanifar/Grant/Reshef 2014; Denk 2015).

The sector approach, however, aggregates very different financial activities: the most traditional retail banking on the one hand, whose extension in the 1960s and 1970s does not seem to have increased inequalities; and the new financial market activities, which have grown strongly since the mid-1980s (Greenwood/Scharfstein 2013). Rather than financialization, it could be the *marketization* of finance that is fueling inequality. The notion of marketization entails that banks finance economic activity (i.e., other banks, non-financial firms, governments, and households) through market intermediation rather than through long-term personalized loans they hold on their books and which they grant and monitor through a dense network of relationships linking them to other economic actors. This contrast, which was established for differentiating Anglo-liberal economies from coordinated ones (Albert 1991; Hall/Soskice 2001), can also be used to describe the transition of the financial sectors in each “type” of economy (either earlier in the United States or later in Germany) following financial deregulation (Streeck 2008). Market intermediation profoundly transforms the nature of financing ties by introducing standardization of financial contracts (thus facilitating comparisons) and liquidity (the possibility of cancelling a financial tie at any time at almost no cost), two features that greatly enhance short-term arbitrage and speculation opportunities. Marketization thus combines securitization – the transformation of financial assets, especially loans, into tradable securities – and growth of trading volumes for each security. It drives the development of new organizations on the markets (especially trading rooms) with their specific social organization. Finally, a Durkheimian way of approaching marketization would be to define it as the growing amount of social energy devoted to the trade of financial instruments on financial markets.

Many studies highlight the unequal potential of these activities in France, the UK or the United States (Godechot 2012; Bell/Van Reenen 2013). Internationally, the activity indicators of financial markets and the growth of securities on bank balance sheets are correlated with the increase in the Gini index and the share of the 1 percent (Kus 2013; Dünhaupt 2014; Flaherty 2015). Human capital – very important in market activities – and incentive policies could be suspected of being responsible for this correlation. But they poorly explain pay discrepancies and therefore inequality (Godechot 2011; Philippon/Reshef 2012). Recently, a neoclassical explanation of financial wages was proposed based on a “superstar” market mechanism (Célérier/Vallée 2015). The size

of financial activities could leverage micro differences in talent. If a financial operator can obtain a return on a portfolio an epsilon higher than that of her colleague, then it is efficient to assign her a larger portfolio. She thus can claim an additional compensation of this epsilon multiplied by the size of her portfolio. The skewness of portfolio sizes translates into the skewness of bonuses. This interpretation, based on a perfect market matching of the hierarchy of innate talent and that of portfolio sizes, may have some relevance. Nevertheless, it fails to explain the rent extraction dimension of market finance, shown for instance by the much better careers obtained by students of top business schools who entered the labor market in times of financial boom relative to those who entered during financial crisis (Oyer 2008). A more realistic explanation of such remuneration and inequalities can be given thanks to a hold-up mechanism (Godechot 2008, 2014). This differs from the “superstar” theory by extending the concept of talent not only to innate (or acquired during studies) talent but also to on-the-job acquired talent, and more generally to all resources accumulated in the financial business. Because market finance puts so much emphasis on standardizing its activity and making it liquid (Ho 2009) while being incapable of protecting it through patents or non-compete clauses, it allows more than elsewhere for individually appropriating human capital (knowledge, know-how, etc.) and social capital (clients, staff) and moving them elsewhere – or threatening to do so. Employees who can carry the business then get considerable remuneration which, far from being anecdotal, could feed contemporary inequality dynamics.

However, the effects of financialization are not limited to financial markets only. Financialization flows over the boundaries of institutional sectors and therefore also affects non-financial firms. Non-financial firms have been profoundly transformed by the shareholder value form of control (Useem 1996; Fligstein 2002). This doctrine, forged by liberal academic economists (Jensen/Meckling 1976) and supported by consulting firms (Froud et al. 2000; Lordon 2000), has spread amid struggles between raiders, institutional investors, and CEOs for domination in the economic field (Heilbron/Verheul/Quak 2014). It advocates a *downsize and distribute* policy against the traditional *retain and reinvest* one (Lazonick/O’Sullivan 2000). It gives priority to shareholder remuneration through the payment of dividends or share repurchases. It also promotes the use of debt (as a source of funding and as a discipline) and generous incentive pay packages for CEOs (Jensen/Murphy 1990; Dobbin/Jung 2010). This new orientation not only reduces productive investment (Orhangazi 2008; Hecht 2014), but could also promote inequality through several channels: increased dividend payments that feed the incomes of the wealthy, more incentive and higher compensations for CEOs and executive officers, and shrinking salaries of middle and lower classes under the pressure of restructuring. Dünhaupt thus shows that the priority given to shareholders’ dividends goes with rising inequality (Dünhaupt 2014).

In addition, non-financial firms start acting as banks, engaging significantly in financial operations (Krippner 2005). They thus acquire large portfolios of securities and combine the sale of goods and services with the sale of consumer credit enabling their

acquisition, especially in the automobile industry. We therefore propose to designate this second trend as non-financial firms' *bankarization*. Although substantially different, it is generally considered as a proxy for shareholder orientation, promoting inequality for the aforementioned reasons. In addition, it also contributes to marginalizing productive work comparative to financial work. It goes hand in hand with a decline in the labor share of value added, a phenomenon shown both for France (Alvarez 2015) and the United States (Tomaskovic-Devey/Lin/Meyers 2015), as well as in this country, with an increase in inequality and rising executive pay (Lin/Tomaskovic-Devey 2013).

