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The Labour Share and Corporate Financialization: Evidence From Publicly Listed Firms

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ABSTRACT

This article examines the impact of corporate financialization on the labour share using data for publicly listed non-financial corporations across 14 European countries. We test hypotheses derived from industrial relations literature on financialization against competing explanations for the labour share decline based on technological change and market concentration. Our findings show that increased dividend and interest payments, as well as financial profits, are associated with a fall in the labour share. These results support theories linking corporate financialization to rising overhead costs, shareholder-value orientation and increasing exit options for capital. We find no evidence that technological progress drives the decline in the labour share. While market concentration negatively correlates with the labour share, concentration has decreased during our sample period, suggesting that 'superstar firms' are also not the primary driver of changes in functional income distribution.

JEL Classification: E25, G34, G35, J50

1 | Introduction

The share of labour income in GDP has declined substantially since the 1980s in both developed and developing countries, coinciding with rising personal income inequality and increasing top income shares (Bengtsson and Waldenström 2018). This same period witnessed surges in dividend payouts and an increase in the engagement of non-financial corporations (NFCs) in financial activities. These trends are part of a broader phenomenon widely referred to as financialization, defined by Epstein (2005: 5) as the 'increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies'. Several studies have provided evidence of negative consequences of financialization for the labour share (Dünhaupt 2017; Pariboni and Tridico 2019; Stockhammer 2017). However, quantitative analyses remain focused on industry or country-level data, leaving a gap in understanding the effect of financialization on the labour share at the firm level.

This article provides the first cross-country firm-level analysis of the effects of financialization on the labour share, using data on publicly listed NFCs in 14 European economies (EU14).[1] It makes two key contributions to industrial relations (IR) and Political Economy research. First, the firm-level analysis allows us to test existing hypotheses using appropriate data for the first time. While theory suggests that financialization reduces the labour share within firms (Cushen and Thompson 2016; Kohler, Guschanski, and Stockhammer 2019), previous country- or industry-level studies cannot distinguish whether changes in the labour share are due to a reallocation of value-added between firms or a decline within firms.

Second, firm-level data allows us to account for new explanations for the decline in the labour share that are highlighted in recent economics research. The shift from aggregate to firm-level data in economics has renewed the discussions on the effect of technological progress (Acemoglu and Restrepo 2022; Barkai 2020) and introduced new hypotheses, such as the rise of 'superstar' firms (Autor et al. 2020). However, existing IR research based on country or industry data fails to account for these explanations, which require firm-level analysis. If the decline in the labour share can be fully explained by value-added reallocation towards superstar firms or technological change, power-based explanations emphasized in IR studies would be economically less significant.

The lack of firm-level evidence for arguments emphasized in IR research has policy implications beyond academic research. International organizations like the International Monetary Fund, Organisation for Economic Co-operation and Development, and European Commission increasingly acknowledge the relevance of functional income distribution for inequality and inclusive growth. However, their policy recommendations often overlook factors emphasized in IR, such as labour market institutions (LMIs) and financialization (Álvarez et al. 2021). Updating IR research with firm-level analysis could help to address this oversight.

Alvarez (2015) is the only publication that investigates the effect of financialization on the labour share using firm-level data for France. We go beyond this contribution by estimating an empirical specification for the labour share that is derived from economic theory, as well as by using (i) more detailed financialization measures that can be linked to different channels through which financialization affects the labour share, (ii) an instrumental variable (IV) approach that accounts for endogeneity, something which is not done in previous IR and Political Economy studies on financialization, and (iii) cross-country data. We also go beyond the existing literature on financialization by providing single-country estimations for three large economies in our sample (France, Germany and the UK, which have a sufficient number of listed companies) in addition to estimations for the wider EU14 country pool. Single-country estimations allow us to compare the effect of financialization across different institutional regimes. In contrast, existing studies typically rely on country panel estimations because time-series for financialization data are too short for reliable country-specific analysis (Barradas 2019; Kohler, Guschanski, and Stockhammer 2019; Pariboni and Tridico 2019). An exception is Gouzoulis (2021), who uses historical country-level data to estimate the effect of financialization on the labour share in France and Sweden for the 1891–2010 period and highlights different effects across countries.

Our theoretical framework synthesizes economic models of factor distribution with the IR literature on *corporate* financialization, thus focusing on a specific aspect of a multi-dimensional phenomenon (Van Der Zwan 2014). Building on the definition by Epstein (2005) and subsequent studies (e.g. Kohler, Guschanski, and Stockhammer 2019), we outline three channels through which financialization can impact the labour share at the firm-level: (1) increased financial overhead costs and subsequent increases in the mark-up; (2) increased shareholder value orientation and ensuing wage suppression; and (3) increased exit options for capital due to a decoupling of profit generation from core business activities. We propose new firm-level measures to capture these channels that we consider improvements on previously used country-level indicators, because they are not mechanically linked to the labour share and instead are more likely to capture behavioural changes. We hypothesize that these channels are more pronounced in liberal market economies like the UK (Roberts and Kwon 2017). Moreover, we expect shareholder value orientation (channel 2) to be least pronounced in regimes with widespread labour representation on company boards, such as Germany. France constitutes an intermediate case, with some employee representation but highly conflictual IR.

We find that financialization is a robust driver of the decline in the labour share in publicly listed European firms. This confirms previous findings using industry (Lin and Tomaskovic-Devey 2013) and country-level data (Barradas 2019; Dünhaupt 2017; Kohler, Guschanski, and Stockhammer 2019; Pariboni and Tridico 2019; Stockhammer 2017) and puts them on a more solid empirical footing. Our results suggest that all three identified channels are relevant, but that their significance differs across institutional regimes. In line with channel 1, we find that the labour share declines in response to increasing financial overhead costs in the EU14 country pool, the UK and France, and to a lesser extent in Germany, consistent with the proposition of cost-elastic markups. The rise in financial overhead costs explains 22 per cent of the observed decline in the aggregate labour share in the EU14 between 1995 and 2016. While we do not measure markups directly, our findings are consistent with evidence that markups in Europe have increased (De Loecker and Eeckhout 2018) and suggest financialization as a new explanation for the rise in markups of listed firms. Consistent with channel 2, our findings indicate that the labour share declined due to increased shareholder value orientation in the EU14, the UK and France, while there is no strong evidence for this channel in Germany, in line with the hypothesis that strong labour representation can limit shareholder value maximization. Lastly, our results suggest that financial income reduces the labour share by increasing the exit options of capital, according to channel 3. Evidence is found for the EU14 pool, the UK and Germany, but less so in France.

Turning to hypotheses that are emphasized in mainstream economics literature, we find no evidence that the substitution of capital for labour or automation lowers the labour share in publicly listed firms, in contrast to previous analyses (Acemoglu and Restrepo 2022; Dao, Das, and Koczan 2019; Guimarães and Mazeda Gil 2022; Karabarbounis and Neiman 2014). While we find that increasing market concentration negatively affects labour shares, our data shows a decline in market concentration among publicly listed firms between 1995 and 2016 in the EU14. Additionally, in contrast to recent, mainly U.S.-based literature (Autor et al. 2020; Hartman-Glaser, Lustig, and Xiaolan 2019; Kehrig and Vincent 2021) that argues that the decline of the labour share is driven by a reallocation of value added towards highly productive low-labour share ('superstar') firms, we find that labour share dynamics in publicly listed European firms are mainly driven by within-firm changes. Our findings should be seen as complementary rather than contradictory to previous studies because our data excludes non-listed firms and is based

on Europe, where evidence for the superstar firm hypothesis is mixed (Abraham and Bormans 2020). We also find no evidence for the effect of globalization or union density on the labour share once financialization is controlled for, although results can only be seen as indicative due to lack of data at the firm-level. These findings not only confirm that the effect of financialization on the labour share is robust to controlling for factors emphasized in the recent economics literature, but also highlight the important role of financialization relative to other determinants of firm-level income distribution.

Section 2 reviews the literature on the determinants of the labour share, proposes new measures to capture the effect of financialization and derives our empirical hypotheses. Section 3 presents the data and descriptive evidence for the different hypotheses. Section 4 discusses the estimation strategy and results, and Section 5 concludes.

2 | Determinants of the Labour Share

To structure the discussion and motivate our econometric analysis, we present a baseline model of the labour share in Section 2.1. Next, in Section 2.2, we situate our analysis within existing scholarship on financialization and discuss specific channels through which financialization affects the labour share. Section 2.3 introduces the empirical measures of financialization that we use in our econometric analysis as well as the hypotheses to be tested. Then, in Section 2.4, we discuss other determinants of the labour share that are not related to financialization, but which received significant attention in the economics or IR literature.

2.1 | A Synthesis Model of the Labour Share

To contrast different hypotheses within the same theoretical framework, we draw on the economic theory of factor distribution (e.g. Bassanini and Manfredi 2014; Bentolila and Saint-Paul 2003; Guschanski and Onaran 2022). The model highlights three main determinants of the labour share (LS): (i) the capital intensity of production (k), chosen by firms to maximize profits; (ii) product market power which determines the size of the markup (m) firms can charge on their costs; and (iii) the bargaining power of labour vis-à-vis capital (γ) which determine the wedge between the marginal product of labour and the actual wage paid to workers. Choosing a multiplicative production function, which allows to adopt fairly unrestrictive assumptions about the underlying production process, we can write the labour share as follows (Bentolila and Saint-Paul 2003):

$$LS_{i,t} = k_{i,t}^{\beta_1} e^{\sum_{z=2}^{3}\beta_z x_{i,t}^z} = k_{i,t}^{\beta_1} e^{\beta_2 m_{i,t}+\beta_3\gamma_{i,t}} \quad ,\beta_2 < 0; \beta_3 > 0 \qquad (1)$$

where i denotes firms and t denotes time. Profit-maximizing firms adjust k (capital stock as a ratio to value added) depending on relative factor prices. The effect of an increase in k on the labour share depends on the parameter β_1, which is fully determined by the elasticity of substitution between capital and labour (an elasticity above one implies that $\beta_1 < 0$, and an elasticity below one implies $\beta_1 > 0$). An increase in m decreases the labour share, while an increase in γ has the opposite effect. Both factors will shift the labour share for a given level of capital intensity.

