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Who Gets the Flow? Financial Globalisation and Wealth Inequality

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TEP Working Paper No. 0322

October 2022

Trinity Economics Papers
Department of Economics

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Monday 24th October, 2022

Abstract

This paper studies whether the advent of financial globalisation has contributed to increasing wealth inequality in the United States, France, and the United Kingdom. I find that (i) positive changes in the benchmark measure of financial globalisation are associated with a positive change in the top 1% and 10% wealth shares and a negative change in the wealth share of the bottom 50% of the distribution. This is equivalent to an average gain of $1 trillion for the top 10% and $1.6 trillion for the top 1%, over the period of interest. (ii) Portfolio equities and financial derivatives appear to be the driving components behind the increase in wealth share. (iii) The implied change in wealth shares is driven by the accumulation of new financial wealth (flow) rather than the valuation of existing one. (iv) The dynamic is strengthened when a banking crisis hits the economy, possibly because people at the top of the distribution can recover their lost wealth faster than people at the bottom.

JEL codes: C23, D63, F21, F30, E21
Keywords: financial globalisation, international financial integration, wealth inequality

[*]I would like to thank Agustín Bénétrix and Davide Romelli for their invaluable guidance and support. I would also like to thank Joseph Kopecky, Salvatore Morelli, Alberto Pozzolo, Paul Scanlon, Cédric Tille, and Michael Wycherley for helpful comments and stimulating discussions. I am also grateful to conference participants at the IPECE 2021 Workshop, 35th Irish Economic Association Annual Conference, 37th European Economic Association Annual Congress, 63rd Italian Economic Association Annual Conference, as well as seminar participants in Trinity College Dublin, Central Bank of Ireland, and Roma Tre University. I kindly thank Daniel Waldenström for sharing his data.

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[‡]The views expressed are those of the author and do not necessarily reflect those of the Central Bank of Ireland or the European System of Central Banks (ESCB).

> *"Personal wealth has a crucial role in cushioning against life's uncertainties [...] and is a crucial determinant of what people can do at the beginning of their lives. For all these reasons, it is imperative that in the future we monitor the evolution of wealth in the same way that we have been monitoring the evolution of income"*
>
> — Mario Draghi (2007), as Governor of the Bank of Italy

1 Introduction

Starting from high levels of wealth inequality, the 20th century experienced a declining trend in the concentration of net wealth in advanced economies (Waldenström, 2021). This trend stopped and reversed toward an upward one around the 1980s.[1] As a result, the current distributions of wealth are more skewed towards top percentiles. Among other factors, this reversal broadly coincides with the period in which financial globalisation intensified.

The goal of this paper is to shed light on the link between financial globalisation and the rise in wealth inequality. This remain an area of active policy and research focus, not least because individual wealth is not straightforward to measure and allocate. Following the publication of *"Capital in the Twenty-First Century"* (Piketty, 2014) there has been an increasing effort from various researchers in estimating series for wealth inequality (a non exhaustive list of papers includes Saez and Zucman, 2016; Piketty et al., 2018; Alvaredo et al., 2018a, 2020; Garbinti et al., 2021; Bajard et al., 2021; Blanchet and Martínez-Toledano, 2021). I use this new wave of data to address the research question. Given that data availability and quality is limited and transmission channels for advanced and emerging economies are likely to differ, I focus my study on the United States, France, and the United Kingdom.

The resulting policy implications are far reaching. One of the goals of globalisation, if not the main, is to foster prosperity for all rather than just a restricted group of individuals. A high concentration of wealth towards the top of the distribution has both economic and social consequences. As such, policymakers are underpinning solutions to achieve inclusive economic growth. Some examples are policy recommendations towards wealth taxes, such as those from the IMF and the World Bank (IMF, 2021; Brumby, 2021), or advanced proposal, such as those from Senators Bernie Sanders and Elizabeth Warren in the United States.[2] Whether and how financial globalisation affects the distribution of wealth is relevant to develop targeted and efficient policies which favour a more inclusive society.

My contribution to the literature is threefold. First, to the best of my knowledge, this paper aims to be a primer in exploring empirically and in a broad way the link between financial integration and wealth, rather than income inequality. Wealth is even more unequally distributed than income and, although the two are positively

[1] See Appendix Figure A1.

[2] According to the estimates, Senator Warren's proposal would raise between $2.2 (Tax Foundation estimates) and $3 (Saez and Zucman, 2021) trillion of tax revenue over a decade, while Bernie Sanders' plan would generate $2.6 trillion over the same period (Tax Foundation estimates).

correlated they remain two different concepts with different drivers and macroeconomic implications.[3] Second, I provide a cross sectional analysis which adds to the literature that has mainly focused on the United States. I acknowledge that the restricted country sample does not guarantee external validity of results. However, I believe it is important to consider global linkages when studying inequality and the results of this paper can serve as a benchmark for future extensions. Third, I create a bridge between the literature of international financial integration and the one on the drivers behind wealth inequality.

In this paper I use a fixed effects panel data model to estimate the effect of financial globalisation on the wealth distribution within the United States, France, and the United Kingdom. I proxy financial globalisation with the International Financial Integration (IFI, hereafter) index, which is a widely used volume-based indicator summarising the amount of outstanding foreign assets and liabilities scaled by GDP (Lane and Milesi-Ferretti, 2001, 2003). I find that a one standard deviation increase in the growth rate of the IFI is associated with a positive change in the wealth share growth of the top 1% (the rich) by 0.22 percentage points (pp) and of the top 10% (upper middle-class) by 0.15 pp and a negative change in the wealth share growth of the bottom 50% (working class) of the distribution by 0.07 pp. To better appreciate the scale of the effect it is worth to interpret these numbers in monetary terms. Projecting the predicted shares following an average increase in the IFI on the average total net wealth – over the three countries and the period of time of the analysis – results in an increase in the top 10% and top 1% aggregate net wealth by approximately $1 trillion (+8%) and $1.6 trillion (+30%), respectively.[4]

One big advantage of using the IFI is the possibility to decompose the index by functional categories. This is helpful because some categories such as portfolio investments or financial derivative are more linked to the distribution of individual wealth than FDIs. For example, estimates from the Federal Reserve suggest that in the US the top 1% wealthiest own 53.7% of corporate equities while the bottom 50% only owns 0.6%.[5] In fact, I find that the main driving components of my results appear to be portfolio equities and financial derivatives. Another advantage is that, using Balance of Payments statistics, it is possible to disentangle a flow and a valuation component of the IFI. I find that the increase in inequality following

[3] Appendix Figure A2 compares the distributions of income and wealth.

[4] These figures are computed as follows. First, I compute the average shares of net wealth by quantile over the three countries and the period of interest (1970-2019). The average share is 60.5% for the top 10% and 26.9% for the top 1%. Then, I use the estimated coefficients and the average change in the IFI (1970-2019 over all countries: 12.8 pp) to compute the predicted change in the net wealth shares. The new net wealth shares are 65.6% for the top 10% and 34.6% for the top 1%. At this point, I take the total personal net wealth value (source: WID, in current US dollars, 2021) across the three countries over the time horizon 1970-2019, i.e. $43.5 trillion for the United States, $8.4 trillion for France, and $9.4 trillion for the United Kingdom. Finally, I project the new wealth shares on the total net wealth and compare this figure with the one computed using the initial shares. Considering the 95% condidence interval on estimates, the top 10% increase would be between $0.6 and $1.4 trillion, while the top 1% between $1 and $2.3 trillion.

[5] Source: FED Distributional Financial Accoutns (DFAs), 2022 Q1. FRED IDs: WFRBST01122, WFRBSB50203.

the acceleration in financial globalisation is driven by the flow. This means that the wealthy get richer due to an expansion of their portfolios rather than just a market value gain on their existing stock of wealth. Recent research (Bauluz et al., 2022) find that savings flows are an unequalising force, while capital gains equalise the distribution of wealth. This follows from the high inequality in savings, which affects the size of capital flows. Complementary to this result, although they have an economically meaningful effect, the main drivers of valuation effects (exchange rate, share prices, and house prices) do not seem to play a significant role. Finally, the main finding is strengthened during a systemic banking crisis. An explanation is that this reflects a mismatch in recovery times between the wealthy and the poor. People at the top of the distribution have access to a wider range of financial instruments and investments opportunities, which makes them more likely to recover their lost wealth faster than people at the bottom of the distribution.

The remainder of the paper is organised as follows. Section 2 reviews the literature and highlight how the paper contributes to it. Section 3 summarises the evolutionary patterns of financial globalisation and wealth inequality. Section 4 provides a description of the data. Section 5 explains the empirical methodology. Section 6 discusses the results, related transmission channels, and robustness checks. Section 7 concludes.

2 Related literature and contribution

The first strand of the literature of interest is the set of papers exploring the drivers of wealth inequality. The most relevant factors identified comprise heterogeneity in portfolio composition and wealth returns (Smith et al., 2022; Xavier, 2021), savings (Fagereng et al., 2019; Mian et al., 2020; Auclert et al., 2021), tax progressivity (Saez and Zucman, 2019; Jakobsen et al., 2020; Hubmer et al., 2021; Smith et al., 2021), demographics (Jakobsen et al., 2020; Smith et al., 2022), inheritances (Alvaredo et al., 2017; Morelli et al., 2021), mortgage debt and housing ownership (Horan et al., 2020, 2021).

The second strand comprise papers that explores the effect of financial globalisation on income inequality. This has been the main focus of the existing literature, which however did not reach a consensus. On the one hand, there are papers that find that financial liberalisations are beneficial for the income distribution, reducing inequality, with heterogeneous effects across policies (Jaumotte et al., 2013; Delis et al., 2014). On the other hand, alternative studies find the opposite (Cornia and Kiiski, 2001; Mah, 2002; Das and Mohapatra, 2003; Ang, 2010; Furceri and Loungani, 2018; Li and Su, 2020; Carrera et al., 2022). This suggests that there are underlying dynamics that can lead to different outcomes, pushing in both directions. Examples of such dynamics are the level of financial depth of a country (Bumann and Lensink, 2016), the persistence of the liberalisation process (Liu et al., 2020), or the composition of capital flows (Eichengreen et al., 2021).

Some of the transmission channels identified by this second strand of the literature, such as international risk sharing or skills-wages mechanisms, might apply to wealth inequality as well. However, there are wealth specific channels, through which financial globalisation could influence wealth inequality. I will explore some of these potential channels in my analysis.

Higher levels of financial integration make it easier for the wealthy to shift shares of their wealth in tax havens. Assets held by households in tax havens account for 8-10% of global financial wealth (Zucman, 2013; Alstadsæter et al., 2018) The income generated by this wealth is taxed at lower rates and this fosters the wealth accumulation process. Furthermore, Bourguignon (2016) noted that policy makers has tended to favour capital over labour in the effort to respond to the increase in financial globalisation. Kaymak and Poschke (2016) find that almost half of the rise in the concentration of wealth in the last 50 years can be attributed to changes in taxes and transfers.

Greenwald et al. (2021) find that, faced with lower returns on financial wealth wealthy households save more to keep up their planned level of consumption. As capital inflows are associated with lower interest rates (Warnock and Warnock, 2009), this could be a channel exacerbating wealth inequality.

The combination of historically low interest rates and high savings rate for the rich suggests transmission can happen via the the debt channel and the savings rate itself (Piketty and Saez, 2014; Blanchard and Rodrik, 2021). Large part of borrowing by non-rich households has been financed by rich households through the saving glut. Mian et al. (2020) find that income growth at the top of the income distribution can explain 75% of the accumulation of household debt held as a financial asset by households in the United States. Greater debt levels lead to greater transfer of income from borrowers (low income households) to savers (high income households), which indirectly affects wealth. According to de Ferra et al. (2021) more unequal countries are associated with deeper financial markets. As such, individuals in unequal countries – like the ones considered in this paper – tend to borrow larger amount of money. The borrowers, who gain from this dynamic, are those in the upper tail of the wealth distribution.