In non-financial firms, however, shareholder orientation and bankarization are not completely congruent. Indeed bankarization goes against the imperative of de-diversification and concentration on core business activities promoted by the shareholder value doctrine and supported in particular by financial analysts (Zuckerman 1999; Dobbin/Jung 2010). Crotty (2005), however, proposes to reconcile the two dimensions by explaining that financialization subjects non-financial firms to new constraints (shareholder orientation) while allowing them to take advantage of new opportunities (bankarization).

Finally, work on financialization emphasized a third institutional sector: households (Martin 2002). The promotion of "popular capitalism" in the 1980s and of mutual funds (Montagne 2006) guided household savings into securities. Moreover, when growth is sluggish and the welfare state in crisis, households can use debt as a way for them to maintain or increase their standard of living (Streeck 2014) especially thanks to mortgages but also consumer credit (Poon 2009) or student loans. The crucial role of debt in the 2007–2008 financial crisis (through the role of subprime loans) led to a reassessment of the role of household debt in the dynamics of financialization. Debt could be its major component all the more so as it contributes significantly to the regular bursting of financial bubbles (Jordà/Schularick/Taylor 2014). The financialization of households can contribute to inequalities through several channels: the richest households, who can borrow at low cost, invest in more lucrative investments (Piketty 2014; Fligstein/Goldstein 2015; Denk/Cournède 2015), while low-income households, in order to maintain their standard of living, go into debt at high interest rates and pay high fees on loans which, through securitization, are held by the wealthiest households (Kumhof/Rancière/Winant 2015). Finally, the growing financialization of households also increases the intermediary role of the financial industry, which receives an income stream for this role.

Finally, this literature review suggests that among the varieties of financialization, marketization is one of the major drivers of inequality, a link for which both some macro and micro evidence has already been provided. It also shows that the link from financialization to inequality can be much more indirect and transit through the financialization of firms and households. Therefore, it stresses the need for a more systematic and comparative study on the respective impacts of various forms of financialization on inequality.

3 Data and model

We therefore want to study how some trends – varieties of financialization – impact another trend: growth in inequality. We are therefore more interested in within-country variations than in between-country contrasts – especially the well-known contrast between Anglo-liberal economies with high levels of financialization and high inequality and the coordinated economies with low levels of financialization and low levels of inequality (Hall/Soskice 2001). To this end, we selected as many countries as possible among a homogenous set of developed market economies ruled by democratic governments. We therefore work on eighteen OECD countries for which we have measures of both inequality and financialization: Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.¹ In emerging and transition economies, the financialization process also coincides with other major shocks such as the transition to capitalism, democratization or economic booms, which make final interpretation harder.²

Income inequality, our dependent variable which combines both wage inequality and property income inequality, can be approached through many indicators. Synthetic indicators of inequality (such as the Gini index, Theil, etc.), because they summarize a whole distribution into one figure, do not enable us to discriminate between the widening of income gaps at the bottom, the middle or the top of the distribution. As inequality has been rising both tremendously at the top (Atkinson/Piketty 2010) and more moderately at the bottom, it is interesting to disentangle the responsibility of finance in those evolutions by focusing on gaps at different levels of the distribution. In order to approach the bottom and the middle of the distribution, we therefore use the OECD gross earnings decile ratios D5/D1 (ratio of the median to the upper threshold of the bottom 10 percent), D9/D1 (ratio of the lower threshold of the top 10 percent to the upper threshold of the bottom 10 percent), and D9/D5 (ratio of the lower threshold of the top 10 percent to the median) – all variables are described in more detail in Table A1.³ The top 10 percent, top 1 percent, top 0.1 percent, and top 0.01 percent income shares from the World Top Incomes Database enable us to focus on the top of the distribution, whose share grew very substantially in recent years. As in previous literature, and for

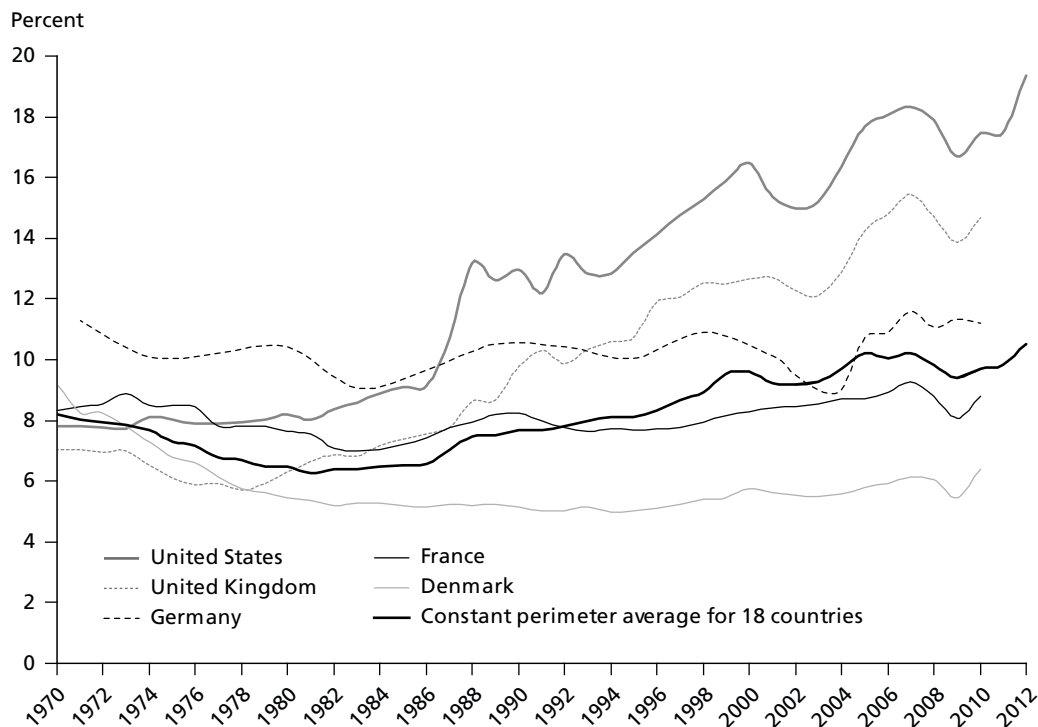
1 The top 0.1 percent share is not defined for Finland. The top 0.01 percent share is not defined for Finland, Ireland, New Zealand and Norway.