2.2 | The Effect of Financialization on the Labour Share: Different Channels

Before discussing the specific effects of financialization within the model introduced by Equation (1), we briefly position our approach in the broader literature on financialization and IR. While some authors see labour, and specifically the production process, as increasingly decoupled from value creation in financial capitalism, others argue that the way in which financialization shapes the labour process is vital for the extraction of value in financialized economies (Cushen and Thompson 2016). Various concepts have been introduced to analyse the effect of financialization on IR, including the Disconnected Capitalism Thesis (Thompson 2003; Thompson 2013), the increasing use of financial engineering strategies by NFCs (Dupuis, Peters, and Scrimger 2020) and the pressure of maintaining an 'external (economic) balance' over a cooperative 'internal equilibrium' with workers (Gouzoulis, Galanis, and Iliopoulos 2024). These concepts have in common that they illustrate the profound impacts of financialization on labour relations, corporate priorities, and, consequently, income distribution. They collectively highlight a shift towards financial metrics and shareholder value, resulting in weakened labour unions and structural changes in corporate governance that prioritize financial performance over traditional business operations and labour relations. Building on this literature, empirical evidence from IR case studies and econometric analyses, as well as the definition of financialization by Epstein (2005, p. 3; see Section 1), we outline three sub-channels via which financialization can impact the labour share.

(1) Financial actors – the markup channel: The markup channel is usually framed in the tradition of Kaleckian mark-up pricing models under imperfect competition (Kalecki, 1969), which assume that firms set markups to guarantee a targeted rate of return. Due to the difficulty of observing marginal costs, markups are set on average (or 'normal') costs, and hence an increase in overhead or fixed costs leads to a rise in markups as firms try to protect their profit margin. Hein (2015) argues that financial payments (i.e. interest and dividend payments) are considered overhead costs from the perspective of NFCs. Financialization has led to an increase in these payments as managers try to maximize value for shareholders through higher dividend payments, and by taking on debt to finance financial activities and speculation (Driver, Grosman, and Scaramozzino 2020; Lazonick and O'Sullivan 2000). Under these assumptions, a rise in financial overhead costs increases markups (m) and prices in financialized firms, reduces real (product) wages and thereby reduces the firm-level labour share according to Equation (1). Conversely, if NFCs make profits by engaging in financial activities, the additional income can alleviate pressure from rising overhead costs, thus reducing the markup and increasing the labour share.

This argument has been tested in various econometric studies using country-level data. Hein and Schoder (2011) find a weakly significant (at the 10 per cent level) positive impact of net interest payments on the profit share, based on the estimation of an autoregressive distributed lag model for the United States and Germany between 1963 and 2007. Dünhaupt (2017) finds a negative impact of net financial payments using panel data for 13 OECD countries between 1986 and 2007, and this is confirmed by Kohler, Guschanski, and Stockhammer (2019) for 14 OECD

countries over the 1992–2014 period. Alvarez (2015) finds a negative impact of interest payments on the labour share for large French firms. However, by including employment, profits, sales and value added simultaneously as explanatory variables, estimations in Alvarez (2015) should be interpreted as an analysis of wages rather than the labour share. His dependent variable is labour compensation as a ratio to total assets rather than value added, and explanatory variables turn insignificant once he changes his denominator to value added, which potentially is related to the joint inclusion of profits and employment as explanatory variables. Finally, like the previously mentioned studies, he does not control for endogeneity of his explanatory variables, which means his results may be driven by a simultaneity bias.

(2) Financial motives – the shareholder value channel: The second channel focuses on the corporate governance of publicly listed firms. Economic literature since the 1980s emphasized the necessity of shareholder oversight to prevent corporate managers from pursuing activities that may not maximize shareholder value. Ambitions to align the objectives of shareholders and managers contributed to the increasing remuneration of managers through stock options and encouraged higher dividend payouts and share buybacks to raise share prices (Admati 2017; Jensen and Murphy 1990). While being successful in contributing to shareholder value maximization (SVM), this process unsettled a corporate power balance that had previously been more favourable to labour (Thompson 2003).[2] Thompson (2013) argues that there has been a transfer of power from local, unit-level managers to corporate executives who are more directly accountable to shareholders. This shift has constrained the ability of local managers to provide appropriate rewards and opportunities to employees, even when they have delivered high performance. Several case studies have documented negative consequences for labour, including wage suppression, lay-offs, outsourcing and rising job insecurity (Appelbaum 2017; Batt 2018), sometimes despite productivity increases (Batt and Appelbaum 2013). Similarly, Lazonick (2014) argues that excess profits from productivity gains in the last decades were used for share buybacks rather than wage increases. Such a decline in the passthrough of productivity gains to wages would result in the observed divergence of real wages and productivity that underlies the decrease in the labour share.[3] Within the framework of Equation (1), this implies a decline in the bargaining power of labour (γ) and a subsequent decline in the labour share.

The argument is well established in IR and Political Economy literature, but the measures used to capture shareholder value orientation differ across studies. Kohler, Guschanski, and Stockhammer (2019) use the stock market turnover ratio. Pariboni and Tridico (2019) use both market capitalization and dividend payouts as a ratio to GDP, however, without clearly distinguishing different channels. Both studies find a negative effect of these variables on the labour share. Barrades (2019) uses net financial payments as a measure of shareholder value orientation and finds a negative effect on the labour share for 27 European Union countries for 1995–2013. Cauvel and Pacitti (2022) use the sum of stock buybacks and dividend payouts as a ratio to GDP to construct a structural change index that is subsequently used to explain the decline in workers' bargaining power and the labour share in the United States.

(3) Financial markets – the exit options channel: The growth in financial profits of NFCs is well documented for the United States (Lazonick 2014). According to bargaining power models, a decoupling of profits from core business activities constitutes an improvement in the exit options of capital relative to labour, with negative effects on the labour share (Lin and Tomaskovic-Devey 2013). Rather than agreeing to wage demands of the workforce, managers can, in principle, decide to outsource or close the relevant part of the production process and engage in financial activities. Similarly, it decreases the effectiveness of industrial action as a bargaining tool because the company continues making profits in the financial division even when the core business is hit by strike action. Thus, increasing financial income decreases the bargaining power of labour (γ).[4]

Lin and Tomaskovic-Devey (2013) and Alvarez (2015) investigate this hypothesis using U.S. sector-level and French firm-level data, respectively. Both find that higher financial income reduces the labour share. In contrast, Kohler, Guschanski, and Stockhammer (2019) find no effect of financial income in a panel of 14 OECD countries.

While these channels are not exhaustive, alternative channels cannot be investigated with firm-level data.[5] For example, several studies have provided evidence that the rise of household debt increases the financial vulnerability of working-class households, which in turn weakens the bargaining power of labour vis-à-vis capital and contributes to a labour share decline (Gouzoulis 2021; Guschanski and Onaran 2018; Kohler, Guschanski, and Stockhammer 2019; Wood 2017). Testing this hypothesis at the firm level would require data on the indebtedness of employees which is not available.

Another channel posits that financialization changes the sectoral composition, increases the relative share of value added of the finance industry and thus decreases the country-level labour share (Hein 2015). However, the observed labour share declined has mainly occurred within industries rather than due to changes in sectoral composition (Barradas 2019; Dao, Das, and Koczan 2019; Guschanski and Onaran 2022; Karabarbounis and Neiman 2014). Our analysis excludes finance, insurance and real estate (FIRE) industries, thus abstracting from this mechanism and focusing on within-firm effects of financialization.

Financialization can also affect the labour share indirectly by changing labour laws, inducing labour market flexibilization and reducing government expenditure, all of which can reduce the bargaining power of labour and the labour share (Barradas 2019). Kollmeyer and Peters (2019), Dupuis, Peters, and Scrimger (2020) and Gouzoulis, Galanis, and Iliopoulos (2024) argue that financialization leads to more aggressive human resources strategies and incentivizes firms to lay off unionized employees. All three studies provide evidence that financialization is associated with a decline in union density based on country-panel regressions. The decline in union density has previously been linked to the decline in the labour share (Guschanski and Onaran 2022; see Section 2.4). This could imply that union density is an intervening variable for the effect of financialization on the labour share and has implications for our empirical analysis as discussed in more detail in Section 4.1.

TABLE 1 | Financialization channels, proposed measures and expected effects on the labour share.

	Net financial payments	Dividend payout ratio	Interest payout ratio	Financial income
Markup channel	—	—	—	+
Shareholder value channel	0	—	0	0
Exit options channel	0	0	0	—

Note:+,–and 0 indicate an expected positive, negative or no effect on the labour share due to an increase in the measures.

2.3 | Empirical Measures of Financialization and Expected Effects Across Countries

Table 1 summarizes the different channels, proposed measures and the expected effect on the labour share.[6]

To capture the *markup channel* empirically, we follow the existing literature and use net financial payments, calculated as dividend payments plus interest payments minus dividend and interest income, normalized by profits at the firm level (Dünhaupt 2017; Hein and Schoder 2011; Kohler, Guschanski, and Stockhammer 2019). Subsequently, we employ the individual components of net financial payments to investigate other channels.

The *shareholder value channel* is captured by the dividend payout ratio (dividend payments as a ratio to profits), similar to Pariboni and Tridico (2019). In principle, interest payments can also be an indicator for the *shareholder value channel*, but we consider the dividend payout ratio a more reliable proxy for changes in corporate governance, because the decision to distribute a share of profits is directly under the control of the firm, while interest payments are also driven by monetary policy and international financial markets. Furthermore, dividend payments are strongly correlated with share prices, and, therefore, directly linked to SVM (Driver, Grosman, and Scaramozzino 2020). Additionally, Shin (2017) finds that firms with higher dividend payout ratios are more likely to engage in labour force adjustments that maximize shareholder value than firms with lower payout ratios.