Restricting the focus to portfolio investment equities, foreign individuals are likely to invest in successful companies which are owned by people at the top of the wealth distribution. One can think about companies like Tesla, Meta, or Microsoft, whose owners are all part of the top 0.00025% wealthiest (Saez and Zucman, 2021). Those benefiting the most from portfolio inflows are rich domestic investors, who own a large shares of total equities, while there will be small or no benefits for the poorest. Additionally, they are likely to invest abroad to diversify their portfolios, while those at the bottom of the distribution barely own any financial asset.

The paper aims to contribute to this literature by focusing on the transmission of financial globalisation to wealth, rather than income, inequality. Moreover, large part of the papers cited above focus on the United States. One additional contribution of this paper is to broaden the discussion providing a cross-country analysis.

3 Stylised facts

3.1 Evolution of financial globalisation

Financial globalisation, the phenomenon of increasing global linkages through cross-border financial flows, is relatively recent, dating back to the end of the Bretton Woods System between 1971 and 1973 (Calomiris and Neal, 2013). In fact, from the 1970s, and increasingly in the 1980s, countries worldwide started to remove capital controls and implement financial deregulation policies, at different levels and with different paces. During the 1990s, following the collapse of the Iron Curtain (1989) and the end of the Cold War (1991), financial globalisation experienced a marked acceleration (Lane and Milesi-Ferretti, 2001, 2003).

Figure 1 compares cumulative changes in foreign assets and liabilities. External positions in 1970 were rather limited, with levels close to 15% of GDP for the United States and France, and close to 60% for the United Kingdom.[6] Following capital liberalisations, in 1990 the stock of external assets (normalised by GDP) had already increased by a factor of around 2.5 for the United States and the United Kingdom, and almost 4 for France. After this fast paced period of high globalisation, cross-border flows experienced first a sudden stop and then a deceleration following the Global Financial Crisis (Lane and Milesi-Ferretti, 2017). In 2019 France recorded foreign assets and liabilities which were respectively 20.4 and 24.7 times larger than they were in 1970. This growth factor was 8.3 and 16.3 for the United States, while 8.4 and 9.6 for the United Kingdom.

In the 1970s, debt – other investments and portfolio debt – had a predominant role, accounting for the vast majority of the stock of foreign assets and liabilities (Appendix Figure A3). Although we have observed a declining trend, debt remains the largest category of external positions. During the 1980s and 1990s, we have assisted to an increase in the importance of Foreign Direct Investments (FDI) and portfolio equity, respectively. This continued into the 2000s, decade in which financial derivatives were introduced and took over a consistent share of external positions, especially in the United Kingdom. The years following the Global Financial Crisis are characterised by a reduction in the stock of debt, while FDI and portfolio investments stocks increased again after an initial sudden stop.

3.2 Evolution of wealth inequality

As it is the standard in the literature, net wealth is defined as the total market value of assets net of debt (Piketty and Zucman, 2014; Alvaredo et al., 2020). In the last 50 years, the average level of per-adult national wealth in advanced economies has shown an increasing trend, benefiting from frequent periods of prosperity and peace (Chancel et al., 2021). However, the data tell us that wealth inequality does

[6] As a remark, one should note that the high level of external positions for the United Kingdom is due to its intrinsic nature of being an on-shore financial center.

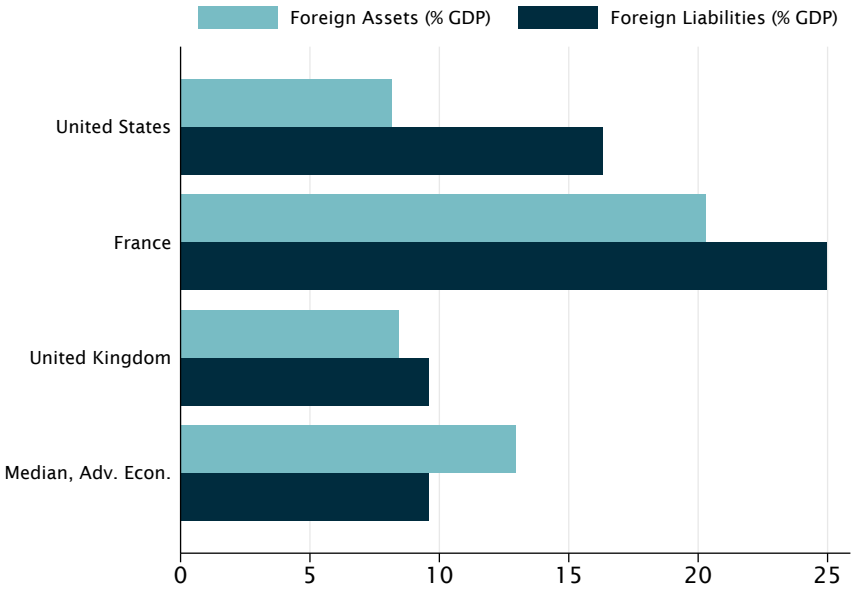

Figure 1: Cumulative changes in foreign assets and liabilities, 1970=1

Notes. Source: External Wealth of Nations (EWN). Advanced economies: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Israel, Italy, Japan, Korea, Latvia, Lithuania, New Zealand, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States. I exclude financial centres selected on the base of assessments by the IMF, World Bank, and Eurostat: Ireland, Luxembourg, Netherlands, Singapore, Hong Kong, Cyprus, Malta.

exist. For the three countries in my sample as well as for the median advanced economy, the top 10% of the wealth distribution owns more that half of total net wealth in 2019 (Figure 2).[7] The remaining is shared by the entire bottom 90%, with the bottom 50% only owning a negligible share (the median share in advanced economies is about 6%). Zooming into the top 10%, in several countries the top 1% share is quite pronounced. In the United States it is over 30% of total wealth, the highest in the sample of advanced economies, whose median is about 25%.

Figure 2 documents the high level of current wealth inequality, but it does not provide an historical perspective. Figure 3 shows cumulative changes in wealth shares for different quantiles since 1980 and provides evidence that wealth inequality has been on the rise since then.[8] Individuals in the top 1% (i.e., the rich) have seen their share of total wealth increase substantially, especially in the United States and France (+51.9% and +45.2% pp, respectively). The top 10% (upper middle class) has experience a similar increasing trend, but of lower magnitude. On the opposite, the share of wealth going to the bottom 50% (working class) and the middle class (50%-90%) has shrunk. In percentage terms, the former are those who missed out the most, given that their share was already rather small in 1980.

[7] For the United Kingdom I use data from Alvaredo et al. (2018a). The latest observation is 2012 and series are only available for the top 10% and 1%. No data are available for the bottom 50% and 50%-90%, starting in 1970.

[8] For this chart I use 1980 instead of 1970 as a reference year given that prior to 1980 wealth inequality in all three countries was experiencing a long lasting decreasing trend which reversed in the 1980s. See Appendix Figures A1 and A4.

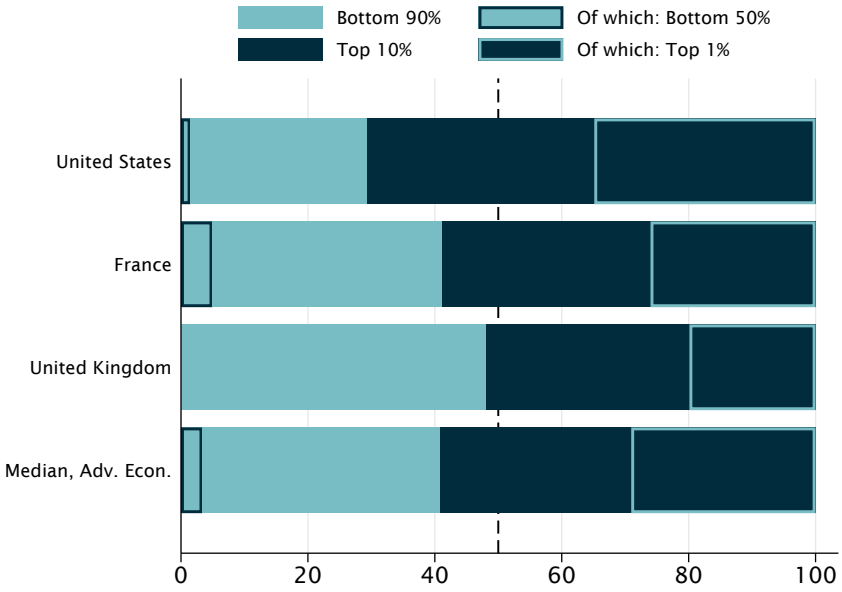

Figure 2: Net wealth shares, % of total wealth, 2019 or latest available

Notes. Source: World Inequality Database (WID). Quantiles of net wealth. For consistency with the series I use in the analysis (Alvaredo et al., 2018a), the latest observation for the United Kingdom is 2012 and series are only available for the top 10% and 1%. See the footnote of Figure 1 for the full list of countries in the sample of advanced economies.

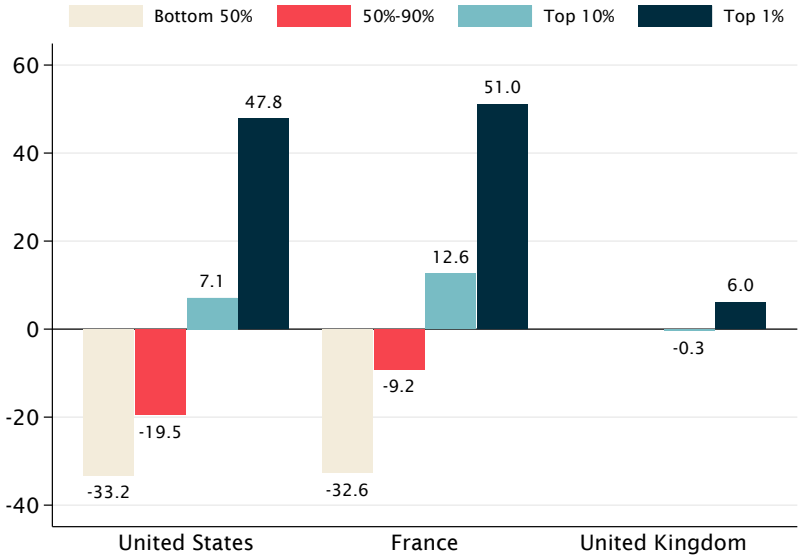

Figure 3: Changes in wealth shares since 1980, percent

Notes: Source: World Inequality Database (WID). Share of net wealth as a percentage of country total net wealth. Quantiles of net wealth. Latest observation is 2019 for United States and France, 2012 for the United Kingdom. For consistency with the series I use in the analysis (Alvaredo et al., 2018a), the latest observation for the United Kingdom is 2012 and series are only available for the top 10% and 1%.

To summarise the evidence motivating this work, in the past 5 decades financial globalisation has intensified and wealth inequality within advanced economies has risen.

4 Data

4.1 Financial globalisation

I collect stocks of external assets and liabilities, and related functional categories (portfolio equities, FDI, debt, and financial derivatives), from the *External Wealth of Nations Database* (EWN, hereafter – Lane and Milesi-Ferretti, 2007a, 2018). This database provides time series starting in 1970 which are mainly based on official statistics from the *International Monetary Fund*, and it is widely used by researcher working in the field of international macroeconomics.

I construct a measure of *de-facto* financial openness following Lane and Milesi-Ferretti (2001, 2003). The index of International Financial Integration (IFI) is a summary volume-based measure of international financial integration and serve as a proxy for financial globalisation. The IFI is computed as follows:

$$IFI_{i,t} = \frac{FA_{i,t} + FL_{i,t}}{GDP_{i,t}} \tag{1}$$

where $FA_{i,t}$ and $FL_{i,t}$ are the stocks of foreign assets and liabilities of country i vis-à-vis the Rest of the World at time t. To account for the size of the country and given that these are nominal variables, valued at market prices, the measure is scaled by nominal GDP. Figure 4 shows the historical evolution of the IFI. Compared to 1970 this measure in 2019 was 11 times larger for the United States, 22 times for France, and 9 times for the United Kingdom.