2 In our sample, the transitions to democracy in Spain and Portugal in the 1970s occurred many years before their financialization.

3 Due to lack of space, we only display main results throughout the article. Description of variables (Table A1), figures (A1 to A23), plotting evolutions, full regressions, and variants (Tables A2 to A19) can be found in the online appendix:

<www.maxpo.eu/pub/maxpo_dp/maxpodp15-3_online-appendix.pdf>.

Figure 1 Evolution of the top 1 percent income share



Source: World Top Incomes Database, <<http://topincomes.parisschoolofeconomics.eu>>, and corrections by Piketty (2014); cf. Table A1.

comparison purposes, we also use the Gini index contained in the base SWIID 4.0 (Solt 2009), but it should be noted that the significant use of interpolation for its estimation makes its quality debatable.⁴

The increase in inequality across our sample has been general and obvious since 1980 (Figures 1 and A1 to A8): from 1980 to 2007, the Gini index is multiplied by 1.2, moving from 0.37 to 0.43; the ratio D9/D1 by 1.1, moving from 2.9 to 3.2; the top 1 percent income share is multiplied by 1.6, moving from 6.5 percent to 10.2 percent; and that of the top 0.01 percent by 2.7, moving from 0.5 percent to 1.4 percent.

As explanatory variables, we use indicators of various forms of financialization and some control variables that are available for all countries during a large time period – GDP per capita, unionization rate, importation rate – variables for which literature on inequality underlines their possible impact (Kristal 2010; Volscho/Kelly 2012; Kus 2013; Dünhaupt 2014). We also checked that the inclusion of additional control variables

4 Solt estimates the Gini index every three years using the Luxemburg Income Study data and accounts for missing years through interpolation (Solt 2009). This leads to a lack of precision in this variable for panel regression. Moreover, some evolutions for some countries seem a little curious and contradict what we know from elsewhere (cf. Denmark for the 1970s – Figure A1).

available for a smaller sample (such as investment in ICTs or the share of tertiary educated employees) do not significantly change our conclusions with regard to our variables of interest.

We use two types of regression models in order to evaluate the link between financialization and inequality measures. Our base model is an OLS panel regression with country and time fixed effects and panel corrected robust standard errors in order to account for the time series autocorrelation (Beck/Katz 1995):

$$y_{it} = \sum_k b_k \cdot x_{ki(t-1)} + g_i + p_t + e_{it} \quad (1)$$

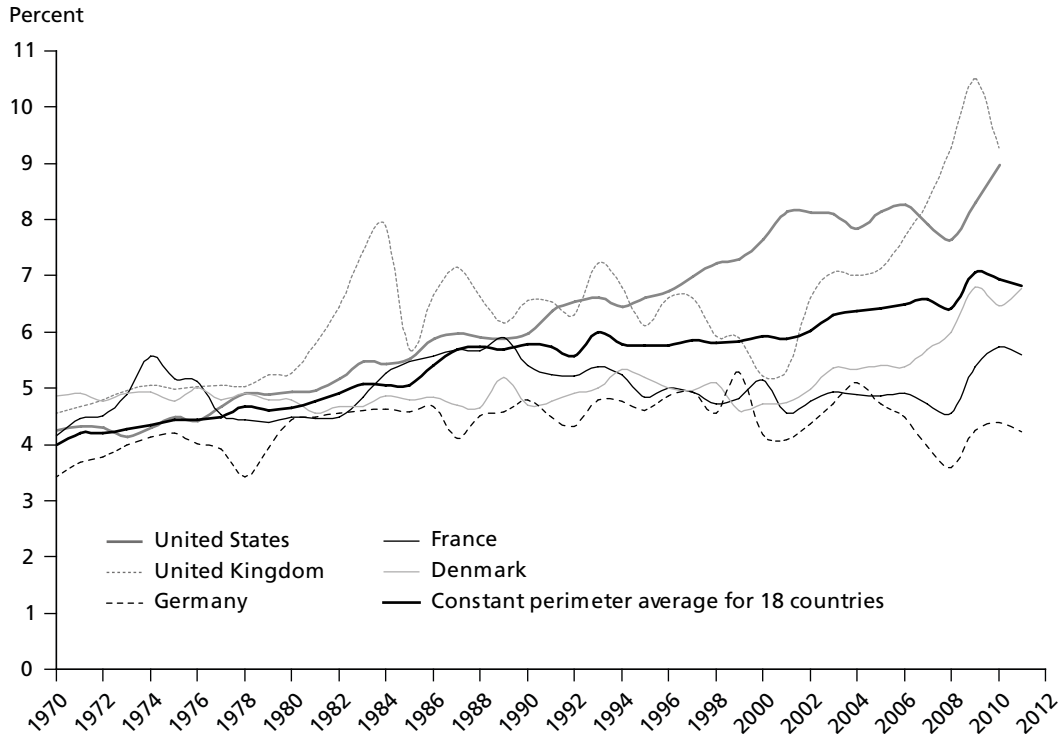
The country group fixed effects g_i take into account the constant unobserved heterogeneity. Therefore, the financialization parameter does not capture country differences that would result from confounding constant unobserved variables. It enables us to measure the impact of within-country financialization variation on within-country inequality variation y_{it} . The period year fixed effects p_t capture temporal variations common to different countries. The b_k parameters for the k independent variables $x_{ki(t-1)}$ (i.e., financialization measures and control variables) will therefore capture only the effects of specific within-country variations in time in each country. The introduction of a one-year lag strengthens the causal interpretation of our results.