The *exit options channel* is captured by financial income, calculated as dividend plus interest income, as a ratio to total profits, following Lin and Tomaskovic-Devey (2013). Unfortunately, data availability at the firm level is poor, and hence results should be seen as indicative (see Supporting Appendix A1). Note that, while net financial payments, dividend payments and interest payments are expected to have either a negative or no effect on the labour share, depending on the channel, the effect of financial income is ambiguous (Table 1). Within the *markup channel*, financial income is expected to reduce the overhead cost burden of firms and thus positively affect the labour share. In contrast, according to the *exit option channel*, financial income is likely to increase the relative bargaining power of capital and thus reduce the labour share. Consequently, it is an empirical question which of these opposing effects dominates.

The relative importance of different financialization channels may differ across institutional regimes. Drawing on literature in comparative political economy, Roberts and Kwon (2017: 512) argue that 'the distributional consequences associated with financialization should be amplified in liberal market economies (LME) where national institutions are primarily governed by market forces and relations among economic actors are uncoordinated', and find consistent evidence in country-panel regressions of various measures of financialization on person income inequality. The classification of countries into different institutional regimes links to a large literature, which is beyond the scope of this article. Within our sample, Ireland and the UK are commonly identified as LMEs, characterized by relatively low levels of employment protection, short average tenure and lower collective bargaining power. The remaining countries with stronger labour protection laws are usually classified as coordinated market economies (CMEs) or, more recently, as LME-like countries if their institutional composition has moved closer to the Anglo-Saxon model. Hence, we would expect the different financialization channels to be particularly pronounced in the UK (Ireland is not analysed in isolation due to a small number of listed firms).

However, financialization effects may differ even among CMEs, due to different degrees of conflict between shareholders, managers and employees. For example, in Germany, employee representatives sit on company boards, while worker representation is less widespread in France (and essentially non-existent in the UK, an LME; Harnay, Manseri, and Rebérioux 2024). The presence of employee representatives on boards which assess the dividend payout decisions in Germany could discipline management's focus on SVM (Huber, Petrova, and Stephens 2022) and possibly reduce the association between dividend payments and financial overhead costs from the perspective of management. This might be important for various channels. It might diminish the relevance of the *markup channel*, as higher dividend payouts would not be seen as overhead costs, and thus not induce an increase in the markup (and a reduction in the labour share) in Germany. Conversely, interest payments might be more readily perceived as overhead costs given a strong culture of debt discipline and traditionally low NFC debt levels relative to other EU countries (Banque de France 2023). Thus, interest payments potentially constitute a better proxy for the *markup channel* in Germany. For the same reason, the *shareholder value channel*, which is proxied by the dividend payout ratio, is also likely to be subdued in more cooperative regimes such as Germany. In contrast, we consider dividend payments a good proxy in countries with more antagonistic relations between workers, shareholders and managers, such as the UK and France. Given that the *exit options channel* relies on the fundamental idea of bargaining power as a function of fallback options, this channel is expected to be relevant across different institutional regimes.

2.4 | The Effect of Technological Change, LMIs and Market Concentration on the Labour Share

Several other factors can impact the labour share through changes in capital intensity (k), the bargaining power of labour (γ) or the markup (m), according to Equation (1). The literature is vast and growing, and a comprehensive review lies outside the scope of this article. It can be summarized in three main hypotheses which we label (i) the technological change hypothesis, (ii) the bargaining power hypothesis and (iii) the market concentration hypothesis. This section selectively outlines the main channels underlying these arguments.

The technological change hypothesis posits that technological progress contributed to a decline in the price of capital relative to labour. If firms are optimizing and the elasticity of substitution between capital and labour is larger than one, the relative price change will increase k and reduce the labour share (Karabarbounis and Neiman 2014).[7] A related argument is made by Acemoglu and Restrepo (2022), who present models where automation increases k and lowers the labour share, although this process is *independent* of the elasticity of substitution in their task-based framework. Yet, empirical evidence for this mechanism is inconclusive. Guimarães and Gil (2022) calibrate a model for the United States which confirms this hypothesis. However, according to literature surveyed by Guschanski and Onaran (2022), only half of all econometric studies based on sector- or country-level data find evidence consistent with this channel. Using firm-level data, Barkai (2020) provides additional evidence against this hypothesis by showing that the decline in the labour share was accompanied by a rise in 'pure profits', which cannot arise through an increase in capital intensity and instead requires a rise in the markup.

The bargaining power hypothesis attributes the decline in the labour share to a decline in the bargaining power of labour. The argument is prevalent in IR studies and Political Economy literature that use stratification theory to analyse how changing modes of production, LMIs and the state have shifted power from employers to workers (Kristal 2010; Kristal 2013). A parallel literature in economics uses models where the split of value added between capital and labour depends on their respective exit options (Bentolila and Saint-Paul 2003; Blanchard and Giavazzi 2003). According to this approach, globalization, through access to production facilities in low-wage countries, increases capital's exit options and thereby the credibility of the firing threat, thus reducing γ and the labour share (see evidence in Bassanini and Manfredi 2014; Dao, Das, and Koczan 2019; Guschanski and Onaran 2022; Guschanski and Onaran 2023; Harrison 2005; Rodrik 1998). Labour unions and collective bargaining coverage have the opposite effect, as they allow workers to form alliances and threaten employers with financial and reputational damages due to industrial action (Guschanski and Onaran 2022; ILO 2011; Kristal 2010; Stockhammer 2017), although their effectiveness can be reduced when unions internalize negative effects of militant wage policies and moderate their wage demands, as has been argued for Scandinavian countries (Bengtsson 2014). There is also a growing literature stream that links new technologies to a declining bargaining power of labour, at least for some types of workers, for example women (Berik 2000), thus providing a bridge between the technological change and the bargaining power hypothesis (Skott and Guy 2007). Kristal (2013) provides evidence that computerization affects the labour share directly by increasing the technocratic power of management vis-à-vis employees and indirectly by reducing union presence in the United States. These findings are corroborated by Pensiero (2022) for the UK and Rabensteiner and Guschanski (2024) in their analysis of increasing wage premiums for high-autonomy workers in Europe.

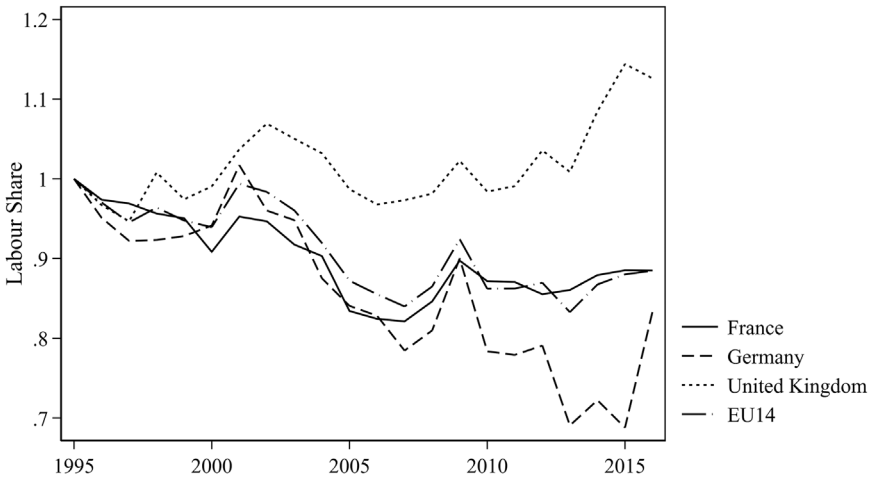
Increasing market concentration is another determinant of the labour share that has received attention in recent years. Firms with higher market shares can charge higher markups (m) and will have lower labour shares. This is conceptually similar to the effect of financialization via the *markup channel* but highlights concentration as the root cause of the labour share decline. De Loecker and Eeckhout (2018) show that average markups have increased in Europe, while Barkai (2020) provides empirical evidence for a link between increasing concentration, rising markups and falling labour shares at the industry level for the United States.

A different argument related to concentration posits that the labour share fell because of the reallocation of production towards 'superstar' firms with low labour shares, rather than due to a decline of the labour share within firms. Evidence is provided by Böckerman and Maliranta (2012) for Finland, and Autor et al. (2020), Hartman-Glaser, Lustig, and Xiaolan (2019), and Kehrig and Vincent (2021) for the United States, although the latter study also finds that 50 per cent of the decline in the labour share is explained by firms that grow and decrease their labour share simultaneously, highlighting the relevance of within-firm changes.[8] Autor et al. (2020) also provide some evidence for six European countries which is less robust than for the United States, while Abraham and Bormans (2020) show that the rise of superstar firms contributed to a decline in the labour share only in two out of eight industries in Belgium. Yet, an analysis of this channel for a large pool of European countries is lacking.

Summing up, we have identified four key hypotheses that offer an explanation for the decline in the labour share based on (i) financialization, (ii) technological change, (iii) changes in exit options related to globalization and LMIs, and (iv) increasing market concentration. The next sections provide empirical evidence for these different hypotheses.

3 | Data and Descriptive Evidence for Competing Hypotheses

We use firm-level data provided by the Worldscope database for publicly listed non-financial corporations (NFCs) in the EU14. Worldscope does not cover non-listed firms, but this is not an issue because listed firms are more likely to engage in financial activities and non-listed firms do not underly the same pressures stemming from shareholders. Data covers the 1995–2016 period, that is including the pre-2007 financial crisis period and the recovery.[9] The sample period is particularly interesting for the analysis of the labour share for several reasons. First, (net) financial payments increased across the EU14 and have stabilized since then at a higher level (see Figure 2); second, it is characterized by a secular fall in the country-level labour share



Notes: Labour share in 1995 is set to 1.
Source: Own calculations based on Worldscope.

FIGURE 1 | The labour share of publicly listed non-financial firms.

in national statistics (Guschanski and Onaran 2022); and third, there is a rich literature on this time period which puts forward various explanations for the decline in the labour share, which do not, as we show below, fit with our data for publicly listed firms. Supporting Appendix A1 provides detailed information on the database and how it compares to data used in previous firm-level studies, the variable definitions and data cleaning procedures, while Table A2 reports summary statistics.