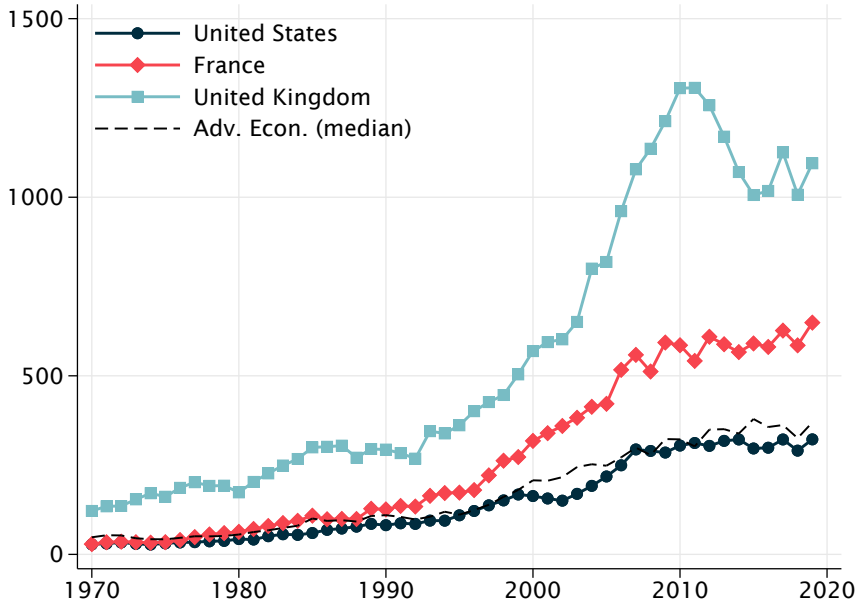

Figure 4: IFI, percentage of GDP

Notes. For the list of advanced economies see Figure 1. Author's calculations on External Wealth of Nations (EWN).

I decided to use this *de-facto* index rather than a *de-jure* index for three rea-

sons. First, this proxy picks up realised variations in external positions rather than changes in policies and legislation. *De-jure* indices do not vary much over time, they stabilise after full liberalisation, and are usually dominated by one or more specific policy dimension. As such, many times these indices show low or negative correlations with the IFI and among each others. Moreover, *de-facto* measures of inequality seems to be largerly driving *de-jure* measures (Furceri et al., 2019). Second, the IFI allows to have a breakdown of underlying components. The majority of existing studies either do not provide any breakdown or just look at FDI (Avdjiev and Spasova, 2022). Third, external positions from the EWN are available since the 1970 for all countries of interest. As opposite, each of the most commonly used *de-jure* indices presents limitations on time and country availability.[9] I will use these indices in a robustness exercise.

However, the IFI carries some limitations as well. The main one is that both IMF and EWN provide cross-border data collected on the basis of the so called *residency* criterion. With this criterion, capital flows are allocated according to the country in which the final recipient is based. This method does not allow to pick up offshore financial exposure in tax havens, which is where global firms often own foreign subsidiaries and where the wealthy can shift shares of wealth. Recent research estimates international investment positions according to the *nationality* (or *consolidated*) criterion, and thus allocating capital flows according to the nationality of the specific entity receiving it rather than the one of the parent company (Coppola et al., 2021; Bénétrix and Sanchez Pacheco, 2021; Sanchez Pacheco, 2022).

For example, imagine a wealthy individual from the Unites States buys a French company for $2 billion, financing 50% of the purchase using their funds in a tax heaven and 50% taking a loan from a French bank in France. With the *nationality* criterion we would see a $2 billion increase in US foreign assets, a $1 billion increase in US foreign liabilities, a $2 billion increase in French liabilities, and a $1 billion increase in French foreign assets. Instead, with the *residence* approach only the two cross-border transactions would be recorded, not the loan made in France. Specifically, we would see two recordings between US and tax heaven ($1 billion increase in US foreign assets and a $1 billion increase in tax heaven external liabilities) and two recordings between tax heaven and France ($1 billion increase in external assets and a $1 billion increase in foreign liabilities). The difference for this paper is that, whilst the increase in wealth for the individual would be the same, the stock of foreign assets and liabilities would evolve differently.

The estimates based on the *nationality* criterion suggest that the level of foreign assets and liability is substantially different, but the trends are consistent with the ones registered with the *residency* methodology.[10] Yet, these data are either available for a rather short time horizon or rely on a specific asset type (e.g., portfolio

[9] Chinn-Ito index (Chinn and Ito, 2008) is constant for the United States, indices from Fernández et al. (2016) only start in 1995, data from Quinn (1997) and Abiad et al. (2010) provide a historical perspective but end in 2009 and 2005 respectively.

[10] Abstracting from any economic reasoning, from a purely econometric standpoint this means that results should remain fairly unchanged when using one or the other criterion.

flows), which implies that they cannot currently be used for the purpose of this paper.

4.2 Wealth inequality

Although there are a variety of sources available for income inequality, way less data are available for wealth inequality. In my analysis I use data from the *World Inequality Database* (WID, hereafter).[11] This database is the result of a collective effort of various academic researchers, building on the seminal work by Piketty (2014) and Saez and Zucman (2016). Wealth series are based on Financial Accounts data expressed at market value and then equally distributed to all adult individuals. This makes the distributional series consistent with aggregate wealth from official balance sheets. Moreover, as the definition of adult remains fixed, using equal-split adults allows for comparability of inequality series over time and across countries. Given that the wealth distribution is rarely observed directly in administrative tax data and the coverage of wealth surveys is more limited than for income, the allocation is estimated using indirect methods that combine various sources. Example of such methods are the Mixed Income Capitalisation-Survey (MICS), which combines capitalised income flows from tax data with survey-based estimates for assets that do not generate taxable income (Garbinti et al., 2021), or the estate multiplier method (Alvaredo et al., 2018a).[12]

A new update of the WID has recently been released, following the publication of the World Inequality Report 2022 (Chancel et al., 2021). The update extends available data to a wide panel of countries starting in 1995. However, I decided to focus on three advanced economies: the United States, France, and the United Kingdom. This is motivated by my intentions to maximize the historical availability to reach back to the first days of financial globalisation rather than 1995, to maintain good quality of underlying data sources – acknowledging the caveat of indirect imputations as explained before – and to standardise the explanations of potential transmission channels which would differ for emerging markets.[13]

The advantages of using this data source are threefold. First, the WID provides consistent and comparable time series that go back to the twentieth century. Second, the WID provides data in quantiles (i.e., bottom 50%, next 40%, top 10%, top 1%) rather than a single summary Gini index, as used in the majority of empirical

[11] Methodology and relevant papers: Alvaredo et al. (2018b), Alvaredo et al. (2020), Bajard et al. (2021), Blanchet and Martínez-Toledano (2021), Chancel et al. (2021). United States: Saez and Zucman (2020a). France: Garbinti et al. (2021), Piketty et al. (2018). United Kingdom: Alvaredo et al. (2018a).

[12] With the MICS method, for example, financial assets are linked to interests payments, corporate equities to dividends and capital gains, business assets to business profits, and so on (Saez and Zucman, 2016; Alvaredo et al., 2020). Instead, the estate multiplier method consists in taking the wealth-at-death reported on estate tax returns, compute mortality rats over demographic characteristics and then weight wealth-at-death by the inverse of mortality rate (Alvaredo et al., 2018a).

[13] Looking at the WID Inequality Transparency Index, data for emerging markets rely on limited quality information.

studies. A summary measures such as the Gini index does not allow to disentangle changes in different parts of the distribution and the direction inequality is arising from (Deaton and Case, 2020). Notice that for the United Kingdom only data for the top 10% and top 1% are available for this long time span (Alvaredo et al., 2018a). Third, these series are estimated on the base of good quality underlying data. As reflected by the WID Inequality Transparency Index, although no country achieve the maximum transparency, these three countries have the highest rates worldwide.

Due to the need of assumptions and indirect estimations as discussed above, wealth series from the WID suffer from some methodological limitations. However, the authors are clear on what these limitations are and provide reasonable justification for how they address them. Moreover, when comparing the series with other available sources I find that the data are slightly different in levels but are fully comparable in trends. Taking the United States, for example, Figure 5 compares series from the WID with those from the Federal Reserve Economic Data (FRED), the Global Wealth Report from Credit Suisse, the OECD Wealth Database, and the SCF+. The latter are based on survey data from the FED's Survey of Consumer Finances (SCF) extended historically by Kuhn et al. (2020).[14] Although the data are not identical, all the series confirm that wealth inequality has been on the rise since the 1980s and show high pairwise correlation with the WID series. In particular, it is worth to notice the high comovement between WID and SCF+, which is the benchmark series for distributional analysis in the United States. This figure also motivates my choice to use data from the WID, as these are the longest and most detailed series, other than providing a cross country dimension.

5 Empirical methodology

As the focus of this paper is to study the link between financial globalisation and wealth shares, the baseline OLS panel model is specified as follows:

$$\Delta W^q_{i,t} = \alpha + \beta \Delta IFI_{i,t-1} + \mathbf{\Gamma \Delta X_{i,t-1}} + \eta_i + \theta_t + \varepsilon_{i,t} \tag{2}$$

where $W^q_{i,t}$ is the share of net wealth owned by quantile q (i.e., bottom 50%, 50%-90%, top 10%, top 1%) in country i and year t, IFI is the index of International Financial Integration, and $X_{i,t-1}$ is a set of controls. The main coefficient of interest is β. Following the literature discussed in the previous section, I expect β to have a positive sign for the top wealth shares and a negative sign for the rest of the distribution.

Due to the presence of non-stationarity in the series and to avoid spurious correlation driven by common trends, I take annual changes in both the independent

[14] For details on how the estimations from the Federal Reserve differ from those from the WID see Saez and Zucman (2020a).

variable and the regressors.[15] Moreover, to mitigate the fear of endogeneity, I use the lagged value of the explanatory variable and controls.

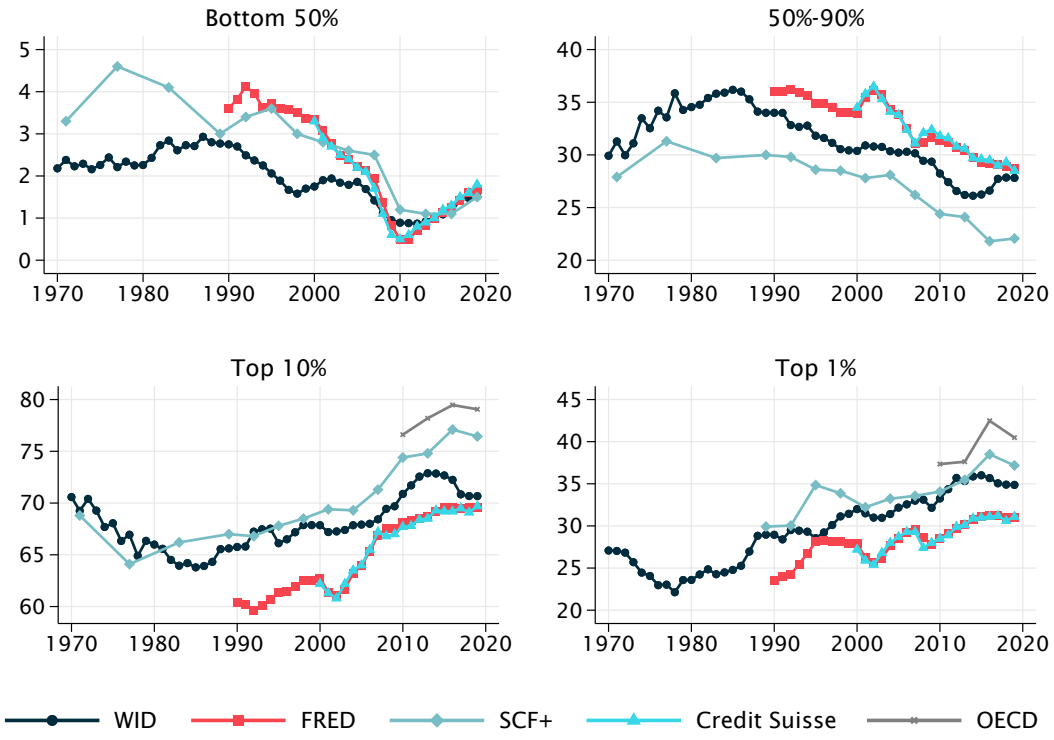

Figure 5: Net wealth shares, United States

Notes. Percentage of total net wealth. Quantiles of net wealth. Sources: World Inequality Database (WID), Federal Reserve Economic Data (FRED), Credit Suisse Global Wealth Report 2021, SCF+ by Kuhn et al. (2020), and OECD Wealth Database.