Classical panel regression estimated with equation 1 works very well for establishing robust within-country correlations. Nevertheless, when serial correlation is important, lagged independent variables may not be enough to assess the direction of causality. In order to corroborate the causal interpretation, we also estimate error correction models (Beck/Katz 2011; De Boef/Keele 2008; Kristal 2010; Lin/Tomaskovic-Devey 2013) which more convincingly handle possible problems of reverse causality. This model consists of estimating the following equation with OLS, also using country and year fixed effects and panel corrected standard errors:

$$\Delta y_{it} = \sum_k a_k \cdot \Delta x_{kit} - c \cdot [y_{i(t-1)} - \sum_k d_k x_{ki(t-1)}] + g_i + p_t + u_{it} \quad (2)$$

This model combines an estimation of level effects and one of variation effects. The introduction of the lagged dependent variable into the equation limits potential reverse causality due to serial correlations. Here, an independent variable $x_{i(t-1)}$ will not appear significantly tied to y_{it} if it depends on $y_{i(t-1)}$ or one of its previous lag (reverse causality) and if y_{it} is also correlated with its lag $y_{i(t-1)}$ (serial correlation). Introducing the lag dependent variable as an explanatory variable enables us to handle this misleading first order correlation. ECM is not the only way of handling this problem, and in the online appendix we test other types of dynamic panel regressions in order to corroborate the results.

Figure 2 Evolution of the GDP share of finance sector



Sources: OECD and EU KLEMS; cf. Table A1.

ECM also enables us to separate the short term transitory effect a_k of a transitory short term variation Δx_{kit} (i.e., $x_{kit} - x_{ki(t-1)}$) on a short term variation Δy_{it} from the d_k long term equilibrium effects between x_{kit} and y_{it} . It corresponds to the stationary equilibrium towards which series converge when temporary shocks on x_{kit} and y_{it} vanish (i.e., when $\Delta x_{kit} = 0$ and $\Delta y_{it} = 0$ then $y_{it} = d_k \cdot x_{kit}$). We first estimate the parameters α_k and d_k^*c with OLS. We then estimate the parameters d_k as well as their standard error using the Bewley transformation, which consists of estimating

$$y_{it} = \sum_k \beta_k \Delta x_{kit} + \beta_y \Delta y_{it} + \sum_k d_k x_{ki(t-1)} + g_i + p_t + \varepsilon_{it} \quad (3)$$

while using equation (2) as the instrument of Δy_{it} .

It should be noted that the introduction of the lag dependent variable as an explanatory variable in the Error Correction Model usually captures a substantial share of the first order correlation between our dependent variable and our interest variable. It thus tends to shrink significance and provides more conservative estimates.

Table 1 Impact of the finance share of the GDP on income inequality

A Classical panel regression models (Equation 1)										
	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share		
GDP per capita ($t-1$)	-0.51***	0.62***	0.34***	0.13**	-0.21**	0.04	-0.02	0.02		
Union rate ($t-1$)	-0.27***	-0.16***	-0.23***	-0.25***	-0.36***	-0.23***	-0.1***	-0.14***		
Import rate ($t-1$)	-0.15***	0.41***	0.17**	-0.03	-0.11***	-0.13***	-0.15***	0.17**		
Finance & insurance/GDP ($t-1$)	-0.04	-0.04	0.16***	0.18***	0.12***	0.23***	0.28***	0.41***		
Adj. within R ²	0.150	0.081	0.086	0.152	0.174	0.147	0.127	0.229		
Nb. obs./countries/ years	673/18/42	391/18/42	391/18/42	391/18/42	604/18/42	623/18/42	538/17/42	368/14/42		
B Error correction models (Equation 2)										
	Δ Gini	Δ D5/D1	Δ D9/D1	Δ D9/D5	Δ Top 10%	Δ Top 1%	Δ Top 0.1%	Δ Top 0.01%		
Δ GDP per capita	-0.196**	0.380**	0.172*	0.052	0.009	0.154	0.160	-0.071		
Δ Union rate	-0.026	0.117	0.033	-0.039	-0.220*	-0.175	-0.078	0.044		
Δ Import rate	-0.075*	0.270***	0.156**	0.067	-0.035	-0.009	0.006	0.021		
Δ Finance & insurance/GDP	-0.048*	0.017	0.006	-0.015	0.069**	0.080**	0.070	0.014		
Lagged dependent variable ($t-1$)	-0.107***	-0.306***	-0.191***	-0.255***	-0.096***	-0.168***	-0.170***	-0.087**		
GDP per capita ($t-1$)	-0.663**	0.978***	0.586***	0.175	-0.516	-0.448	-0.640	0.128		
Union rate ($t-1$)	-0.101	-0.009	-0.161	-0.270**	-0.234	-0.098	-0.101	-0.266		
Import rate ($t-1$)	-0.038	0.818***	0.498***	0.048	-0.188	-0.125	-0.133	0.610*		
Finance & insurance/GDP ($t-1$)	0.043	0.125	0.315***	0.212**	0.122	0.321***	0.334**	0.554**		
Adj. within R ²	0.091	0.166	0.116	0.117	0.059	0.094	0.085	0.044		
Nb. obs./countries/years	655/18/41	351/17/41	351/17/41	351/17/41	576/18/41	596/18/41	513/17/41	347/13/41		

Notes: OLS models with country and year fixed effects and panel corrected standard errors. ***p<0.01, **p<0.05, *p<0.1. Definition of variables and their sources are detailed in Table A1 of the online appendix. Full regressions with standard errors are in table A2. We display here country demeaned standard estimates in order to compare the effects of different variables in terms of within-country standard deviations: a within-country standard deviation of the finance share of the GDP increases the top 1 percent share by 23 percent of a within-country standard deviation. For error correction models, we display in italics long term equilibrium effects obtained with Bewley's transformation (Equation 3).