A distinguishing characteristic of this database is that it reports consolidated balance sheets, which capture activities within all subsidiaries of multinational corporations. Given that a large share of publicly listed companies operate in different countries, this allows us to obtain a comprehensive picture of the within-firm distribution of value added. However, the use of consolidated balance sheets and the limitation to publicly listed NFCs implies that we capture only a limited part of countries' value added, and our aggregate labour share does not necessarily reflect the national labour share in a particular country. Nevertheless, firms in our sample employ a large workforce relative to the country of their headquarters, highlighting their economic relevance.[10]

Our main variable of interest, the labour share, is measured as staff costs (including social contributions of employers) as a ratio to value added (the sum of staff costs, operating income and non-operating financial income). Figure 1 plots the value added-weighted labour share for the UK, France, Germany and the EU14 pool between 1995 and 2016. We observe a decline in all countries between 1995 and 2007, albeit some upward movement in between, most remarkably in the UK. In all countries, the labour share increases sharply between 2008 and 2009 due to the Great Recession (the labour is counter-cyclical due to the presence of overhead labour costs which remain stable when profits fall in a recession). Since 2011, the labour share stabilizes in most countries, except for the UK, where it increases. Notably, as of 2016, the wage share is lower than in 1995 in France, Germany and the EU14, but higher in the UK.

Figure 1 raises the question of whether changes in the labour share were driven by a decline in the labour share *within* firms – as presupposed by explanations linked to financialization, changes in LMIs or increasing capital intensity – or by a reallocation of output towards firms with lower labour shares, as implied by the superstar firm hypothesis. Table 2 reports a shift-share decomposition (Baily et al. 1992) to distinguish these two components. We focus on surviving firms, that is firms that report data in 1995 or 1996 and 2015 or 2016 since data on exit and entry is not reliable (see Supporting Appendix A1). If data in both years is available, we use the average of both years.

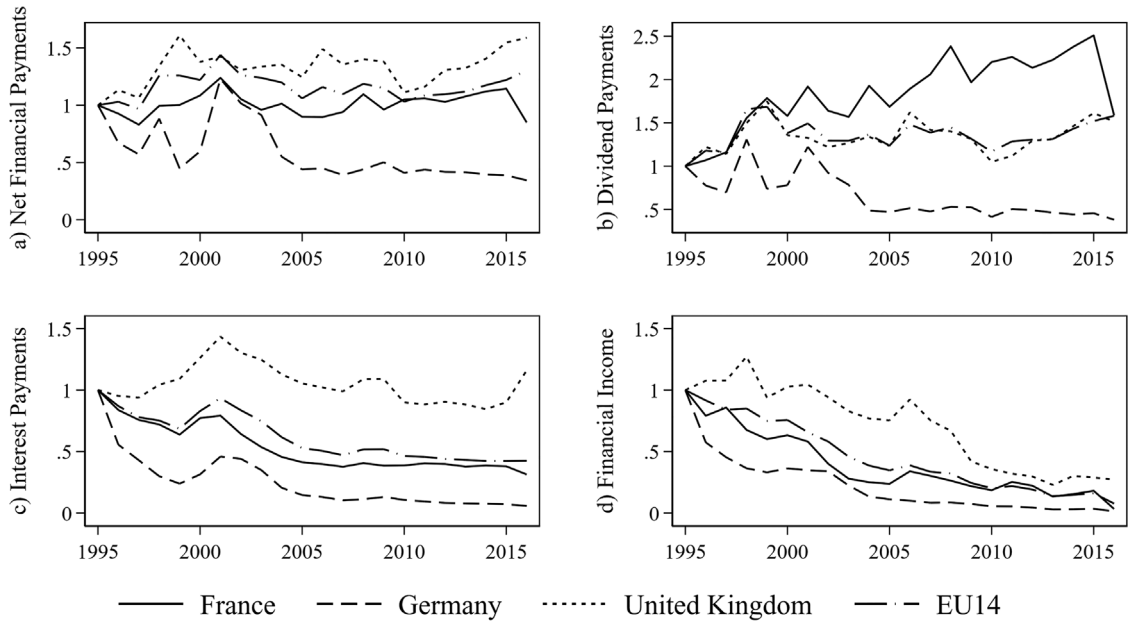
In Germany, France and the EU14, within-firm variation explains essentially all the decline in the labour share between 1995 and 2016, while the between component explains only 6 per cent of the change in the labour share in France, and predicts an increase (rather than the observed decline) of the labour share in the EU14 and Germany. The within-firm change is also highly relevant for the UK, where it explains 27 per cent of the overall change in the labour share, while the between component explains 5 per cent. However, for the UK, the largest part is explained by the covariance term (72 per cent), indicating that the labour share increased because high-labour share firms increased their contribution to overall value added as well as increasing their within-firm labour share. Overall, this suggests that hypotheses based on within-firm changes in the labour share might have more empirical relevance than the superstar firm hypothesis.

Next, we look at descriptive evidence for the main explanations for the decline in the labour share. Panel (a) in Figure 2 shows net financial payments (NFP), calculated as interest and dividend payments minus interest and dividend income, as a ratio to operating income. Because dividend payout decisions depend on the performance of the firm over several years, we use a moving average of operating income, based on the current year and the 2 previous years, in the denominator. This also allows us to reduce the number of observations that have negative operating income, which causes a problem for our analysis (see Supporting Appendix A1). Panels (b)–(d) in Figure 2 also report the individual components of NFP: dividend payments, interest payments and financial income, all as a ratio to operating income.

TABLE 2 | Shift-share decomposition of the decline in the aggregate labour share, 1995–2016.

	ΔLabour share	Within effect	Between effect	Covariance effect
EU14	−0.038	−0.058	0.007	0.011
UK	0.052	0.014	0.002	0.037
France	−0.049	−0.110	−0.003	0.068
Germany	−0.144	−0.131	0.008	−0.023

Note: Own calculation.
Source: Worldscope.



Notes: Variables are set to 1 in 1995.
Source: Own calculations based on Worldscope.

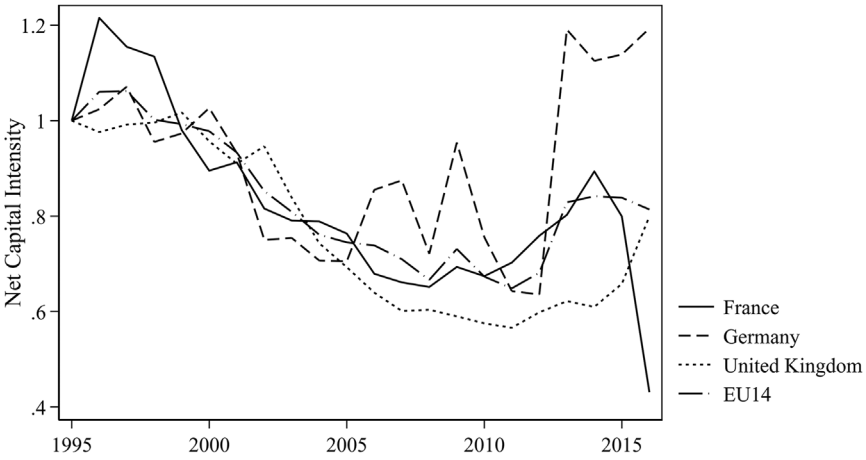
FIGURE 2 | Different measures of financialization.

The EU14 experiences a rise in net financial payments between 1995 and 1999, after which NFPs stabilize at a higher level. This is also mirrored in the UK. In France, NFPs are roughly constant, while Germany shows a dynamic that is opposite to the EU14 and the UK, with NFP stabilizing at a lower level than in 1995. Interestingly, the dynamics of NFP mask divergent trends of its different components. Specifically, dividend payments increase consistently in all countries except for Germany, while interest payments and financial income decline except for the UK where interest payments increase. Declining interest payments are likely due to declining interest rates during the period under consideration. The decline of financial income in all countries has to be taken with a grain of salt since dividend income is not available for many firms. Overall, the increase in NFP and especially dividend payments is in line with hypotheses emphasizing the role of financialization for income distribution. In contrast, there is limited descriptive evidence for the role of increasing capital intensity, as documented in Figure 3.

Capital intensity is captured by the net capital stock as a ratio to operating value added (staff costs plus operating income) and includes information and communication technology (ICT) capital and intangible capital if the latter is reported by firms. The variable shows declining capital intensity in all countries except Germany, where capital intensity increases from 2013 onwards.[11]

Lastly, we look at market concentration, measured as the Herfindahl–Hirschman index and the sales share of the four largest companies. We measure market concentration by industry with reference to the whole EU14 sample to take into account that our large listed firms compete beyond the country of their headquarters (this is common in research using the Worldscope database, e.g. Ugur, Solomon, and Zeynalov 2022). Both concentration measures are reported for the manufacturing and services sectors in Figure 4, but we use a narrow 2-digit ISIC industry classification for our econometric analysis in Section 4. While our sample cannot capture changes in concentration between non-listed and listed companies, Grullon, Larkin, and Michaely (2019) argue that concentration dynamics are driven by a small share of publicly listed firms, which highlights the relevance of our data.