The set of control variables $X_{i,t-1}$ need to be meaningfully defined in order to clean the estimation from effects which are due to con-founder policies and broad drivers that affects wealth inequality but are not related to financial globalisation. I selected control variables based on the existing literature. To control for business cycle fluctuations I include real GDP per capita in local currency, to account for changes in exchange rates as well. To proxy fiscal and monetary policies I include the debt to GDP ratio, short and long term interest rates. I expect that higher income and debt contribute positively to the wealth share of the rich and negatively to those of the rest of the distribution, suggesting that increases in GDP are unequally distributed and that debt is held by people at the very top of the distribution, which are those that can effectively lend their money. Moreover, in line with results from Mian et al. (2020, 2021a) I expect interest rates to be negatively correlated with top shares and positively correlated with bottom shares. As outlined by Jaumotte et al. (2013), empirical analysis on inequality should take into account technological, trade, and financial changes. As such I include Total Factor Produc-

[15] The implementation of an instrument, constructed using *de-jure* indices of financial globalisation, is not a feasible option due to the limited time availability of these time series. I provide robustness checks using *de-jure* indices in Appendix Table A8.

tivity (TFP) and trade openness.[16] International trade is usually associated with improvements in inclusive growth (Jaumotte et al., 2013; Bacchetta et al., 2021). From a theoretical standpoint, productivity growth is a factor benefiting the lower side of the distribution, which is more dependent on labour income. Finally, I control for ageing population by means of the Old Age Dependency Ratio (OADR).[17] Modigliani's life-cycle theory (Modigliani, 1970) predicts that individuals change their spending decisions over the course of life, taking into account the resources they currently have available as well as their future income expectations. As such, young people accumulate debt while middle-age people save more. Complementing this theoretical prediction with empirical evidence that many people at the top of the wealth distribution are older (Jakobsen et al., 2020; Smith et al., 2022), I expect that the ageing of society is a factor that exacerbates wealth inequality. For sources and details for all the variables see Appendix Table A1.

The model includes country (η_i) and time (θ_t, decade) fixed effects.[18] I estimate the model using a fixed effect estimator. Standard errors are clustered at the country level. The time sample of the analysis is 1970-2019.

6 Results

Table 1 shows the results from the regressions described in Equation 2. The coefficient associated with the IFI is statistically significant and has the expected sign: positive for top wealth shares, negative for the rest of the distribution. Specifically, an increase in the annual change of the IFI by 1 percentage point at time $t-1$ is associated with an increase in the change of wealth shares at time t of the top 10% and 1% by 0.004 and 0.006 percentage points respectively. Instead, the same change in the IFI is linked to a decrease in the change of wealth shares of the bottom 50% by 0.002 percentage points. Alternatively, the wealth shares of the top 1% and top 10% would increase by 0.22 pp and 0.15pp respectively, following a one standard deviation increase in the annual change of the IFI. The bottom 50% share decreases by 0.07 pp.[19]

To understand the magnitude of these results one can use the estimated β coefficients associated with the IFI to compare the predicted change in wealth shares with the realised one. As a starter, take the United States. Since 1980 the increase in the IFI has been 279 pp. The model would predict an increase in the wealth shares of the top 1% and 10% by 1.67 pp and 1.12 pp, respectively, and a decrease for the bottom 50% by 0.56 pp. These numbers explain respectively 14%, 17%, and

[16] Trade openness is the sum of imports and exports of goods and services over GDP.

[17] The OADR is constructed by dividing the population aged over 65 by the population aged 15-64.

[18] The choice of using period fixed effects rather than year fixed effects is justified, on the one hand, by the fact that both globalisation and wealth dynamics are slow pace phenomena, whose changes takes time to evolve. On the other hand, this parsimonious approach allow to preserve degree of freedoms, which is particularly important due to small sample size.

[19] Given the differences in observation between columns 1-2 and columns 3-4, I refrain from comparing bilaterally results for the top shares with those for the bottom shares.

80% of the realised change in wealth shares. For France, the same exercise finds that predictions can explain 43%, 49%, and 56% respectively.[20] Thus, the model suggests that financial globalisation played a non negligible role in explaining the rise in wealth inequality. To complement this figures, one can estimate the effect of an average increase in financial globalisation on wealth shares in US Dollars terms. Projecting the predicted shares, following an average increase in the IFI, on the average total net wealth, over the three countries and the period of time of the analysis, results in an increase in the top 10% and top 1% aggregate net wealth by approximately $1 trillion (+8%) and $1.6 trillion (+30%), respectively.[21]

Although most of them are not statistically significant, the sign of coefficients associated with control variables are in line with the expectations outlined in the previous section. As an additional side exercise, I look at whether belonging to a common trade or currency area, such as the European Union and the euro area, leads to different inequality outcomes. Results in Appendix Table A2 show that in countries which are part of these common area, the concentration of wealth at the top of the distribution is lower than in countries which are outside. Estimates for the IFI coefficients remain unchanged. Although it is not the main focus here to understand the dynamic behind this result, it might be related to stricter institutional regulations within these areas.

The following sections dig deeper into the understanding of the main results, exploring transmission channels and shock dynamics. Section 6.5 provides a set of robustness checks.

6.1 Decomposing the IFI

A big advantage of using the IFI is that foreign assets and liabilities can be broken down by different functional categories. These might have different distributional effects to the extent that their sectoral distribution is heterogeneous (Eichengreen et al., 2021). Portfolio equities (PE) and financial derivatives (FD), for instance, are likely linked to the households sector.[22] Thus, these are the type of instruments that are most related to the distribution of individuals' wealth. Given the highly selective nature of these financial instruments, their ownership is highly concentrated towards the top of the wealth distribution. Currently, in the United States the top 1% owns 53.7% of all corporate equities and mutual fund shares. The historical average is 47.7%. The same average figure for real estate assets is just 13.7%, which is not too different, and even lower, from what the bottom 50% owns

[20] Average change in the IFI for France 1980-2019: 586 pp. Predicted changes in wealth shares: top 1% → 3.51 pp, top 10% → 2.34 pp, bottom 50% → 1.17 pp.

[21] See footnote 4 for details on the calculations of these figures.

[22] Given that financial derivatives became relevant as a functional category only later in time (end of 1990s), data are available from 1994 for France, 2004 for the United Kingdom and 2005 for the United States. In estimating equation 8 I replace missing values with zero to preserve the number of observations and the balance of the panel. Also, this ensure consistency with the definition of the IFI as financial derivatives enter the index only later.

Table 1: Empirical model – Main specification

	Dependent variable: Δ Wealth Share$_t$			
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%
Δ IFI$_{t-1}$	**-0.002*****	**-0.003**	**0.004*****	**0.006*****
	(0.000)	(0.002)	(0.000)	(0.001)
Δ Real GDP per capita$_{t-1}$	-0.016	-0.022	0.009	0.222*
	(0.044)	(0.028)	(0.134)	(0.073)
Δ Debt to GDP ratio$_{t-1}$	-1.501*	-5.855**	-1.750	2.378
	(0.182)	(0.164)	(7.579)	(6.343)
Δ Short-term interest rate$_{t-1}$	-0.021	0.025	-0.053	-0.001
	(0.020)	(0.023)	(0.066)	(0.040)
Δ Long-term interest rate$_{t-1}$	0.035	0.077	-0.269	-0.148
	(0.018)	(0.021)	(0.162)	(0.155)
Δ TFP$_{t-1}$	1.728	4.388	-21.588	-11.343
	(0.882)	(4.639)	(20.717)	(9.651)
Δ Trade openness$_{t-1}$	0.012	-0.047	-0.004	-0.038
	(0.004)	(0.023)	(0.020)	(0.016)
Δ OADR$_{t-1}$	-0.172	0.200	0.297	0.430
	(0.034)	(0.201)	(0.242)	(0.200)
Constant	0.045	0.061	-0.076	-0.199
	(0.027)	(0.033)	(0.113)	(0.099)
Country FE	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓
Observations	96	96	137	137
R^2	0.291	0.242	0.201	0.236

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The Bottom 50% and 50%-90% include the United States and France, while the top 1% and 10% include the United Kingdom as well. The panel is unbalanced as the latest observation for the United Kingdom is 2012.

in housing (14.6%).[23] This reflects that the left tail of the distribution of wealth builds on housing assets while the right tail is more reliant on financial instruments (Kuhn et al., 2020; Smith et al., 2022; Diwan et al., 2021). Debt instruments (D), including portfolio debt and other investments, is as well linked to households, but it does also include positions from the banking and sovereign sectors. Foreign Direct Investments (FDI) are likely to have the highest heterogeneity in sectoral decomposition.

To study the heterogeneous distributional effect of functional categories behind the IFI, I decompose the index as follows:[24]

$$IFI^{PE}_{i,t} = \frac{PE^{A}_{i,t} + PE^{L}_{i,t}}{GDP_{i,t}} \tag{3}$$

[23] Source: FED DFAs, 2022 Q4. FRED IDs: WFRBST01122, WFRBSB50203, WFRBST01110, WFRBSB50191. Averages are computed over the period 1989-2021, according to data availability.

[24] Note that, while these enter the calculation of the overall IFI, I do not compute an IFI for reserves as these represents a particularly low fraction of total stocks and do not have a liability counterpart.

$$IFI_{i,t}^{FD} = \frac{FD_{i,t}^{A} + FD_{i,t}^{L}}{GDP_{i,t}} \tag{4}$$

$$IFI_{i,t}^{FDI} = \frac{FDI_{i,t}^{A} + FDI_{i,t}^{L}}{GDP_{i,t}} \tag{5}$$

$$IFI_{i,t}^{D} = \frac{D_{i,t}^{A} + D_{i,t}^{L}}{GDP_{i,t}} \tag{6}$$

$$IFI_{i,t} = IFI_{i,t}^{PE} + IFI_{i,t}^{FD} + IFI_{i,t}^{FDI} + IFI_{i,t}^{D} \tag{7}$$

Then I run the model in Equation 2 substituting the aggregate IFI with the sub-indices:

$$\Delta W_{i,t}^{q} = \alpha + \sum_{s \in S} \beta_s \, \Delta IFI_{i,t-1}^{s} + \mathbf{\Gamma \Delta X_{i,t-1}} + \eta_i + \theta_t + \varepsilon_{i,t} \qquad S = \{PE, FD, FDI, D\} \tag{8}$$

The functional categories IFIs are included together to control for simultaneous changes and re-allocations across instruments.[25] Results in Table 2 suggest that positive changes in ownership of portfolio equities and financial derivatives are associated with positive and statistically significant changes in the wealth shares of the top 10% and 1%. In line with the prior, this is likely related to the unequal distribution of the ownership of these instruments, which is due to the uneven access to financial markets. Intuitively, this affect the financial buffers that people across the wealth distributions have at their disposal when a crisis occurs. The rich, having a wider access to financial markets and owning a larger and more diversified stock of cross-border financial instruments, are more prone to suffer the consequences of a crisis in a more moderate way and for a shorter horizon than the poor. This reasoning links to the analysis in Section 6.3.

6.2 Flows and valuation effects

The change in wealth shares can be seen as the sum of two components. On the one hand, a *flow* component which is related to changes in wealth that comes from newly generated wealth (i.e., the acquisition of new assets). On the other hand, a *valuation* component which is related to changes in the value of wealth coming from alterations in the market value of assets that individuals owned already.

The existing literature exploring determinants of wealth inequality has attributed a significant role to valuation effects for the accumulation of personal wealth (Causa et al., 2019; Kuhn et al., 2020; Mian et al., 2021b; Diwan et al., 2021). The composition of wealth differs across quantiles of the distribution. The top 1% hold most of their wealth in financial assets, while real estates is more important for the wealth of the bottom 50% of the distribution (Kuhn et al., 2020; Smith et al., 2022; Di-

[25] Although these variables are highly correlated in levels, correlation in annual changes is low. For this reason, there is no concern arising from multicollinearity when including them jointly in the regressions.