4 The impact of the financial sector on inequality

At first glance, financialization can be approximated by the share of economic activity (i.e., GDP) achieved in the financial sector (comprising both finance and insurance⁵) in industry national accounts gathered and standardized by the OECD (Figure 2). First, the most iconic financial transformations of financialization (like the boom of financial markets) occurred precisely in this sector. Second, most financial transformations taking place outside the financial sector also translate into financial transactions and therefore contribute to the value added of this sector.

Table 1 shows the effect of changes in the importance of the financial sector on changes in income gaps at different levels of the distribution. Financialization has no effect on inequality when measured with the Gini synthetic indicator (whose quality is poor), but significantly affects inter-decile ratios and the share of upper fractiles. It has no effect on the D5/D1 ratio but increases the D9/D5 and D9/D1 ratios. One standard deviation of finance increases the top 10 percent share by 0.12 standard deviation, the top 1 percent share by 0.23, the top 0.1 percent share by 0.28, and the top 0.01 percent share by 0.41. These first indications show that the unequal impact of financialization is all the stronger as one moves up the income distribution scale.

In addition to this unobserved heterogeneity problem, we could fear a risk of reverse causality. Is it financialization that fuels inequality or inequality that fuels financialization? Elites are important clients of financial services and their increased resources could impact the value added of this sector. Furthermore, the indebtedness of poor households has been a way of “keeping up with the Jones” – of coping with the decline in standard of living relative to that of the richest households (Kumhof/Ranci re/Winant 2015). Error corrections models give estimates that are largely in line with that of the base model. This type of model is more demanding, and the significance of independent variables generally shrinks. Nevertheless, financialization’s long term parameters are still significant at the 5 percent or even the 1 percent threshold. Moreover, their magnitude is even bigger. In the long term, one standard deviation of finance increases the top 1 percent and 0.1 percent shares by one-third of a standard deviation and the top 0.01 percent share by 0.56. In the appendix, we obtain similar results with other types of dynamic panel regression models, such as lagged dependent variables models (Table A3) and Blundell-Bond dynamic models (Table A4). These models confirm the significant effect of financialization on the concentration of income at the top of the distribution.

In order to appreciate more concretely the impact of finance on the 1980–2007 sequence of increasing inequality, we can use our models to estimate the counterfactual level of inequality in 2007 in the absence of financialization: for instance, had the share of finance in GDP remained the same in 2007 as it was in 1980 (Tomaskovic-Devey/

5 A distinction between banking and insurance is not always available. Moreover, it is rather heterogeneous from one year or one country to another.

Lin 2011). Based on classical panel regressions, we estimate that one-fifth of the increase of the top 1 percent share, one quarter of that of the top 0.1 percent share, and 40 percent of that of the top 0.01 percent share result from financialization (Table A5). Based on error correction models of long-term parameters, we obtain bigger estimates: 28 percent of the increase of the top 1 percent share, 32 percent of that of the top 0.1 percent share, and 55 percent of that of the top 0.01 percent share result from financialization.

We also control for this effect of financialization using three independent variables (besides the country and year fixed effects): the variation in GDP per capita, the unionization, and the import rates. As in previous works (Alderson/Nielsen 2002; Kristal 2010; Volscho/Kelly 2012), we find that unionization reduces inequality, especially for the top 10 percent share and for the D9/D5 ratio. Rate of imports, which seeks to approach the effects of globalization (Sassen 2001) and external competition increases inequality at the bottom of the distribution. In contrast, effects are contradictory at the top of the distribution and go more in the direction of a reduction of inequalities. Finally, GDP per capita captures the effect of modern growth, which many consider to be more unequal at present (Cohen 1997). This is true for median groups, particularly for the lower half, but it does not play out in the concentration of income at the top level of the distribution.

One might worry about the effect of unobserved variables because of the limited number of control variables. In the supplementary models in the appendix, we introduce supplementary control variables which are only available for limited subsamples, such as an indicator of computerization on the one hand (Table A6), and one of human capital on the other (Table A7). Statistical power decreases due to the reduction of the sample, but the conclusions remain broadly the same. One could fear that the introduction of the sole financial sector also captures the effect of other industries' correlated evolutions. The finance effect is maintained relative to other sectors when introducing the full industry partition – at least in the classical regression models. The effect of the financial sector is one of the most significant and robust across the whole income distribution (Table A8).⁶

Finally, OECD industry statistics help to break down the division between capital and labor in value added. Not surprisingly, the decline of labor in value added in the non-financial sectors is correlated with the increase in inequality (Table A9). However, the larger the share of labor in the financial sector, the more inequality in the economy, even when controlling for the share of the financial sector in the overall economy (whose contribution remains positive). This means that the increase in inequality is due not only to the increase in the share of the financial sector in total profits, but moreover to

6 We find a positive effect of agriculture as noted elsewhere (Alderson/Nielsen 2002). The reduction in the size of this sector therefore contributed to the decrease in inequality in the 1970s. Construction is also strongly linked to the increase in inequality, especially at the top of the distribution. The underlying mechanisms are far from clear and need further investigation.