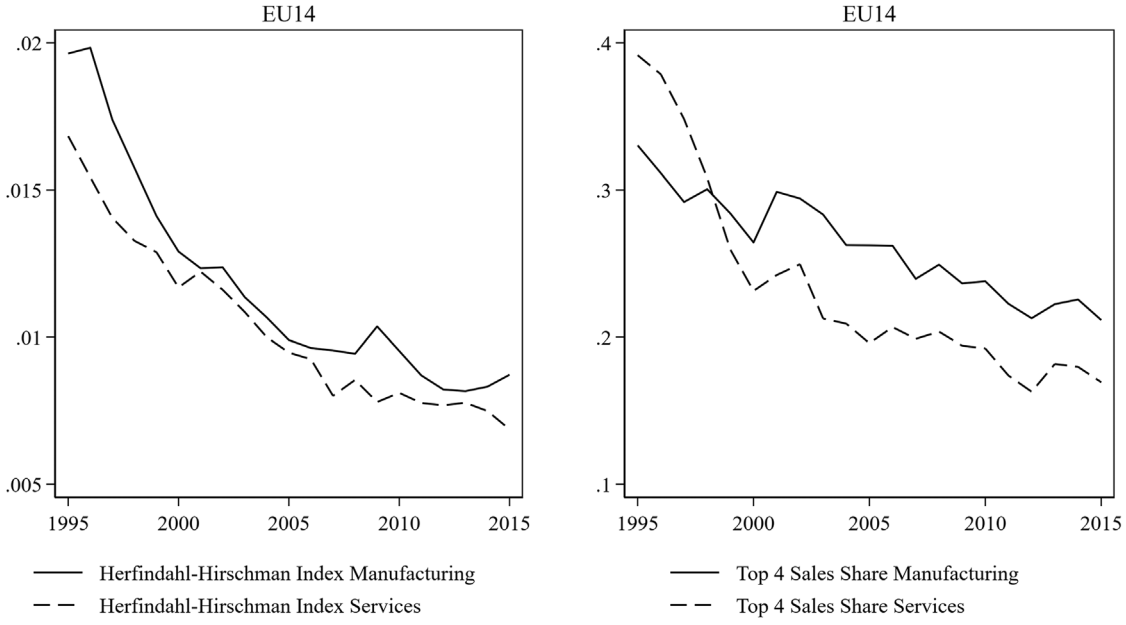
Both measures indicate that sales-based market concentration is overall lower in 2015 than in late 1990. This is confirmed



Notes: Net fixed capital stock as a ratio to the sum of staff costs and operating income. Capital intensity in 1995 is set to 1.

Source: Own calculations based on Worldscope.

FIGURE 3 | Capital intensity.



Source: Own calculations based on Worldscope database.

FIGURE 4 | Market concentration among publicly listed firms.

when we look at the disaggregated sector level where 17 out of 20 sectors experienced a decline in the Herfindahl–Hirschman index and the sales share of the four largest companies. This finding is in line with the evidence provided by Gutierrez and Philippon (2017) but contrasts with Hutchinson and Persyn (2012) who look at a different period (1991–2005) and include listed and non-listed firms. Together with evidence from the shift-share decomposition that has shown a limited contribution of the between-firm reallocation to changes in the labour share, the decline in concentration casts doubt on the proposition that the fall in the labour share is driven by the rise of superstar firms.

4 | Econometric Analysis

4.1 | Model and Estimation Method

To investigate the effect of financialization on the labour share, we estimate a log-linearized version of Equation (1):

$$\ln\left(\mathrm{LS}_{i,j,c,t}\right) = \Sigma_{k=1}^{3}\beta_{1,k}\ln\left(\mathrm{LS}_{i,j,c,t-k}\right) + \Sigma_{k=0}^{2}\beta_{2,k}\ln\left(\mathrm{k}_{i,j,c,t-k}\right) + \Sigma_{k=0}^{2}\beta_{3,k}\ln\left(\mathbf{FNC}_{i,j,c,t-k}\right) + \mathrm{d}_{j,c,t} + \theta_{i,j,c} + \varepsilon_{i,j,c,t} \quad (2)$$

where LS is the labour share in firm i in industry j of country c in year t, while k is capital stock relative to value added. Since

the bargaining power of workers (γ) and the markup (m) are not directly observable,[12] we include their determinants directly in the econometric model, with a special focus on different measures of financialization (FNC). This vector of variables includes NFP, or, alternatively, its individual components – dividend payments (DivPay), interest payments (IntPay) and financial income (FinInc) in separate estimations. To account for time-variant industry-specific unobservables or trends, we include country-industry-year dummies ($d_{j,c,t}$). More precisely, in our single-country estimations, we employ two sets of year dummies, once for all manufacturing and once for all service industries.[13] Hence, our results should be interpreted as deviations from manufacturing- or service-specific trends in the labour share. For the EU14 pool, where including manufacturing or service-specific dummies in each country is not possible due to limited data availability in some countries, we include country-year dummies, thus cancelling out trends in the labour share at the country level. These year dummies capture factors that affect all workers in a given country(-industry) simultaneously, such as changes in labour laws or bargaining arrangements within manufacturing or service industries in a country. The inclusion of time-specific dummies also mitigates cross-sectional dependence, a requirement for our estimation strategy. $\theta_{i,j,c}$ are firm-specific time-invariant components (fixed effects) that capture pre-existing differences in the labour share, which cancel out due to first-differencing or the within-transformation of our data. $\varepsilon_{i,j,c,t}$ constitutes the error term.

In alternative specifications, we aggregate our firm-level data at the industry level to assess whether the decline of the industry-level labour share is related to increasing market concentration. Additionally, we control for other determinants of the markup or bargaining power, specifically globalization and union density. The joint inclusion of financialization variables and direct measures of bargaining power such as union density has implications for the interpretation of our results because financialization has been shown to reduce union density (Dupuis, Peters, and Scrimger 2020; Gouzoulis, Galanis, and Iliopoulos 2024; Kollmeyer and Peters 2019; see Section 2.2). In an extreme case, if the effect of financialization on the labour share worked solely via a fall in union density, we would expect the coefficient for financialization variables to become zero when union density is controlled for.[14] However, our firm-level data come from consolidated balance sheets and firms conduct a significant share of their production outside the country of their headquarters, while union density is solely based on the country of their headquarters. Hence, a part of value added of the firm is not subject to the labour relations that we capture by including union density, unless multinational corporations were to transfer the home-country IR to their foreign subsidiaries. For this reason, the effect of union density should be treated as indicative in our econometric analysis, and we expect such intervening effects of union density to be limited.[15]

As discussed in Section 2.2, we do not have data on the indebtedness of employees, which would allow us to estimate the effect of household debt on the firm-level labour share. Importantly, our results are unlikely to be biased by omitting this variable, unless worker indebtedness is correlated with other measures of financialization at the firm level. This seems unlikely given that we are exploiting within-country-industry within-firm variation in the labour share. It would imply, for example, that workers of different firms within the same country and industry take on more debt if their firm focuses more strongly on SVM (e.g. by increasing dividend payouts). There is no evidence for such a trend.

A common concern in econometric analyses of functional income distribution is simultaneity bias. Previous research analysing the effect of financialization normalizes net financial payments with the capital stock (Hein and Schoder 2011), value added (Barradas 2019; Dünhaupt 2017; Kohler, Guschanski, and Stockhammer 2019; Pariboni and Tridico 2019) or total assets (Álvarez 2015). Using value added is problematic because a positive shock to profits implies, *ceteris paribus*, a lower labour share and is expected to lead to increased dividend payments, thus creating a negative relation between dividend payments and the labour share. Similar concerns apply when the capital stock or total assets are used in the denominator of net financial payments. To address this, we divide net financial payments by operating income. How much profits are paid out as dividends relative to operating income is a managerial decision, and arguably not affected by the labour share mechanically. Additionally, capital intensity is likely to be a function of past or current values of the labour share (Bentolila and Saint-Paul 2003). To account for this potential reverse causality, we use the General Method of Moments (GMM) Arellano and Bond (1991) and Blundell and Bond (1998) estimator, which provides readily available 'internal' instruments based on lagged values of the explanatory variables. This also solves the problem of correlation between the lagged dependent variable and the error term in dynamic panel models.

To determine the lag structure of the regression equation, we follow the empirically driven strategy suggested by Kiviet (2020). We start with the estimation of a fairly unrestricted Autoregressive Distributed Lag model including the contemporaneous and lagged values of all explanatory variables and two lagged dependent variables and subsequently perform a 'testing down' procedure by dropping statistically insignificant lags with the lowest absolute t-statistic, until we are left with at least one measure per variable. This procedure is done for each country and the EU14 pool independently, to account for different adjustment speeds. The testing-down procedure also allows us to use the more efficient system-GMM estimator for some countries for which the necessary assumptions are fulfilled.[16] For robustness, we also estimate a specification which imposes the same lag structure for all countries. While the latter method ensures consistency, we prefer the testing-down approach, as it allows to account for country-specific factors. The long-run effects of the financialization variables are very robust across different approaches.

The estimation of a dynamic model and our IV strategy automatically restrict the sample to firms with at least three consecutive observations for all variables. To ensure that our test statistics are calculated for each firm, we further restrict our sample to firms with at least 5 consecutive years, as is common in the dynamic micro-econometric literature (e.g. Bond et al. 2003). Furthermore, we exclude outliers from our database following usual procedures in the microeconometric literature, and especially previous papers using the Worldscope database. Details of the cleaning procedure are described in Supporting Appendix A1. We

restrict our instrument set to one instrument column per variable and we restrict the instrument lag length to the first eight lags (starting from the second lag), thereby aiming for a good balance between using relevant instruments to increase efficiency and limiting the instrument count to mitigate instrument proliferation (Kiviet 2020; Roodman 2009). However, our results are robust to alternative instrument sets, for example using all available lags as instruments. Lastly, we provide estimations using a simple within-estimator that does not account for endogeneity.

4.2 | Econometric Results

We start our econometric analysis with estimations for a pool of all EU14 countries, before providing country-specific results for the largest members (France, Germany and the UK).[17] Specification (1) in Table 3 reports long-run coefficients (the sum of contemporaneous and lagged values of the variable) for the effect of *NFP* and *k* on the labour share.

We find a statistically significant negative impact of net financial payments in the EU14 country pool, in line with the argument that an increase in financial overhead costs leads to an increase in markups, thus reducing the labour share. An increase in NFP to operating income by 1 per cent is associated with a decrease in the labour share by approximately 0.04 per cent in the EU14 on average. All model specification tests are passed.