Table 2: Decomposing the IFI

	Dependent variable: Δ Wealth Share$_t$			
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%
Δ IFI$^{PE}_{t-1}$	**-0.004**	**-0.024****	**0.027****	**0.032****
	(0.001)	(0.002)	(0.005)	(0.007)
Δ IFI$^{FD}_{t-1}$	**-0.005**	**-0.006**	**0.007***	**0.009****
	(0.002)	(0.011)	(0.002)	(0.002)
Δ IFI$^{FDI}_{t-1}$	**-0.000**	**-0.000**	**-0.008**	**-0.005**
	(0.002)	(0.008)	(0.014)	(0.013)
Δ IFI$^{D}_{t-1}$	**-0.002**	**0.007**	**-0.004**	**-0.002**
	(0.001)	(0.005)	(0.004)	(0.005)
Δ Real GDP per capita$_{t-1}$	-0.005	-0.019	-0.029	0.185
	(0.055)	(0.103)	(0.168)	(0.119)
Δ Debt to GDP ratio$_{t-1}$	-1.404	-6.244**	-2.066	2.277
	(0.254)	(0.490)	(8.752)	(7.356)
Δ Short-term interest rate$_{t-1}$	-0.025	0.020	-0.063	-0.009
	(0.022)	(0.004)	(0.087)	(0.048)
Δ Long-term interest rate$_{t-1}$	0.036	0.069	-0.238	-0.119
	(0.017)	(0.050)	(0.143)	(0.138)
Δ TFP$_{t-1}$	0.874	5.596	-20.482	-10.540
	(0.578)	(10.229)	(19.865)	(8.675)
Δ Trade openness$_{t-1}$	0.017	-0.040	-0.007	-0.038
	(0.004)	(0.051)	(0.010)	(0.023)
Δ OADR$_{t-1}$	-0.160	0.209	0.250	0.407*
	(0.044)	(0.113)	(0.191)	(0.135)
Constant	0.039	0.032*	-0.021	-0.149
	(0.031)	(0.003)	(0.151)	(0.117)
Country FE	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓
Observations	96	96	137	137
R^2	0.313	0.271	0.221	0.266

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The Bottom 50% and 50%-90% include the United States and France, while the top 1% and 10% include the United Kingdom as well. The panel is unbalanced as the latest observation for the United Kingdom is 2012.

wan et al., 2021). Larger value gains in equity ownership relative to housing can widen the wealth gap between the rich and the poor. This has happened during the Covid19 pandemic (Allen and Rebillard, 2021).

Another useful advantage of the IFI is that it is possible to isolate the role of the valuation channel by adapting the accounting framework which is usually used in the literature to decompose changes in net foreign asset positions (Lane and Milesi-Ferretti, 2001, 2007b).[26] The change in the IFI between years $t-1$ and t can be written as:

$$IFI_{i,t} - IFI_{i,t-1} = Flow_{i,t} + SFA_{i,t} \tag{9}$$

$$Flow_{i,t} = \sum_{s \in S} Assets\ Flow^{s}_{i,t} + \sum_{s \in S} Liabilities\ Flow^{s}_{i,t} \qquad S = \{PE, FD, FDI, D\} \tag{10}$$

where SFA_t is the stock-flow adjustment term, which reflects the net capital gain

[26] $NIIP_{i,t} - NIIP_{i,t-1} = CA_t + SFA_t$

on the holdings of external assets and liabilities as well as residual changes to the net international investment position (e.g., data revisions or changes in reporting standards). Inflows and outflows are available from the IMF's Balance of Payments statistics (Financial Account), which are at the base of EWN stock data.[27] Given that these statistics do not provide a disaggregation of assets and liabilities for the flow of financial derivatives, for this exercise I exclude them and consider a narrower version of the IFI. Like the IFI, flows and SFA are expressed in percentage of national GDP.

Figure 6 plots the evolution of the flow component and the SFA, cumulated since 1970. The flow component is the main driver of the IFI in term of size, however, in line with the findings from the capital flows literature, the SFA contributes positively and increasingly to the evolution of the IFI. In the aftermath of the Global Financial Crisis the SFA slowed down the evolution of the IFI for France and the United Kingdom. The United States were an exception as they experienced a steady increase in the valuation component during the last decade in the sample, after declining during the crisis.

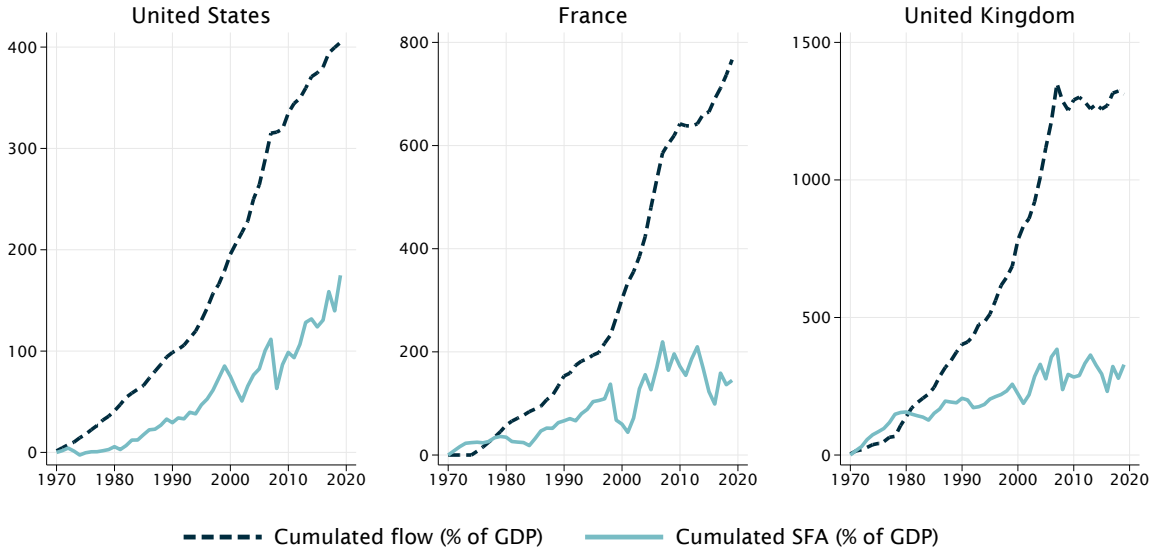

Figure 6: Cumulative flow vs SFA, percent of GDP

Notes. Percentage of GDP at time t. Calculations exclude financial derivative, as the disaggregation between assets and liabilities flows is not available. Source: author's calculation, External Wealth of Nations (EWN), International Monetary Fund (IMF).

Table 3 summarises the results from estimating Equation 2, substituting the change in IFI with the flow and the SFA. Overall, it emerges that the increase in top wealth shares following an acceleration in financial globalisation is driven by the flow component, while SFA does not have a significant impact on the distribution of net wealth. Given that here I am disentangling flow and valuation from the IFI side, rather than wealth, this suggest that the index itself is largely reflecting the flow component over the valuation one. More generally, if we would generalise

[27] Assets flow includes reserve assets as well.

this finding arising from the international wealth component to the literature on domestic wealth, this is somewhat reflecting the results from Bauluz et al. (2022). They find that wealth changes for the top 10% attributed to savings flow since 1980 are 72% and 77% for the United States and Europe, respectively. It follows from their analysis that the volume component (savings flows) are an unequalising force, while capital gains equalise the distribution of wealth. This results is consistent with findings from Section 6.1, which shed light on the importance of portfolio equities and financial derivatives in building up individual wealth portfolios.

Table 3: Valuation effects – Flow and SFA

	Dependent variable: Δ Wealth Share$_t$			
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%
Flow$_{t-1}$	-0.001	-0.000	0.013*	0.012*
	(0.001)	(0.000)	(0.004)	(0.004)
SFA$_{t-1}$	-0.000	-0.003	-0.002	-0.000
	(0.000)	(0.003)	(0.003)	(0.004)
Controls	✓	✓	✓	✓
Country FE	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓
Observations	96	96	137	137
R^2	0.259	0.242	0.223	0.249

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The Bottom 50% and 50%-90% include the United States and France, while the top 1% and 10% include the United Kingdom as well. The panel is unbalanced as the latest observation for the United Kingdom is 2012.

To better understand the finding above and to analyse the main factors that can trigger valuation, I include three additional variables to the main specification, based on the findings of the related literature. First, the nominal effective exchange rate ($NEER$) which is a weighted exchange rate reflecting the role of a local currency vis-à-vis a panel of trade partner countries. Given that the focus here is on financial globalisation, the best option would be to use a debt-weighted exchange rate, such as the one developed by the Bank for International Settlements (BIS). However, the time coverage is too short and country availability is more limited. Instead, the BIS NEER is available for all the countries and for the entire time span I consider in my analysis. Visual correlation of the two indices is high. Bénétrix et al. (2015) find that during the crisis in 2008, the United Kingdom was the largest winners in terms of net currency related valuation effect (+$945.8 billion), while the United States were the second biggest loser (-$772.5 billion). Second, asset prices ($SharePrice$) to reflect potential valuation effects for the top of the distribution. I use the share price index of all shares from the OECD. Third, house prices ($HousePrice$) to reflect potential valuation effects for the bottom of the distribution. I use the the BIS nominal house prices index. The updated model is

specified as follows:

$$\Delta W^{q}_{i,t} = \alpha + \beta \Delta IFI_{i,t-1} + \delta \Delta NEER_{i,t-1} + \zeta \Delta SharePrice_{i,t-1} + \psi \Delta HousePrice_{i,t-1} + \mathbf{\Gamma \Delta X_{i,t-1}} + \eta_i + \theta_t + \varepsilon_{i,t} \quad (11)$$

Table 4 shows the results. The sign of coefficients is consistent with the literature. Gains in share prices benefit the wealth shares at the top of the distribution, while gains in house prices benefit those at the bottom of the wealth distribution. An increase in the NEER indicates an appreciation of the local currency against the weighted basket of currencies of its trading partners. Given that the rich have easier access to foreign investment markets, when the local currency appreciates they are negatively affected. As opposite, people in the left tail of the distribution do not own a consistent amount of financial assets and most of what they owned is invested domestically and thus denominated in local currency. As such when the currency appreciates, they experience positive wealth gains. However, none of these effects appear to be statistically significant.

As a robustness, I run the same exercises including international share and house prices indices, constructed taking the median price across countries. Appendix Table A3 shows that this result is consistent when accounting for global asset prices. Once again, the signs of coefficients are in line with expectations, but no significant effect from valuation components emerges.

6.3 Banking crises

Furceri and Loungani (2018) discuss that the effect of the likelihood of financial crisis could work in both direction on inequality. On the one hand, financial crises are associated with a fall in asset prices and a rise in bankruptcies rates. As a consequence, the wealthiest are hit harder and thus we could observe a reduction in inequality. On the other hand, while the rich can recover quite fast from recessions, given that they have access to a wider range of means to generate new wealth, it is harder for the working class to regain the lost wealth. As a consequence, inequality may rise. Also, during the Global Financial Crisis the turmoil in the currency markets lead to positive exchange rate induce valuation effects (Bénétrix et al., 2015), which impacted the market value of net wealth denominated in foreign currency.

To test this empirically, I include the occurrence of systemic banking crises in the model using the crisis dummy by Laeven and Valencia (2020), which takes value 1 during the entire length of such episodes and 0 elsewhere.[28] To understand the role of international financial linkages during and following crises, I include an interaction term between the crisis dummy and the IFI (Equation 12). The Global Financial Crisis halted the growth in external positions (Milesi-Ferretti and Tille,

[28]Note that except for the United States where another crisis happened in 1988 (1 year length), the dummy is solely reflecting the Global Financial Crisis. However, the length was heterogeneous across countries: 2007-2011 for the United States and the United Kingdom, 2008-2009 for France. The results are robust to the exclusion of the 1988 crisis.