Table 2 Impact of non-financial firms' financialization on income inequality

A Classical panel regression models (Equation 1)										
	Finance/GDP	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share	
1	Corporate debt/GDP (t-1)	0.17***	0.13**	0.09	0.04	-0.07**	0.01	0.05*	0.05	
	Nb. obs./countries/years	563/16/42	373/16/42	373/16/42	373/16/42	536/16/42	555/16/42	503/15/42	384/13/42	
2	Net distributed income/operating surplus (t-1)	-0.36***	0.031	-0.085	-0.13**	0.14***	0.086	0.13	-0.072	
	Nb. obs./countries/years	289/15/42	224/15/30	224/15/30	224/15/30	266/15/42	280/15/42	226/13/42	150/10/42	
3	Financial income/operating surplus (t-1)	0.08	-0.36***	-0.33***	-0.09	-0.4***	-0.3***	-0.23***	0.07	
	Nb. obs./countries/years	289/15/42	224/15/30	224/15/30	224/15/30	266/15/42	280/15/42	226/13/42	150/10/42	
4	Financial assets/ GDP (t-1)	-0.09	-0.3***	-0.16**	0.04	-0.35***	-0.19***	-0.15*	-0.18*	
	Nb. obs./countries/years	267/16/23	236/16/23	236/16/23	236/16/23	260/16/23	260/16/23	225/14/23	165/11/23	
B Error correction models (Equation 3)										
	Finance/GDP	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share	
1	Corporate debt/GDP (t-1)	0.376**	0.114	0.328*	0.252**	0.008	0.060	0.124	0.441	
	Net distributed income/operating surplus (t-1)	-0.336*	0.223	0.145	-0.066	0.240*	0.113	0.196	-0.298	
3	Financial income/operating surplus (t-1)	0.141	-0.490**	-0.495**	-0.156	-0.457***	-0.296***	-0.252	0.085	
4	Financial assets/GDP (t-1)	-0.270**	-0.278	-0.124	0.014	-0.423***	-0.209**	-0.264*	-0.696	

Notes: Each cell corresponds to a different model. OLS models with country and year fixed effects and panel corrected standard errors. We also use GDP per capita, union rate and import rate as control variables and also stock exchange index in order to control for the price of financial assets. Complete models are displayed in appendices (Table A10 to A13). ***p < 0.01, **p < 0.05, *p < 0.1. Definition of variables and their sources are detailed in Table A1 (online appendix). We display here country demeaned standard estimates in order to compare the effects of different variables in terms of within-country standard deviations. For error correction models (B), we display long term equilibrium effects obtained with Bewley's transformation.

the increase in the share of finance in total wages. This result contrasts with those of Tomaskovic-Devey and Lin (2011) who show for the United States that two-thirds of the increase in financial rent results from higher financial profits.

5 The respective impacts of various forms of financialization

We now wish to analyze the impact of financialization both above and below the financial sector as defined in industrial accounts. Primarily, financialization has been seen as a movement to change non-financial firms, subjecting them to new shareholder value constraints. It has favored the use of debt (1.2-fold increase between 1990 and 2007 – Figure A12) and the payment of net dividends to shareholders (multiplication by 1.1 – Figure A13), and has offered them the opportunity of acting as quasi-banks through the granting of loans and the acquisition of securities (multiplication by 1.8 of both financial incomes and financial assets – Figures A14 and A15).

Submission to shareholder value contributes only moderately to rising inequality (Table 2, Lines 1 and 2). Business debt is clearly associated with a greater financial sector, but its impact on inequality is quite heterogeneous: according to panel regressions, it increases inequality at the bottom of the distribution (D5/D1) and at the very top (with an increase in the share of the top 0.1 percent); by contrast, it decreases in the top 10 percent share. Those results also contrast with ECM models showing a long-term positive impact on D9/D1 and D9/D5 ratios. Priority given to shareholders' remuneration has heterogeneous effects on inequality as well: a positive effect in the top of the distribution as in Dünhaupt (2014), but moderate and more strongly significant only for the top 10 percent share. Moreover, it turns negative for the ratio D9/D5. This mitigated result perhaps comes from the fact that in some countries, especially the United States, the shareholder orientation is reflected more by share buyback policies than by the payment of dividends (Hecht 2014).

Bankarization of non-financial firms is not associated with increased within-country inequality. On the contrary, this movement is both negatively and significantly correlated with the increase of the financial sector and rising inequality (Table 2, lines 3 and 4). We would not venture to make a causal interpretation of this result here (which would imply further detailing the mechanisms). We mainly use it as a negative test on our sample of the positive relationship established for non-financial firms in the United States (Lin/Tomaskovic-Devey 2013). The divergence may be due to differences in field (the United States versus OECD), sources, and definition of variables. Moreover, Lin and Tomaskovic-Devey analyze the effects of non-financial firms' bankarization on within-industry inequality rather than on national inequality as we do here. They therefore exclude the financial sector by definition. The dynamic they investigate might not be at odds with the evolution of aggregate inequality in the economy (particularly fueled by

Table 3 Impact of households' financialization on income inequality

A Classical panel regression models (Equation 1)										
	Finance/GDP	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share	
1	Shares and other participations without mutual funds/GDP ($t-1$)	-0.29***	-0.25***	-0.16**	-0.25***	-0.24***	-0.18***	0.06	0.1	
	Mutual funds/GDP ($t-1$)	0.1	0.41***	0.3***	0.55***	0.5***	0.07	0.17***	0.36***	
	Nb. obs./countries/years	245/15/23	263/15/23	219/15/23	219/15/23	219/15/23	238/15/23	211/14/23	155/11/23	
2	Household debt/GDP ($t-1$)	0.52***	0	0.1	0.29***	0.27***	0.03	0.17***	0.17***	
	Nb. obs./countries/years	563/16/42	600/16/42	373/16/42	373/16/42	373/16/42	536/16/42	503/15/42	384/13/42	
B Error correction models (Equation 3)										
	Finance/GDP	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share	
1	Shares and other participations without mutual funds/GDP ($t-1$)	-0.462**	-0.026	-0.299**	-0.435***	-0.279**	-0.280***	-0.071	0.029	
	Mutual funds/GDP ($t-1$)	0.151	0.167	0.413***	0.663***	0.473***	0.075	0.207**	0.416	
2	Household debt/GDP ($t-1$)	0.814***	-0.120	0.448**	0.887***	0.577***	-0.108	0.225	0.359	