While the estimated elasticity for NFP does not appear to be large, the economic effects are relevant due to the staggering increase in NFP. At the bottom of column 1, Table 3 shows the changes in the labour share and the predicted change in the labour share based on the long-run multipliers implied by specification (1).[18] The increase in *NFP* predicts a 2.1 per cent-point decline of the labour share in the EU14 pool between 1995 and 2015, and a 0.9 per cent-point decline between 1995 and 2007, that is before the Great Recession, which led to a spike in the labour share in most countries due to counter-cyclicality of the labour share. Overall, this explains 22.3 per cent (10 per cent) of the observed decline in the labour share between 1995 and 2016 (1995–2007) based on Figure 1.[19]

To test alternative channels via which financialization can affect the labour share, we include dividend payments, interest payments and financial income separately in specification (2). The results indicate the expected negative effect of dividend and interest payments. However, financial income also has a statistically significant negative effect on the labour share, which contradicts the hypothesis that financial income reduces the cost burden associated with financialization. Yet, model tests indicate potential misspecification as the AR1 test is not passed, which could be related to an inadequate lag structure of the explanatory variables. There are additional concerns about potential multicollinearity between the financialization variables that capture different channels related to the same phenomenon (although their correlation is generally below 0.5).

To provide a more robust analysis, we conduct a new general-to-specific testing-down approach for each of the financialization measures separately in specifications (3–5). Model specifications improve, and all significance tests are passed. Dividend and interest payments maintain their expected negative sign, but only dividend payments have a statistically significant negative effect. An increase in the dividend payout ratio by 1 per cent reduces the labour share by 0.14 per cent on average in the EU14.[20] In contrast, the insignificant coefficient for interest payments suggests that they are not considered to be part of the increasing overhead cost burden associated with financialization, perhaps because they are less directly linked to shareholder value orientation and only partly under the control of the firm. Alternatively, the robust effect of dividend payments (specification 3) could indicate a change in corporate governance towards a regime that is less favourable to workers, suggesting a decline in the bargaining power of labour.

Interestingly, financial income remains negative and statistically significant. A 1 per cent increase in financial income as a share of overall profits is associated with a 0.06 per cent reduction in the labour share. This finding suggests that financial income does not reduce the pressure arising from increasing overhead costs experienced by NFCs, but instead increases the exit options and thus the bargaining power of capital vis-à-vis labour. This indicates that the *exit options channel* dominates the *markup channel* for the EU14 on average.

In contrast to the financialization variables, there is no statistically significant effect of capital intensity on the labour share, thus casting doubt on technological change as a driver of the labour share decline.

Table 4 repeats the analysis for the largest EU14 member states.

We find a statistically significant negative effect of NFP in the UK and France, where a 1 per cent increase in NFP reduces the labour share by 0.026 per cent and 0.031 per cent, respectively (specifications 6 and 11). In contrast, the effect of NFP in Germany is not statistically significant (specification 16). Specifications (7), (12) and (17) include all financialization variables jointly, but due to issues of model misspecification and potential issues with multicollinearity which could inflate standard errors (see specification 2, Table 3), we prefer estimations with each financialization variable separately, as discussed above. When included individually, we find significant negative effects of dividend payments in the UK and France, but not in Germany (specifications 8, 13 and 18), while there is a significant negative effect of interest payments in the UK and Germany, but not in France (specifications 9, 14 and 19). However, both dividend and interest payments display negative coefficients in all specifications. Financial income, on the other hand, has a significant negative impact on the labour share in the UK and Germany, in line with the EU14, while the effect is not significant in France. All model specification tests are passed throughout, confirming the reliability of these results.

Overall, these results reinforce our finding of a negative effect of financialization on the labour share for the EU14 pool, while also highlighting the country-specific nature of financialization. The UK results are strongly in line with the EU14, with the main difference being that interest payments maintain a statistically significant negative effect even when included individually (specification 9). This suggests that the negative effect of NFP on the labour share is driven by both dividend and interest payments, in line with the *markup channel*. The negative effect

TABLE 3 | The effect of financialization on the labour share: EU14.

	(1)	(2)	(3)	(4)	(5)
ln(k)	0.107	−0.453	0.119	0.004	−0.005
	(0.367)	(0.120)	(0.137)	(0.973)	(0.966)
ln(NFP)	−0.037***				
	(0.000)				
ln(DivPay)		−0.016***	−0.138**		
		(0.001)	(0.034)		
ln(IntPay)		−0.054***		−0.017	
		(0.001)		(0.657)	
ln(FinInc)		−0.013***			−0.059**
		(0.001)			(0.011)
$ln(LS)_{t-1}$	0.567***	0.654***	0.749***	0.642***	0.613***
	(0.000)	(0.004)	(0.000)	(0.002)	(0.000)
$ln(LS)_{t-2}$	0.054	0.127*	0.213***	0.080	0.125***
	(0.182)	(0.097)	(0.000)	(0.206)	(0.001)
country*year dummies	Yes	Yes	Yes	Yes	Yes
Method	difference	difference	difference	difference	difference
Hansen	0.939	0.978	0.594	0.824	0.711
AR1	0.001	0.655	0.000	0.000	0.000
AR2	0.346	0.876	0.246	0.768	0.199
Instruments	274	276	279	274	279
Firms	1853	1589	1631	1825	1769
F-test	196.269	46.656	1.223	23.705	31.600
Observations	17,926	13,643	14,769	17,377	15,951
Observed ΔLS (1995–2007)	−0.120				
Predicted ΔLS (1995–2007)	−0.012				
Observed ΔLS (1995–2016)	−0.086				
Predicted ΔLS (1995–2016)	−0.019				

Note: Dependent variable is the firm-level labour share (*LS*). Period: 1995–2016. Long-run coefficients are reported, *p*-values in parentheses.
***, **, * denote statistical significance at the 1%, 5% and 10% level. k = capital intensity; NFP = net financial payments; $DivPay$ = dividend payments; $IntPay$ = interest payments; $FinInc$ = financial income. Method indicates either system- or difference-GMM. Hansen is the *p*-value of the Hansen test of overidentifying restrictions for all instruments. AR1 and AR2 are the *p*-values of the Arellano–Bond tests for autocorrelation of first and second order in the residuals. Instruments denote the number of instruments used. *F*-test is the test statistic of the *F*-test on all variables. Observed ΔLS is the value added-weighted average change in the labour share. Predicted ΔLS is the value added-weighted average predicted change in the labour share based on changes in the financialization variables alone.

of dividend payments (specification 8) supports the *shareholder value channel*. Like in the EU14, financial income does not appear to alleviate the cost pressure arising from financialization, in contrast to what would be suggested by the *markup channel*. Instead, our results are consistent with an increase in *exit options* for capital, which subsequently reduces the relative bargaining power of labour (specification 10).

Results for France are in line with the *markup channel*, as suggested by the negative effect of NFP (specification 11), dividend payments (specification 13) and interest payments, though the latter is not statistically significant (specification 14). The positive, though not statistically significant (*p*-value of 0.2), coefficient for financial income is also consistent with the *markup channel* (specification 15). At the very least, there is no evidence that financial income increases the exit options of capital for France, in contrast to the UK, Germany and the EU14 pool. In line with the EU14 results, our findings can also be interpreted as consistent with the *shareholder value channel*, due to the large and statistically significant negative effect of dividend payouts in France (specification 13).

Conversely, interest, rather than dividend payments, appears to reduce the labour share in Germany (specifications 18 and 19). As outlined in Section 2, it is not clear a priori which form of financial payments would be considered overhead costs from the perspective of firms. Especially in strongly cooperative bargaining regimes such as Germany, dividend payments might not increase the pressure on managers to raise the markup. Managers could, in turn, perceive interest payments as more strongly related

TABLE 4 | The effect of financialization on the labour share: United Kingdom, France and Germany.

	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Country	**UK**	**UK**	**UK**	**UK**	**UK**	**FRA**	**FRA**	**FRA**	**FRA**	**FRA**	**DEU**	**DEU**	**DEU**	**DEU**	**DEU**
ln(k)	0.029*	0.031*	0.024	0.036	0.013	0.019	0.073	0.152	0.019	0.016	−0.057	0.047	0.173	0.291***	−0.079
	(0.082)	(0.050)	(0.105)	(0.106)	(0.435)	(0.758)	(0.597)	(0.285)	(0.610)	(0.693)	(0.307)	(0.211)	(0.276)	(0.009)	(0.119)
ln(NFP)	−0.026***					−0.031***					−0.009				
	(0.000)					(0.000)					(0.374)				
ln(DivPay)		−0.016***	−0.014**				−0.015	−0.026***				−0.004	−0.021		
		(0.008)	(0.011)				(0.198)	(0.007)				(0.397)	(0.686)		
ln(IntPay)		−0.013***		−0.013***			−0.023		−0.004			−0.010		−0.029**	
		(0.004)		(0.008)			(0.184)		(0.588)			(0.279)		(0.012)	
ln(FinInc)		0.001			−0.005*		−0.007			0.036		−0.007			−0.102*
		(0.829)			(0.097)		(0.130)			(0.204)		(0.109)			(0.083)
$\ln(LS)_{t-1}$	0.646***	0.703***	0.693***	0.620***	0.623***	0.562***	0.601	0.586***	0.795***	0.851***	0.799***	0.720***	0.396**	0.469**	0.985***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.102)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.036)	(0.028)	(0.000)
$\ln(LS)_{t-2}$					0.130***								0.143	0.176***	
					(0.001)								(0.252)	(0.009)	
ind*year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Method	system	system	system	system	system	difference	difference	difference	system	system	system	system	difference	difference	system
Hansen	0.513	0.232	0.174	0.509	0.945	0.228	0.060	0.297	0.410	0.336	0.303	0.303	0.359	0.527	0.334
diffHansen	0.230	0.306	0.421	0.899	0.744				0.469	0.615	0.724	0.261			0.200
AR1	0.000	0.001	0.000	0.000	0.000	0.012	0.124	0.024	0.005	0.011	0.010	0.000	0.012	0.061	0.000
AR2l	0.722	0.227	0.235	0.640	0.429	0.594	0.944	0.680	0.578	0.559	0.564	0.223	0.718	0.504	0.735
Instruments	57	59	57	57	55	53	55	53	57	57	57	59	56	57	57
Firms	485	428	452	475	473	302	251	265	302	290	277	255	243	274	273
F-test	15.639	11.047	12.634	15.205	16.983	8.809	6.081	7.024	27.717	13.670	9.418	15.088	6.277	15.856	21.498
Observations	6465	4973	5719	6171	5402	3307	2218	2708	3595	2893	2864	2289	1758	2263	2805

Note: Dependent variable is the firm-level labour share (*LS*). Period: 1995–2016. Long-run coefficients are reported, *p*-values in parentheses.