Table 4: Valuation effects – Drivers of the SFA

	Dependent variable: Δ Wealth Share$_t$			
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%
Δ IFI$_{t-1}$	**-0.002****	**-0.001**	**0.004**	**0.006****
	(0.000)	(0.000)	(0.001)	(0.001)
Δ NEER$_{t-1}$	**0.002**	**0.021**	**0.001**	**-0.004**
	(0.001)	(0.009)	(0.019)	(0.015)
Δ Share Price $_{t-1}$	**0.004**	**-0.011**	**0.006**	**0.005**
	(0.002)	(0.003)	(0.012)	(0.013)
Δ House Price$_{t-1}$	**0.006**	**0.028**	**-0.028***	**-0.004**
	(0.003)	(0.010)	(0.008)	(0.018)
Δ Real GDP per capita$_{t-1}$	-0.042	-0.096*	0.101	0.223
	(0.051)	(0.015)	(0.076)	(0.115)
Δ Debt to GDP ratio$_{t-1}$	-0.739	-4.962	-1.907	2.546
	(0.328)	(1.503)	(7.162)	(6.328)
Δ Short-term interest rate$_{t-1}$	-0.017	0.032**	-0.050	-0.002
	(0.020)	(0.002)	(0.060)	(0.032)
Δ Long-term interest rate$_{t-1}$	0.031	0.024	-0.250	-0.136
	(0.026)	(0.017)	(0.180)	(0.184)
Δ TFP$_{t-1}$	1.587	6.632	-22.473	-11.625
	(0.522)	(6.040)	(20.546)	(9.074)
Δ Trade openness$_{t-1}$	0.009*	-0.012	-0.017	-0.045
	(0.001)	(0.018)	(0.027)	(0.036)
Δ OADR$_{t-1}$	-0.184	0.228	0.256	0.409
	(0.039)	(0.160)	(0.304)	(0.253)
Constant	0.034	-0.002	-0.040	-0.192
	(0.023)	(0.058)	(0.103)	(0.083)
Country FE	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓
Observations	96	96	137	137
R^2	0.343	0.295	0.201	0.234

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The Bottom 50% and 50%-90% include the United States and France, while the top 1% and 10% include the United Kingdom as well. The panel is unbalanced as the latest observation for the United Kingdom is 2012.

2011; Lane and Milesi-Ferretti, 2017), due to diminished cross-border activity, especially banking related. However, this was an heterogeneous phenomena. While, portfolio instruments and other investments decreased, FDI continue to grow. Also, the decline in international banking linkages did not significantly halted international lending (McCauley et al., 2019).

$$\begin{aligned}\Delta W^q_{i,t} = \alpha + \beta \Delta IFI_{i,t-1} + \delta Crisis_{i,t-1} + \zeta(Crisis_{i,t-1} \times \Delta IFI_{i,t-1}) \\ + \boldsymbol{\Gamma \Delta X_{i,t-1}} + \eta_i + \theta_t + \varepsilon_{i,t}\end{aligned} \tag{12}$$

Three messages emerge from results reported in Table 5. First, the sign of the coefficient associated with financial globalisation is robust and still statistically significant, suggesting that main results in Table 1 are not driven by what happens during crises in the sample. Second, during the entire length of a systemic banking crisis we observe a positive and significant wealth effect at the top of the distribu-

tion. Third, the coefficient of the interaction term suggests that, when the crisis hits, an increase in the IFI will increase wealth inequality by decreasing even more the wealth share of the bottom 50%.

The last two results are consistent with the theory that there exist a mismatch in recovery timing between the top and the bottom of the distribution. As the rich recover faster, they are able to build up new wealth. The poor bear the cost of the recession for longer and the recovery in the level of financial globalisation amplifies the negative effect of the crisis, as access to market is unequal. Blanchet et al. (2022) find that during the Global Financial Crisis, which is the main episode in my analysis, it took almost twelve years for the bottom 50% pre-tax income to reach back its pre-crisis level, compared to four years on average. Morelli (2018) provides evidence that an initial reduction in income inequality when a systemic banking crisis hits the United States can be quickly reabsorbed during the time horizon of the crisis itself. However, as the interaction coefficients is not statistically significant for the top wealth shares, alternative interpretations remain possible.

Table 5: Systemic banking crises

	Dependent variable: Δ Wealth Share$_t$			
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%
Δ IFI$_{t-1}$	**-0.001***	**-0.001**	**0.004**	**0.007***
	(0.000)	(0.000)	(0.001)	(0.002)
Crisis$_{t-1}$	**-0.186**	**-0.398**	**0.611****	**0.407****
	(0.160)	(0.170)	(0.081)	(0.073)
Crisis$_{t-1}\times \Delta IFI_{t-1}$	**-0.003***	**-0.005**	**-0.002**	**-0.004**
	(0.000)	(0.003)	(0.006)	(0.005)
Δ Real GDP per capita$_{t-1}$	-0.007	-0.008	0.060	0.270*
	(0.051)	(0.028)	(0.197)	(0.074)
Δ Debt to GDP ratio$_{t-1}$	-0.422	-3.624	-3.949	1.280
	(1.101)	(0.605)	(7.009)	(6.031)
Δ Short-term interest rate$_{t-1}$	-0.021	0.026	-0.068	-0.011
	(0.019)	(0.028)	(0.071)	(0.043)
Δ Long-term interest rate$_{t-1}$	0.039	0.083	-0.252	-0.134
	(0.022)	(0.021)	(0.148)	(0.146)
Δ TFP$_{t-1}$	0.566	2.091	-20.895	-11.627
	(0.235)	(4.838)	(23.004)	(11.566)
Δ Trade openness$_{t-1}$	0.011**	-0.047	-0.010	-0.045
	(0.001)	(0.015)	(0.031)	(0.018)
Δ OADR$_{t-1}$	-0.220	0.105	0.339	0.445
	(0.058)	(0.193)	(0.186)	(0.191)
Constant	0.052	0.078	-0.140	-0.247*
	(0.020)	(0.047)	(0.117)	(0.084)
Country FE	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓
Observations	96	96	137	137
R^2	0.354	0.262	0.211	0.242

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The Bottom 50% and 50%-90% include the United States and France, while the top 1% and 10% include the United Kingdom as well. The panel is unbalanced as the latest observation for the United Kingdom is 2012. The dummy for systemic banking crisis cover the entire length of each crisis.

6.4 Additional channels

So far I have explored direct effects of financial globalisation on wealth inequality. However, financial globalisation can impact the distribution of wealth in an indirect way too, by affecting some of those that have been identified as potential drivers of wealth inequality in the literature. In this section, I test some of the potential indirect transmission channels.

6.4.1 Wealth returns

In a recent paper, Greenwald et al. (2021) construct a model to compare repriced and compensated financial wealth distributions using observed portfolio durations. They find that when faced with lower interest rates and returns on wealth, wealthier households increase their savings to keep up to their planned levels of consumption and this lead to an rise in wealth inequality. On the opposite, low-wealth households (mostly younger individuals) are harmed by low rates due to timing of excess consumption. However, this results is no clear cut as most recently billionaires have been performing well on the market even with flat interest rates. This would suggest a role for the heterogeneous returns channel alongside the interest rate one.

To test whether financial globalisation contributed to reduce wealth returns and thus indirectly increase wealth inequality I adapt my empirical framework as follows:

$$Return_{i,t} = \alpha + \beta \Delta IFI_{i,t-1} + \mathbf{\Gamma \Delta X_{i,t-1}} + \eta_i + \theta_t + \varepsilon_{i,t} \tag{13}$$

where $Return_{i,t}$ is an array of wealth returns by asset class from Jordà et al. (2017).

The EWN methodology used to construct stocks of assets and liabilities, portfolio equities in particular, cumulatea annual flows and then infer the market value by adjusting this for fluctuations in stock prices (Lane and Milesi-Ferretti, 2018). This means that a regression framework with the IFI as a regressor for wealth returns present an endogeneity issue. As such, while I still report the main results for the IFI which signal a statistically significant reduction in the rate of returns of equities following a positive change in the IFI, Appendix Table A4 shows the results of independent regressions using the sub-indices from Section 6.1 which, excluding equity, are less prone to suffer from the endogeneity problem.

Changes in the IFI constructed using debt instruments (IFI^D) and financial derivatives (IFI^{FD}) generate a negative and statistically significant decrease in the overall return on wealth. In general, this negative relationship between financial globalisation and returns is present for the majority of return and IFI types, also these which are not connected to the calculation of the international investment positions. This finding, jointly interpreted with those in Sections 6.1 and 6.2, would suggest that the IFI is transmitting to wealth inequality via the flow channel (i.e., accumulation of new equities) rather than the valuation one.

It is worth noticing that, given that these returns are not differentiated by quan-

tile, the interpretation of results is based on the assumption that returns on wealth are homogeneous across the wealth distribution. Although individual assets returns are heterogeneous across wealth groups (Fagereng et al., 2020; Bach et al., 2020; Xavier, 2021), new research points out that this reflects variation in income flows (Bauluz et al., 2022).

6.4.2 Savings

Recent research has identified savings, especially private, as one of the drivers of income – and, at least indirectly, wealth – inequality (Mian et al., 2020; de Ferra et al., 2021). I proceed in two steps to test this theory with my empirical specification.

First, I check whether financial globalisation is linked to an increase in gross savings, investment, and consumption. Appendix Figure A5, and more precisely Appendix Table A5 which include the set of controls, suggest that there is no significant correlation between changes in the IFI and gross savings, investments, and consumption. Second, based on theoretical reasoning, I use my empirical specification to study whether an increase in gross savings affect wealth shares and if the effect differs according to the level of financial globalisation (interaction term):

$$\begin{aligned}\Delta W^{q}_{i,t} = \alpha + \beta \Delta IFI_{i,t-1} + \delta Gross\,Savings/GDP_{i,t-1} \\ + \zeta(Gross\,Savings/GDP_{i,t-1} \times \Delta IFI_{i,t-1}) + \mathbf{\Gamma \Delta X_{i,t-1}} + \eta_i + \theta_t + \varepsilon_{i,t}\end{aligned} \tag{14}$$

Results in Appendix Table A6 suggest that an increase in gross savings has a positive effect on the top wealth shares – although not significant – and a negative effect on the bottom 50% wealth share. However, as countries increase their level of foreign ownership, an increase in savings is attenuating this negative effect. The interpretation of these results is no clear cut, so at the current stage this should be seen more as a correlation exercise. Moreover, savings here is assumed to be homogeneous across different wealth quantiles. Fagereng et al. (2019) use microdata for Norway and show that saving rates net of capital gains are approximately homogeneous, independently of the level of wealth.

6.5 Robustness checks

Given the limited size of the data, the first robustness test I do is to check that results are not driven by the addition of single control variables. To check this I individually run separate regressions of the dependent variable ($\Delta W^{q}_{i,t}$) against the main regressor ($\Delta IFI_{i,t-1}$) and all possible combinations of control variables. Appendix Figure A6 plots the distribution of the coefficient associated with $\Delta IFI_{i,t-1}$ in each regression and shows that the sign of the coefficient for every wealth quantile is robust to different specifications of the model. Appendix Figure A7 plots the distribution of the the absolute value of the t-statistics associated with $\Delta IFI_{i,t-1}$ in

each regression and shows that also the statistical significance of the coefficient for every wealth quantile does not depend of any *ad-hoc* regression design.

For the United States, alternative series to the WID are available and used in the literature (Figure 5). Although all of them have a shorter historical availability, as a robustness I run a country specific version of the model as follows:

$$\Delta W_t^q = \alpha + \beta \Delta IFI_{t-1} + \mathbf{\Gamma \Delta X_{t-1}} + \theta_t + \varepsilon_t \tag{15}$$

Appendix Table A7 show that the sign of the coefficients is robust to specifications using different series. Statistical significance is less stable, but one would expect this given that the number of observations for many of the alternative series is particularly low. On this matter, series from the WID remain those offering the largest number of observation.

In Section 4 I discussed the differences between *de-facto* and *de-jure* indices of financial globalisation and explained in details why I use the IFI as the benchmark measure in my analysis. As a robustness to the main results, I run the model substituting the IFI index with *de-jure* indices, one by one in separate regressions as main explanatory variable. To allow comparisons in magnitude, other than sign, of coefficients I standardise all the indices. In interpreting results one should keep in mind the caveats on data availability previously discussed and the fact that indices are not fully comparable as they are based on different definitions. Indeed, specifically for this reason, one would not necessarily expect all coefficients to have a robust sign across indicators. Appendix Figure A8 compares the coefficients associated with each index for the four wealth quantiles. Interestingly, focusing on the top 1%, both magnitude and size of coefficients are consistent with the main specification.