Notes: Each cell corresponds to a different model. OLS models with country and year fixed effects and panel corrected standard errors. We also use GDP per capita, union rate and import rate as control variables and also, for panel 1 models, stock exchange index in order to control for the price of financial assets. Complete models are displayed in appendices (Table A14 to A15). ***p < 0.01, **p < 0.05, *p < 0.1. Definition of variables and their sources are detailed in Table A1 (online appendix). We display here country demeaned standard estimates in order to compare the effects of different variables in terms of within-country standard deviations. For error correction models (B), we display long term equilibrium effects that we calculate thanks to Bewley's transformation.

Table 4 Impact of financial sector securitization on income inequality

A Classical panel regression models (Equation 1)												
	Finance/GDP	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share			
1	Volume of stocks traded/ GDP ($t-1$)	0.39***	0.1**	-0.06	0.18**	0.22***	0.28***	0.3***	0.49***			
	Nb. obs.	356/18/23	385/18/23	308/18/23	308/18/23	308/18/23	355/18/23	285/15/23	206/12/23			
2	Loans in assets/GDP ($t-1$)	0.42***	-0.07	-0.05	-0.06	-0.05	-0.14*	0.18***	0.08			
	Shares and related equity assets/GDP ($t-1$)	0.12	0.31***	-0.08	0.15	0.26**	0.14**	0.43***	0.61***			
	Nb. obs.	267/16/23	287/16/23	236/16/23	236/16/23	236/16/23	260/16/23	225/14/23	165/11/23			
B Error correction models (Equation 3)												
	Finance/GDP	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share			
1	Volume of stocks traded/ GDP ($t-1$)	0.472**	0.420**	-0.171	0.104	0.202*	0.272**	0.275*	-0.175			
2	Loans in assets/GDP ($t-1$)	0.310	-0.059	0.115	0.288	0.074	0.058	0.256**	0.281			
	Shares and related equity assets/GDP ($t-1$)	0.043	-0.354	-0.093	0.068	0.129	0.216**	0.522***	1.203***			

Notes: Each cell corresponds to a different model. OLS models with country and year fixed effects and panel corrected standard errors. We also use GDP per capita, union rate and import rate as control variables and also stock exchange index in order to control for the price of financial assets. Complete models are displayed in the online appendix (Table A16 to A17). We display here country demeaned standard estimates in order to compare the effects of different variables in terms of within-country standard deviations. For error correction models (B), we display long term equilibrium effects that we calculate thanks to Bewley's transformation.

the increasing pay differential between the financial and non-financial sectors). Finally, financial income and financial assets from the national accounts are not consolidated and the indicators used can also capture a tendency to reorganize production.

Three variables may be used as a proxy for household financialization: the rise of financial securities in household savings, should they be directly in shares (multiplied by 1.8 between 1990 and 2007 – see Figure A16); or managed by a third party within a mutual fund (multiplied by 4.7 over the same period – Figure A17); and the rise in debt (multiplied by 1.6 – Figure A18).

Financial securities in household savings increased particularly thanks to the development of intermediated asset management by mutual funds, boosted by favorable policies, especially in the United States (Montagne 2006; Saez/Zucman 2014). This form of financialization of household savings is the most correlated with the growth of inequality in particular by contributing to the widening gaps between the upper and bottom deciles, but also by impacting the concentration at the highest level (Table 3).

Similarly, the rise in indebtedness contributes significantly to the increase in inequality in the middle of the income distribution and to a lesser extent to the concentration of remuneration at its top. Given these initial statistics, the financialization of households contributes more to the increase in inequality than that of firms.

Let us now consider financialization within the financial sector. Financialization relates less to the evolution of the full sector than to the rise of the financial markets and the replacement of personalized credit relationships with the anonymous trade of securities. Two variables capture this phenomenon: first, the tremendous increase in the volume of stocks traded in national stock exchanges (multiplied by 11 between 1990 and 2007 – Figure A19); and second, the growth of securities held on the asset side of banks' balance sheets (multiplied by 3.2 over the same period – Figure A21).

The models in the first line of Table 4 confirm the work of Dünhaupt (2014) and Kus (2013). They clearly show that market activity, measured by the volume of transactions, contributed substantially to rising inequality. Its impact increases as one moves up the income distribution: a standard deviation increase in volatility increases our inequality measures ranging from D9/D1 to the share of the top 0.01 percent significantly, by 0.2 to 0.3 standard deviation (while panel regressions and ECM differ for the top 0.01 percent share). Models in the second line not only show the crucial impact of the swelling banks' balance sheets but also their marketization. Hence, loan assets have no robust significant role. On the contrary, shares and related equity held in the banks' balance sheets are significantly correlated with the increase in inequality – and all the more so when we put the focus at the highest level.