***, **, * denote statistical significance at the 1%, 5% and 10% level. k = capital intensity; NFP = net financial payments; $DivPay$ = dividend payments; $IntPay$ = interest payments; $FinInc$ = financial income. Method indicates either system- or difference-GMM. Hansen is the *p*-value of the Hansen test of overidentifying restrictions for all instruments. diffHansen indicates the incremental Hansen test for instruments used in the level equation. AR1 and AR2 are the *p*-values of the Arellano−Bond tests for autocorrelation of first and second order in the residuals. Instruments denote the number of instruments used. *F*-test is the test statistic of the *F*-test on all variables.

to overhead costs. For these reasons, and due to the negative, though not statistically significant effect of dividend payments, we interpret the results for Germany as still largely in line with the *markup channel*. However, these results indicate less support for the *shareholder value channel*. It would be desirable to assess which part of corporate debt and subsequent interest payments are related to the financing of share buybacks or financial activities as suggested by Lazonick and O'Sullivan (2000), but this is not possible with our data. The negative effect of financial income for Germany (specification 20) is in line with the *exit options channel*, consistent with results for the EU14 and the UK.

Results in Table 4 show either no association between capital intensity and the labour share or even a positive effect in the UK and Germany in some specifications. Interestingly, in combination with the declining capital intensity observed in the majority of countries in our sample (Figure 3), this implies that a lack, rather than a surge, in capital deepening contributed to a decline in the labour share. While data availability does not allow to decompose ICT capital or intangible assets, our financialization results are robust to the inclusion of country-industry-year dummies which can partly account for changes in capital composition or technological progress.

We provide several robustness tests for these baseline results in the Supporting Appendix. Specifications (1–4) in Table A4 report results for a specification using the difference-GMM estimator with a common lag structure for all countries, that is without conducting general-to-specific model selection for each country.[21] NFP exerts a statistically significant negative effect on the labour share in all countries. Size effects are also similar to our baseline results. Specifications (5–8) in Table A4 estimate our baseline specifications using the within-estimator. Our baseline results are largely confirmed, with negative coefficients for net financial payments, which are statistically significant for all countries except for the UK and Germany. Comparison of the coefficient for the lagged dependent variable shows the expected downward bias for the within-estimator in comparison to our baseline GMM estimation, thus providing further indication for its accuracy. We consider the within-estimator unreliable due to the potential presence of a simultaneity bias and the dynamic panel bias.

Table A5 reports results until 2007 to assess the effect of financialization for the period prior to the Great Recession. Results for NFP mirror our results for the whole sample period, suggesting that financialization affects the labour share at different points of the financial cycle. Estimations for individual financialization variables based on specifications in Tables A4 and A5 (not reported) are largely in line with results reported in Tables 3 and 4. Furthermore, we have conducted estimations using the labour share capped at 2 to avoid outliers that have not been eliminated through our baseline data-cleaning procedures. Our results are fully robust to these additional tests which are available upon request.

Estimations in Tables 3 and 4 lack direct measures of bargaining power such as union density or strike intensity. If the presence of strong labour unions reduces shareholder value orientation and thus correlates with NFP or dividend payments and the labour share, this could potentially introduce a bias in our analysis. Given that firm-level data is not available, we include the change in industry-level union density (UD) as a control variable in specifications (1–4) of Table 5, in addition to the year dummies which are already part of our regression.[22] Data for union density is based on the OECD/AIAS ICTWSS database and is not available for each year. Therefore, we linearly interpolate the series between available years and extrapolate using the growth rate of data available for the next higher level of aggregation. For example, we extrapolate data for individual manufacturing sectors using the growth rate of the total manufacturing union density or country-level union density when the former series was not available. The effect of union density on the labour share is not statistically significant. While this differs from previous findings (see Section 2.4), it is consistent with the fact that our firm-level data comes from consolidated balance sheet statements, while union density is based on the IR of the headquarters (see Section 4.1). We have also tested the effect of country-level collective bargaining coverage in alternative specifications, but the effect was statistically insignificant (available upon request).

Additionally, we include a measure of globalization, captured by international sales as a ratio to total sales, to account for another dimension of bargaining power in specifications (5–8). An increase in international sales is associated with an increase in the exit options of capital and is thus expected to reduce the labour share. However, the estimated effect is statistically insignificant. International sales capture 'sales generated from operations in foreign countries', thus excluding measures of globalization that might be particularly relevant for the labour share, such as narrow offshoring of production (Guschanski and Onaran 2022). Furthermore, data availability is limited, reducing our total number of observations by 30 per cent relative to the baseline, and making comparison to our baseline specification difficult. The negative effect of NFP remains robust throughout these additional estimations.

To test the impact of market concentration and the superstar firm hypothesis, we aggregate our firm-level data at the country-industry level. Specification (9) in Table 5 repeats our baseline regression using this aggregated industry-level dataset and confirms our finding of a negative effect of NFP on the labour share. In addition to providing robustness to our results, this indicates that NFP predicts not only a within-firm but also a within-industry decline in the labour share. This is particularly important because within-industry changes in functional distribution have been argued to be the main driver of changes in the country-level labour share (Dao, Das, and Koczan 2019; Karabarbounis and Neiman 2014). Specifications (10 and 11) add the Herfindahl–Hirschman index and the sales share of the largest four firms (CR4) to our model. We find a statistically significant negative effect of both variables on the labour share.[23] Taken in isolation, this finding is in line with explanations based on a rise in average markups (Barkai 2020; De Loecker and Eeckhout 2018) or the superstar firm hypothesis (Autor et al. 2020; Hartman-Glaser, Lustig, and Xiaolan 2019; Kehrig and Vincent 2021). However, the limited role of between-firm reallocation (Table 2), and the secular decline in concentration in our sample (Figure 4), cast doubt on the economic relevance of this effect. The negative effect of NFP remains robust to the inclusion of the concentration measures.

TABLE 5 | Other determinants of the labour share: Union density, globalization and market concentration.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Country	**EU**	**UK**	**FRA**	**DEU**	**EU**	**UK**	**FRA**	**DEU**	**EU§**	**EU§**	**EU§**
ln(k)	0.119	0.030*	0.025	−0.051	0.312***	0.032	0.205***	−0.062	0.193	0.106	0.272**
	(0.308)	(0.072)	(0.718)	(0.377)	(0.009)	(0.109)	(0.002)	(0.273)	(0.115)	(0.437)	(0.022)
ln(NFP)	−0.036***	−0.026***	−0.031***	−0.010	−0.020**	−0.022**	−0.030***	−0.011	−0.031***	−0.032***	−0.027***
	(0.000)	(0.000)	(0.001)	(0.302)	(0.018)	(0.012)	(0.001)	(0.313)	(0.001)	(0.000)	(0.001)
ΔUD	0.016	−0.002	−0.149	0.243							
	(0.774)	(0.976)	(0.591)	(0.718)							
Int. Sales					0.049	0.032	0.035	0.120			
					(0.516)	(0.151)	(0.398)	(0.140)			
HHI										−1.601**	
										(0.022)	
CR4											−3.338***
											(0.004)
$\ln(LS)_{t-1}$	0.548***	0.648***	0.545***	0.781***	0.259	0.496***	0.488***	0.934***	0.305***	0.327***	0.241**
	(0.000)	(0.000)	(0.001)	(0.002)	(0.106)	(0.000)	(0.008)	(0.000)	(0.002)	(0.001)	(0.014)
$\ln(LS)_{t-2}$	0.050				0.012				0.067	0.065	0.060*
	(0.214)				(0.710)				(0.158)	(0.153)	(0.095)
ind*year dummies	No	No	No	No	No	Yes	Yes	Yes	No	No	No
cty*year dummies	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Method	difference	system	difference	system	difference	system	difference	system	difference	difference	difference
Hansen	0.945	0.503	0.133	0.271	0.545	0.330	0.785	0.646	0.691	0.718	0.992
diffHansen		0.198		0.710		0.719		0.494			
AR1	0.001	0.000	0.015	0.010	0.046	0.005	0.048	0.001	0.000	0.000	0.000
AR2	0.250	0.725	0.593	0.556	0.070	0.526	0.487	0.992	0.453	0.456	0.931
Instruments	275	37	34	37	277	64	59	64	32	38	38
Firms	1851	485	302	277	1437	402	246	221	221	221	221
F-test	60.492	20.676	9.593	10.778	9.658	7.651	5.734	16.345	13.456	12.622	12.052
Observations	17,840	6465	3307	2864	12,685	4613	2463	2103	3269	3269	3269

Note: Dependent variable is the firm-level labour share (*LS*). Period: 1995–2016. Long-run coefficients are reported, *p*-values in parentheses.
***, **, * denote statistical significance at the 1%, 5% and 10% level. k = capital intensity; NFP = net financial payments; ΔUD = annual change in union density; $Int.Sales$ = international sales; HHI = Herfindahl–Hirschman index; $CR4$ = sales share of the four largest firms in the industry. Method indicates either system- or difference-GMM. Hansen is the *p*-value of the Hansen test of overidentifying restrictions for all instruments. diffHansen indicates the incremental Hansen test for instruments used in the level equation. AR1 and AR2 are the *p*-values of the Arellano–Bond tests for autocorrelation of first and second order in the residuals. Instruments denote the number of instruments used. *F*-test is the test statistic of the *F*-test on all variables. § indicates results based on data aggregated at the industry level.

5 | Conclusion

IR and Political Economy literature has long emphasized the importance of power relations between capital and labour, shaped by LMI, globalization and financialization, to explain the decline in the labour share within firms (Cushen and Thompson 2016; Guschanski and Onaran 2022; Stockhammer 2017). However, most empirical studies rely on industry- and country-level data, without being able to distinguish between-firm from within-firm changes in the labour share. In contrast, recent economics studies utilizing firm-level data have focused on automation and the rise of superstar firms as determinants of factor distribution. A consistent comparison between these different propositions has been limited due to the lack of firm-level analyses that incorporate the arguments highlighted in IR literature.