Finally, Appendix Table A8 shows that results are consistent when looking at foreign assets and liabilities on their own instead of aggregating them.

7 Conclusions

Over the last 50 years, advanced economies such as the United States, France, and the United Kingdom experienced a significant increase in wealth inequality within their population. The rise in financial globalisation, which we observed over the same time horizon, could explain at least part of the widening gap between the wealth share going to the top and the one going to the bottom of the wealth distribution. The discussion on the causes of these trends is at the forefront of the debate in the literature. Implications are relevant for the policy sphere, expanding from the justification of wealth and capital taxes to the discussion on regulating financial openness and multinational enterprises.

In this paper I study this link empirically using a fixed effect panel data model for the three countries of interest. The main result points towards a significant positive link between the increase in financial globalisation (proxied with the IFI)

and changes in the top 1% (the rich) and 10% (upper middle-class) wealth shares and a significant negative link with changes in the wealth share of the bottom 50% of the distribution (working class). These results imply that considering the average change in the IFI during the period 1970-2019, the effect on wealth shares would be in the magnitude of approximately $1 trillion and $1.6 trillion, for the top 10% and 1% respectively.

Decomposing the IFI using functional categories of external assets and liabilities I find that the main driving components of this result appear to be portfolio equities and financial derivatives. By disentangling the valuation component from the accumulation of flows, I find that the increase in inequality following the acceleration in financial globalisation is driven by the flow. The wealthy get richer due to an expansion of their portfolios rather than just a market value gain on their existing stock of wealth. On the same line, although they have an economically meaningful effect, the main drivers of valuation effects (exchange rate, share prices, and house prices) do not seem to play a significant role. Finally, the main finding is strengthened in the event of a systemic banking crisis. An explanation is that this reflects a mismatch in recovery times between the wealthy and the poor. People at the top of the distribution have access to a wider range of financial instruments and investments opportunities, which makes them more likely to recover their lost wealth faster than people at the bottom of the distribution.

Financial globalisation can also affect wealth inequality via an indirect effect toward other economic dynamics. I find that financial globalisation played a potential significant role in reducing wealth returns, contributing to push up precautionary savings and increasing wealth inequality. Moreover, positive changes in the IFI are associated with positive (but not significant) changes in gross savings to GDP, which then is correlated with positive wealth gains at the top of the distribution.

This paper aims to be a first step in the direction of studying empirically the direct dynamic of financial globalisation on the distribution of wealth, rather than income. Given the current state of data availability there is much room for future research to extend and validate these results. At this stage, caution is advised when interpreting the results.

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A Appendix: additional figures and tables

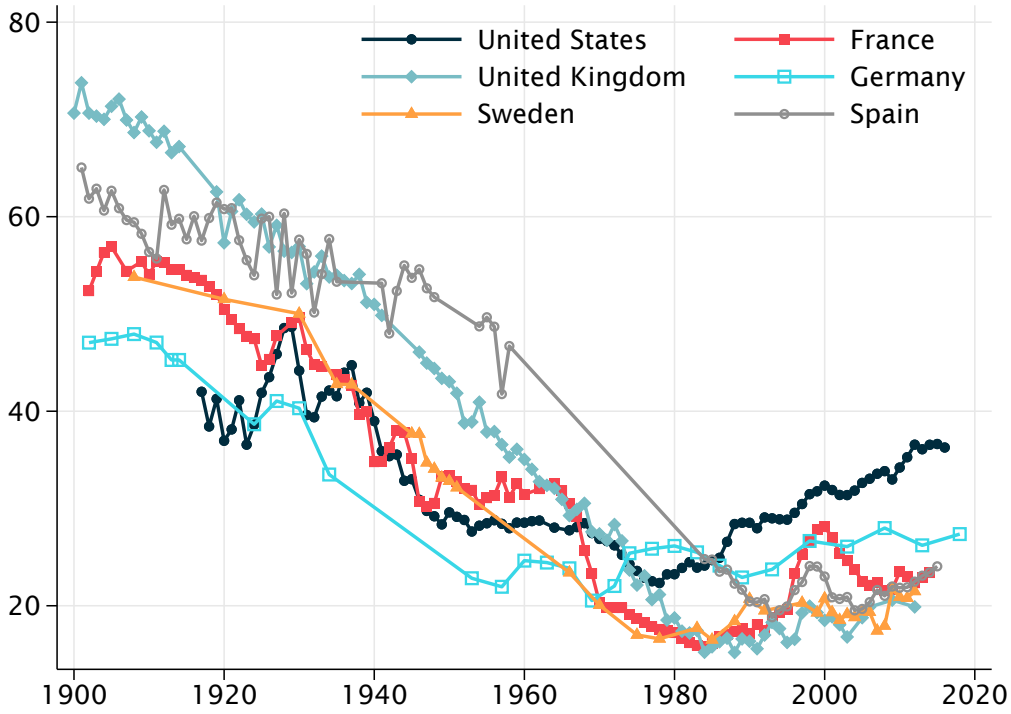

Figure A1: Top 1% wealth shares, percentage of total net wealth

Notes. See Waldenström (2021) for definitions and details on data sources. Sources: France: Garbinti et al. (2021), Piketty et al. (2006); Germany: Albers et al. (2020); Spain: Martínez-Toledano (2020); Sweden: Roine and Waldenström (2009), Lundberg and Waldenström (2018); United Kingdom: Alvaredo et al. (2018a); United States: Saez and Zucman (2016), Saez and Zucman (2020b).

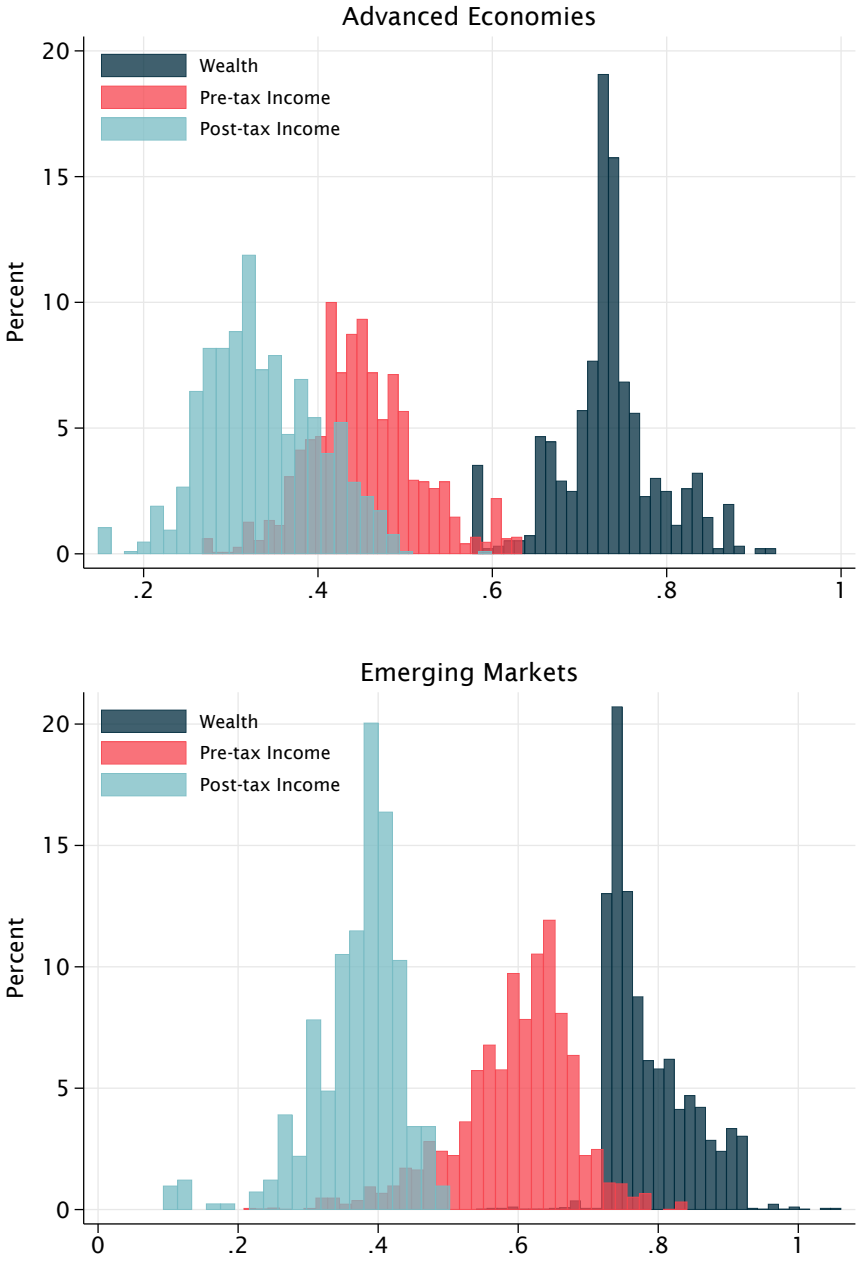

Figure A2: Distribution of Gini coefficients, over all years

Notes. 1995-2019 (1970-2019 for United States and France). Advanced economies: Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States. Emerging Markets: Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo-Brazzaville, Congo-Kinshasa, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Georgia, Ghana, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Iran, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Laos, Lebanon, Lesotho, Liberia, Libya, Macao, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Nigeria, North Korea, Oman, Pakistan, Palestine, Panama, Papua New Guinea, Paraguay, Peru, Poland, Qatar, Romania, Russia, Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sri Lanka, Sudan, ¿ Suriname, Swaziland, Syria, Taiwan, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zambia, Zanzibar, Zimbabwe. Source: World Inequality Database (WID).

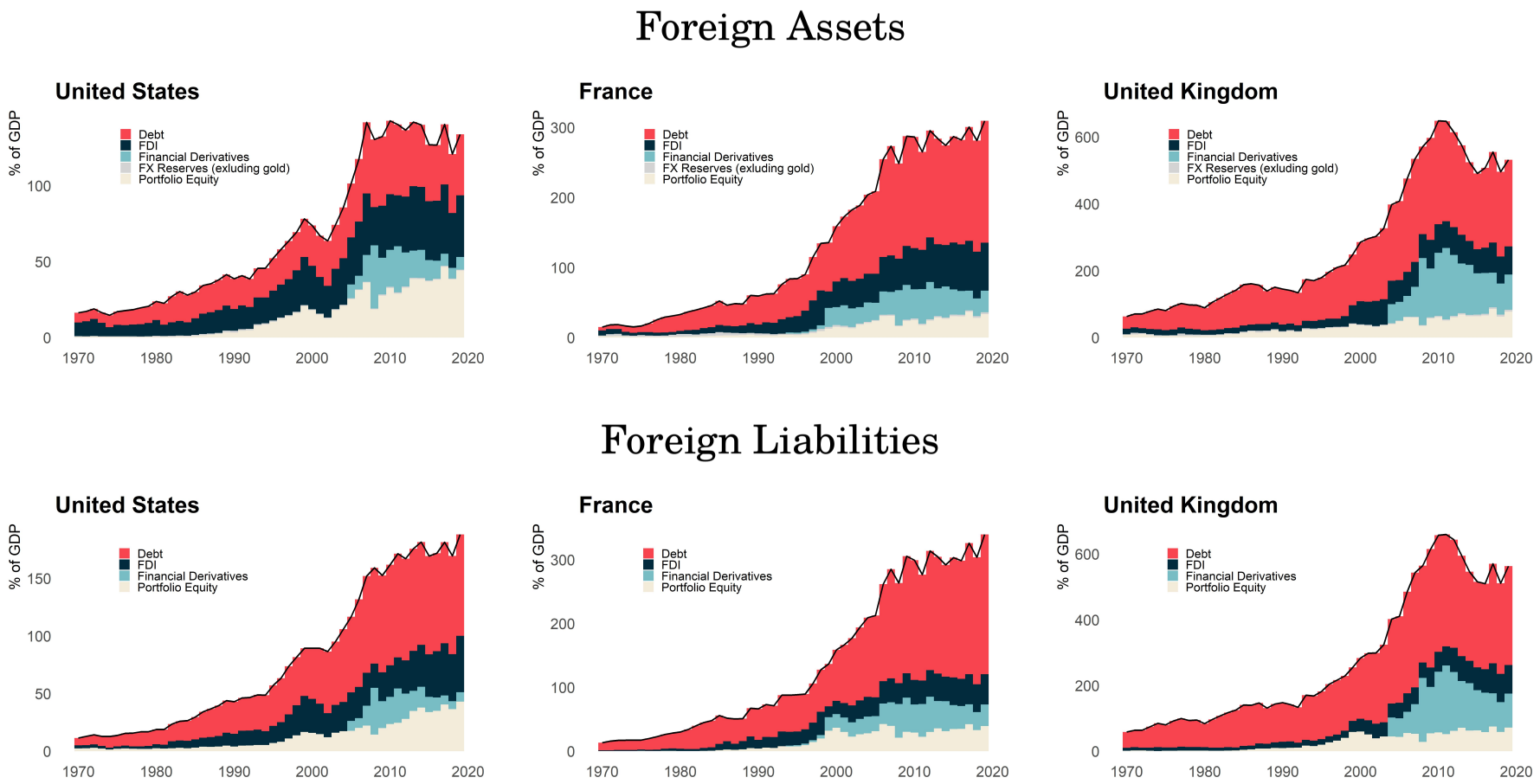

Figure A3: Composition of external assets and liabilities

Notes. Source: External Wealth of Nations (EWN).