Table 5 Overall view

A Classical panel regression models (Equation 1)										
	Finance/GDP	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share	
Household participations in mutual funds/GDP ($t-1$)	-0.12	0.28***	0.38***	0.43***	0.24***	-0.08	-0.01	-0.01	0.15**	
Household debt/GDP ($t-1$)	0.18*	-0.08	-0.28***	-0.14	-0.03	-0.21***	-0.12*	0.04	0.39***	
Volume of stocks traded/GDP ($t-1$)	0.39***	-0.08	-0.12	0.18*	0.38***	0.22***	0.28***	0.24***	0.21*	
Shares and related equity in banks' assets/GDP ($t-1$)	0.26***	0.14	-0.3***	-0.01	0.24***	0.04	0.19**	0.44***	0.66***	
Nb. obs./countries/years	245/15/23	263/15/23	219/15/23	219/15/23	219/15/23	238/15/23	238/15/23	211/14/23	155/11/23	
B Error correction models (Equation 3)										
	Finance/GDP	Gini Index	D5/D1	D9/D1	D9/D5	Top 10% share	Top 1% share	Top 0.1% share	Top 0.01% share	
Household participations in mutual funds/GDP ($t-1$)	-0.175	0.225	0.554***	0.603***	0.214	-0.054	-0.060	-0.004	0.302	
Household debt/GDP ($t-1$)	0.191	0.459	-0.079	0.277	0.119	-0.185	-0.212*	0.058	0.639	
Volume of stocks traded/GDP ($t-1$)	0.719***	0.248	-0.485***	-0.272	0.313*	0.210*	0.285***	0.183	-0.596	
Shares and related equity in banks' assets/GDP ($t-1$)	0.163	-0.411	-0.483***	-0.156	0.293*	-0.079	0.192*	0.413***	1.075**	
Nb. obs./countries/years	245/15/23	263/15/23	219/15/23	219/15/23	219/15/23	238/15/23	238/15/23	211/14/23	155/11/23	

Notes: OLS models with country and year fixed effects and panel corrected standard errors. We also use GDP per capita, union rate and import rate as control variables and also stock exchange index in order to control for the price of financial assets. ***p<0.01, **p<0.05, *p<0.1. Definition of variables and their sources are detailed in Table A1 and complete models are displayed in Table A18 (both online appendix). We display here country demeaned standard estimates in order to compare the effects of different variables in terms of within-country standard deviations. For error correction models (B), we display long term equilibrium effects that we calculate thanks to Bewley's transformation.

What conclusions can we draw from these different results? The various dimensions of financial activity are strongly intertwined, making their interpretation “all things being equal” somewhat delicate,⁷ – not to mention the fact that the combination of missing data in our different series can dramatically reduce statistical power. In Table 5, we try the exercise with the four variables that are the most related to increasing inequality in the models above: household savings through mutual funds, household debt, the volume of stocks traded in stock exchanges; and the amount of securities in the assets of banks. The first striking result – the unequal effect of household debt – disappears once we control for market activity. So it is not so much the growth of the somewhat traditional credit to households which promotes inequality, but rather its recent marketization, which has also contributed significantly to the financial crisis (Fligstein/Goldstein 2010). The impact of household savings through mutual funds also substantially diminishes with the introduction of the financial markets activity indicator but retains a significant positive effect on the gap between upper and lower deciles. The volumes of stocks traded and banks’ assets held through securities keep their explanatory power and particularly explain the concentration of pay in the most prosperous fractions. The volume of stocks traded has, in the end, the most robust effect, resulting in 0.2 to 0.4 standard deviation of the inequality indicator considered.

6 Financialization is marketization

This statistical overview over a wide geographical area confirms the link – denounced by #Occupy – between financialization and growing inequality. It also measures the relative impact of its various forms. Financialization of non-financial firms does not contribute to inequality when it takes the form of bankarization, or only little when it takes the form of shareholder orientation. Households’ financialization nourishes more inequality, but only if it is accompanied by the delegation of powers to financial intermediaries (in the form of mutual funds) and through the securitization of credit. Within the financial sector, not all financial activity promotes increasing inequality. The traditional credit activities to households and businesses have little impact. The new activities around financial markets favor more inequality, as shown by the impact of shares on bank balance sheets and the volume of stocks traded. Why? On financial markets, the organization of work allows some actors (traders, salespersons and, moreover, heads of trading rooms) to capture some of the key assets, move them elsewhere (or threaten to do so) and, consequently, to collect their fruits (Godechot 2008). Put to this inequality test, financialization appears essentially as a phenomenon of marketization.

7 Because one financial activity mechanically implies another, then the variable representing the first must be seen more as an interaction variable than as a variable whose effect could be measured independently from the others.

Therefore, the link between finance and inequality is mainly due to the apparition of a rent on the financial markets and its appropriation by a minority. Some aspects of this phenomenon are well explained while others need further exploration. The theory of superstars – and moreover that of hold-up – account well for the very unequal distribution of this rent. In addition, the origin of financial rent is beginning to be elucidated. Financial deregulation of the past thirty years, creating new markets, favored its emergence (Philippon/Reshef 2012, 2013; Boustanifar/Grant/Reshef 2014). So, as in Flaherty (2015), we logically find in our data a link between financial deregulation and income inequality (see Table A19). However, the reasons for the persistence of this rent are less known. Why does it increase in the medium term and why doesn't it decrease over time due to free entrance and dissemination of the knowledge necessary for its exploitation? The banking concentration, which limits competition, probably helps, as shown by its significant positive impact on the D9/D1 and D9/D5 ratios and the share of the top 0.01 percent (see Table A19). Through their frequent rescue plans, states and central banks also artificially fuel finance profitability. Finally, the theory of hold-up could contribute some elements as well. If the organization of financial work cannot prevent some employees from appropriating part of the key assets, and if firms cannot index the employment contracts for this possibility, then this appropriation becomes a sunk cost required for the existence of financial activity. Through free entry, profits of financial sector firms could drop to the level of those in other sectors, while those employees who can appropriate assets remain better paid than elsewhere. Ultimately, the financial rent could only be earned by some employees. Unraveling the reasons for the long-term persistence of the financial rent would help us to better understand the unequal dynamics of contemporary capitalism.

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