This article fills this gap by providing evidence that financialization has contributed to the decline in the labour share in European publicly listed NFCs. We argue that distinct measures can provide insight into how various financialization channels

work in different institutional contexts. Our results show that an increase in net financial payments reduces the labour share in the EU14, consistent with arguments that financial overhead costs *increase cost-elastic markups*. This corroborates previous findings based on country-level data (Barradas 2019; Dünhaupt 2017; Kohler, Guschanski, and Stockhammer 2019) and firm-level data for France (Álvarez 2015).

Furthermore, we find evidence for a negative effect of increasing *shareholder value orientation* (captured by the dividend payout ratio) on the labour share in the EU14 pool, France and the UK. This confirms previous analyses based on country-level panel data for high-income economies including Pariboni and Tridico (2019) and Dünhaupt (2017). However, there is no evidence for Germany, a country characterized by industry-level bargaining, widespread employee representation on company boards and relatively strong collective bargaining institutions, which can counterweigh the power of shareholders (Huber, Petrova, and Stephens 2022). This finding suggests that LMIs mediate the effect of financialization on the bargaining power of labour, indicates that liberal market economies are particularly susceptible to the effects of financialization (Roberts and Kwon 2017) and opens up an avenue for further research comparing different institutional regimes, ideally based on a larger dataset involving more countries with wider institutional heterogeneity.

Lastly, we find that the labour share declines in NFCs that receive an increasing share of their profits in the form of dividends and interest income (except in France). This is consistent with the hypothesis that financial income increases the *exit options* of capital and corroborates findings at the industry-level for the United States (Lin and Tomaskovic-Devey 2013) and firm data for France (Álvarez 2015), but contradicts with Kohler, Guschanski, and Stockhammer (2019) who have suggested that financial income eases the overhead cost burden and thus can have positive effects on the labour share.

These results are supported by various robustness tests, a rich set of control variables, an IV strategy that accounts for endogeneity, the inclusion of various country-, industry- and time-specific dummies, and the finding that, as implied by financialization theory, the decline in the aggregate labour share was largely driven by a within-firm decline.

Notably, these channels are limited to specific aspects of *corporate* financialization, capturing only a small part of a multidimensional phenomenon which also includes the financialization of households, the state and everyday life (Van Der Zwan 2014). We believe this to be a necessary restriction that allows us to make a contribution based on precisely testing narrow mechanisms, rather than providing descriptive evidence for broader theoretical arguments; nevertheless, our approach is consistent with and strongly builds on previous theoretical contributions on the link between financialization and IR (Cushen and Thompson 2016; Thompson 2003; Thompson 2013).

We do not find evidence for alternative explanations for the labour share decline based on automation, the rise of superstar firms, globalization and LMI, although lack of data at the firm level and the specificities of our sample imply that more research, preferably with data covering listed and unlisted firms, and more detailed firm-level measures of automation, industrial conflict and corporate governance, is necessary to corroborate these findings.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The firm-level data that support the findings of this study has been purchased by the University of Greenwich from Refinitiv Eikon - Thomson Reuters and cannot be shared.

Endnotes

[1] Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and the UK.

[2] Interestingly, this process is not necessarily to the benefit of the shareholders in the medium- or long-run because managers are likely to engage in activities that increase share prices but harm the long-term prospects of firms (Admati 2017).

[3] The labour share is mathematically equivalent to the ratio of real wages to labour productivity. Hence, an increase in productivity at constant real wages leads to a decline in the labour share.

[4] A related literature stream argues that financial liberalization during the 1980s and 1990s and thus higher international capital mobility increases the exit options of capital (Pariboni and Tridico 2019). Several studies investigate this hypothesis using country-level data and find a negative effect of financial globalization on the labour share (see Kohler et al. 2019, for a review).

[5] Some of these channels have been linked to personal, rather than functional, income distribution. For example, Huber et al. (2022) argue that *shareholder value* orientation contributes to increasing top executive remuneration by increasing bonuses, stock remunerations and performance pay, while the *exit options channels* increase the demand for highly paid financial professionals. This is substantiated through panel regressions that find a positive effect of financialization measures such as stock market capitalization and financial assets of NFCs on top 1 per cent and top 10 per cent income ratios for 18 OECD countries.

[6] While it would be desirable to include other financialization measures such as share buybacks or the link of CEO compensation to share prices, this data is unavailable.

[7] The increase in capital intensity can also be driven by globalization (Dao et al. 2019). A related argument is that the labour share declined due to capital-augmenting technological change (Bassanini and Manfredi 2014; Bentolila and Saint-Paul 2003). We abstract from capital-augmenting technological change in our analysis due to lack of data. Karabarbounis and Neiman (2014) show that any bias resulting from this omission is negligible.

[8] An increase in concentration in local labour markets could also increase the monopsony power of firms, thus reducing labour's exit options and

the labour share. Azar et al. (2020) and Benmelech et al. (2022) show that labour market concentration (i.e. a reduction in the number of employers per geographic region) is negatively associated with (posted) wages in the United States. Such a regional analysis is not possible with our consolidated data.

[9] Country selection is due to data availability and sample end date is limited by access to the privately provided Worldscope database at the time of writing.

[10] Firms with headquarters, the UK, France and Germany employ 5.1, 4.5 and 5.4 million employees every year on average in our sample. This roughly corresponds to 20 per cent of the total number of employees in each of those countries (excluding employees in sectors that are also excluded from our firm sample such as Agriculture, Mining and Quarrying, Finance, Insurance and Real Estate, Public Administration and Defence).

[11] It would be desirable to analyse the evolution ICT capital or intangible assets separately, as different types of capital can potentially have different elasticities of substitution with respect to labour. Thomson Reuters provides data on computer equipment but availability is limited to less than 100 firms in the EU14 pool. Recent industry-level studies found no significant difference between the effect of ICT and non-ICT capital on the labour share (Guschanski and Onaran 2022).

[12] While bargaining power is unobservable, markups can, in principle, be calculated when data on costs, prices and physical quantities is available. While we lack access to such data, recent work by De Loecker and Eeckhout (2018) has also proposed a mechanism to estimate markups from accounting data. However, their markup measure is not independent of the labour share, as it is based on a measure of costs relative to sales, which are closely related to the labour share. For this reason, as well as for lack of data on overhead labour costs which are also needed, we do not include markups directly in our estimation equation.

[13] This has advantages over including dummies at a more detailed industry level because it keeps the model parsimonious. It is further justified as firms in our sample are almost equally split between manufacturing and service industries. A narrow industry classification based on 2-digit Standard Industrial Classification (SIC) codes cannot be included in all countries or the EU-14 pool because there are not sufficient firms in some of the industries, which prevents the calculation of test statistics. However, results for the UK and other countries where we have sufficient observations in all industries are robust to the inclusion of more detailed industry dummies.

[14] Equivalently, other studies have highlighted a negative effect of technological change (k) on union density (Kristal 2013).

[15] This could also imply potential collinearity between financialization measures and union density (or equivalently between k and union density). While this does not cause a bias, it can inflate standard errors. However, low variance inflation factors (significantly below 10 for all variables in regressions involving union density) and a correlation of 0.01 between k and union density and 0.02 between *NFP* and union density suggest that these concerns are negligible.

[16] We adopt an estimation strategy that starts with the most robust estimator (one-step difference GMM) and work our way towards the most efficient estimator (two-step system GMM with standard errors adjusted for heteroscedasticity and Windmeijer 2005, small sample error correction), following Kiviet (2020). We start by treating all variables as endogenous. Thereafter, we test whether variables capturing the effect of financialization can be treated as predetermined or exogenous by including one-by-one more recent lags of the variable as an additional instrument and testing for its validity by applying the incremental Sargan–Hansen test. This procedure indicates that NFP can be treated as exogenous. We treat k as endogenous throughout. We also employ the more efficient system-GMM estimator when the 'stationarity condition' is met as indicated by the incremental Sargan–Hansen test on the instruments used in the level equation. This validity test is not passed for most countries except for the UK where the results between the difference and system-GMM estimator are robust.

[17] Table A3 in the Supporting Appendix reports the number of observations by country for the baseline specification (1), Table 3. As can be seen, our unbalanced panel is dominated by firms in the largest economies: the UK, France and Germany.

[18] Long-run multipliers are calculated by dividing long-run coefficients by one minus the sum of the coefficients on the lagged dependent variable. They can be interpreted as the long-run effect of a mean shift in our explanatory variables on the labour share.

[19] The predicted change in the labour share is only indicative because our estimations using the difference-GMM method estimate a within-firm effect, while the overall predicted change in the labour share is (i) based on a combination of within and between-effects, and (ii) takes exiters and entrants into account which we cannot capture reliably (see Section 3).

[20] The increase in dividend payments alone explains 28.2 per cent (22.7 per cent) of the observed decline in the labour share between 1995 and 2016 (1995–2007) based on Figure 1. This is higher than for *NFP*, because *NFP* includes interest payments which have declined over time for our sample.

[21] The lag structure of this specification is deduced from the most common lag structure of the country-specific testing-down estimations. This is the reason *NFP* enter with a lag, whereas k enters contemporaneously.

[22] The industry-year dummies in our baseline specifications already control for shocks affecting all firms in a country-industry. Hence, we revert to country-year rather than country-industry-year dummies in specifications involving union density to avoid potential issues of collinearity. We have also experimented with including the level of union density in our regressions but model specification tests and a Wald test on the coefficients of the contemporaneous value and first lag indicate that the first difference is more appropriate.

[23] Table A6 in the Supporting Appendix repeats the analysis for the aggregate EU14-level labour share. This provides evidence for the EU as a whole and is further relevant because concentration as well as the labour share are calculated at the same EU-wide industry level in this specification. While we confirm the negative effect of NFP, our measures of market concentration turn statistically insignificant.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.