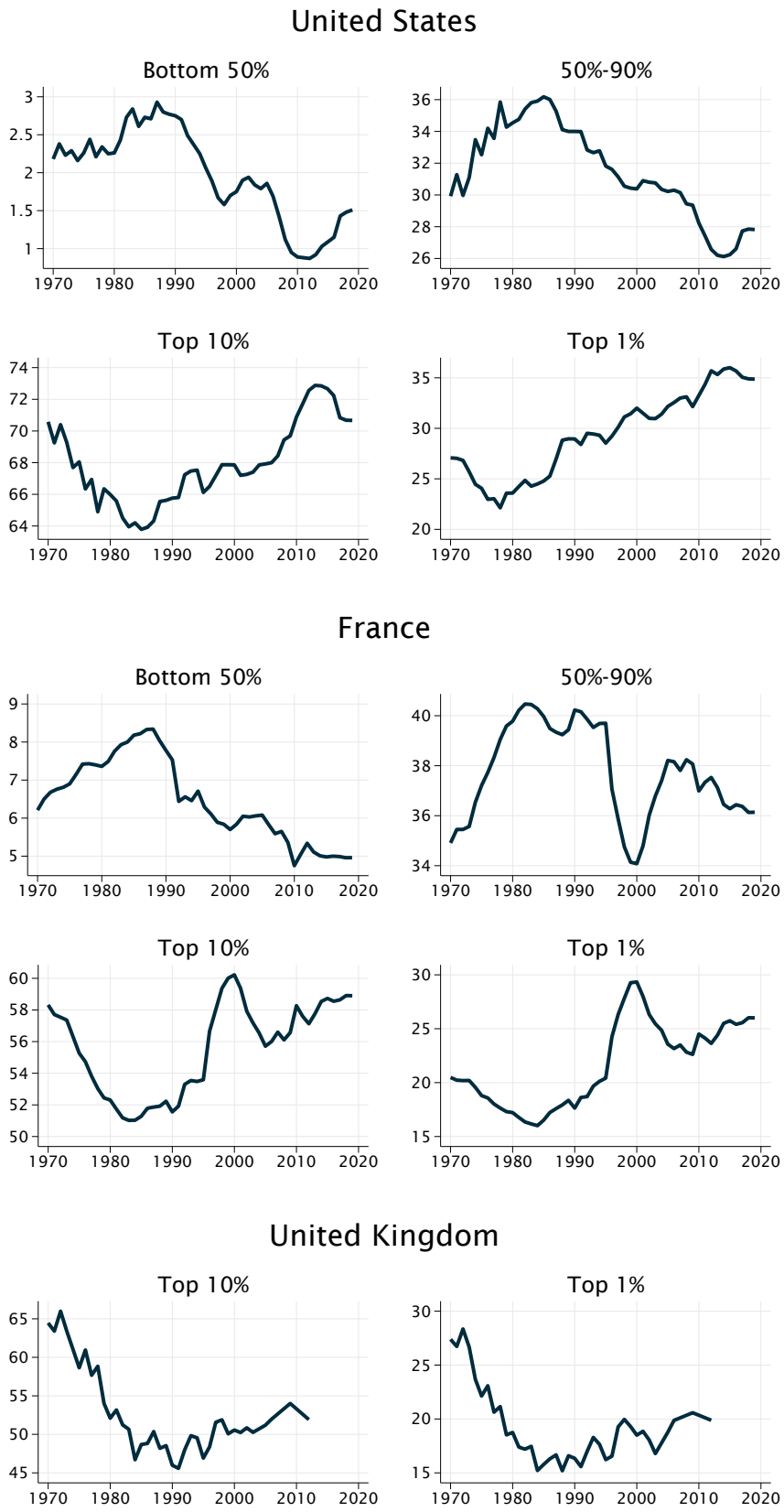

Figure A4: Net wealth shares, percentage of total net wealth

Notes. Share of net wealth owned by each quantile as a percentage of the total net wealth of the country. Latest observation is 2019 for the United States and France, 2012 for the United Kingdom. Missing data for the UK are linearly interpolated. Source: World Inequality Database (WID).

Table A1: Data sources and description

Variable	*Description*	*Source*
Wealth shares	Shares of net personal wealth, equal-split among all adult individuals	World Inequality Database (WID)
	Alternative sources for the United States	Federal Reserve Economic Data (FRED), Credit Suisse Global Wealth Report 2021, SCF+ by Kuhn et al. (2020), and OECD Wealth Database.
International Investment Positions	External assets and liabilities, and related sub-components	External Wealth of Nations (EWN)
Capital flows	Financial account, credit and debit entries	International Monetary Fund (IMF – BOP)
GDP and GDP per capita	Nominal and real national GDP in US Dollars and local currency	International Monetary Fund (IMF), World Bank (WB)
Debt to GDP	Public debt to GDP ratio	Abbas et al. (2010) updated October 2020, International Monetary Fund (IMF – WEO)
Short term interest rates	Nominal, percent	OECD (EO), Jordà et al. (2017) release R.6, IMF (IFS) for EMEs
Long term interest rates	Nominal long-term government bond yields (10-year), percent	Organisation for Economic Co-operation and Development (OECD – MEI), retrieved via FRED
Total Factor Productivity	TFP at constant national prices	Feenstra et al. (2015), retrieved via FRED
Imports and Exports	Including both goods and services, nominal	Jordà et al. (2017) release R.6
OADR	Old Age Dependency Ratio: share, population >65 yo over population aged 15-64 yo	World Bank (WB), retrieved via FRED
Banking crises	Systemic banking crises, full length	Laeven and Valencia (2020)
NEER	Nominal Effective Exchange Rate, trade weighted	Bank for International Settlements (BIS), retrieved via FRED
Share prices	Share price index, all shares, 2015=100	Organisation for Economic Co-operation and Development (OECD – MEI), retrieved via FRED
House prices	Nominal residential property prices, index 2010=100	Bank for International Settlements (BIS), retrieved via FRED
Wealth returns	Nominal returns, by type of asset, local currency	Jordà et al. (2017), Jordà et al. (2019) release R.6
Gross savings	Gross savings (% GDP, Y-C-NT)	World Bank (WB)
Gross investments	Gross fixed capital formation (% GDP)	World Bank (WB)
Consumption	Final consumption expenditure (% GDP)	World Bank (WB)
Household consumption	Households and NPISHs final consumption expenditure (% GDP)	World Bank (WB)
Government consumption	General government final consumption expenditure (% GDP)	World Bank (WB)
Fernández et al.	Overall capital restrictions index (all asset categories, 1995-2017)	Fernández et al. (2016)
Chinn-Ito	Chinn–Ito index of financial openness (1970-)	Chinn and Ito (2008)
Abiad et al.	Index of financial reforms (1973-2005)	Abiad et al. (2010)
Quinn	Quinn index of capital account openness (1970-2007)	Quinn (1997)
KOF	Index of *de-jure* financial globalisation (1970-)	Dreher (2006), Gygli et al. (2019)

Table A2: Common trade and currency areas

	Dependent variable: Δ Wealth Share$_t$							
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%	(5) Bottom 50%	(6) 50%-90%	(7) Top 10%	(8) Top 1%
Δ IFI$_{t-1}$	-0.002***	-0.003	0.004***	0.006***	-0.002**	-0.003	0.003**	0.006*
	(0.000)	(0.002)	(0.000)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)
Δ Real GDP per capita$_{t-1}$	-0.016	-0.022	0.009	0.222*	-0.016	-0.033	0.069	0.277**
	(0.044)	(0.028)	(0.134)	(0.073)	(0.043)	(0.044)	(0.157)	(0.058)
Δ Debt to GDP ratio$_{t-1}$	-1.501*	-5.855**	-1.750	2.378	-1.501*	-5.631***	-1.573	2.460
	(0.182)	(0.164)	(7.579)	(6.343)	(0.203)	(0.059)	(7.398)	(5.960)
Δ Short-term interest rate$_{t-1}$	-0.021	0.025	-0.053	-0.001	-0.021	0.027	-0.044	0.007
	(0.020)	(0.023)	(0.066)	(0.040)	(0.020)	(0.020)	(0.054)	(0.032)
Δ Long-term interest rate$_{t-1}$	0.035	0.077	-0.269	-0.148	0.035	0.079	-0.285	-0.164
	(0.018)	(0.021)	(0.162)	(0.155)	(0.018)	(0.019)	(0.170)	(0.163)
Δ TFP$_{t-1}$	1.728	4.388	-21.588	-11.343	1.730	6.721	-27.391	-17.011
	(0.882)	(4.639)	(20.717)	(9.651)	(1.086)	(5.241)	(21.745)	(9.782)
Δ Trade openness$_{t-1}$	0.012	-0.047	-0.004	-0.038	0.012	-0.049	-0.003	-0.037
	(0.004)	(0.023)	(0.020)	(0.016)	(0.004)	(0.021)	(0.020)	(0.016)
Δ OADR$_{t-1}$	-0.172	0.200	0.297	0.430	-0.172	0.157	0.323	0.470
	(0.034)	(0.201)	(0.242)	(0.200)	(0.038)	(0.188)	(0.210)	(0.217)
EU					omitted	omitted	**-1.163*****	**-1.071*****
							(0.016)	(0.104)
Euro area					**0.000**	**0.261***	**-0.731**	**-0.753***
					(0.022)	(0.031)	(0.343)	(0.236)
Constant	0.045	0.061	-0.076	-0.199	0.045	0.008	0.773**	0.594**
	(0.027)	(0.033)	(0.113)	(0.099)	(0.032)	(0.027)	(0.178)	(0.103)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	96	96	137	137	96	96	137	137
R^2	0.291	0.242	0.201	0.236	0.291	0.249	0.228	0.276

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. EU and Euro area are dummy variables. EU dummy follow composition changes, i.e. turns 1 for the United Kingdom only in 1973 and 0 after Brexit. The Bottom 50% and 50%-90% include the United States and France, while the top 1% and 10% include the United Kingdom as well. The panel is unbalanced as the latest observation for the United Kingdom is 2012.

Table A3: Robustness – Valuation effects

	Dependent variable: Δ Wealth Share$_t$											
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%	(5) Bottom 50%	(6) 50%-90%	(7) Top 10%	(8) Top 1%	(9) Bottom 50%	(10) 50%-90%	(11) Top 10%	(12) Top 1%
Δ IFI$_{t-1}$	-0.002**	-0.001	0.004	0.006**	-0.002	-0.001	0.003	0.005**	-0.003	-0.000	0.003	0.005**
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Δ NEER$_{t-1}$	0.002	0.021	0.001	-0.004	0.002	0.019	0.001	-0.004	0.002	0.020	0.001	-0.004
	(0.001)	(0.009)	(0.019)	(0.015)	(0.001)	(0.008)	(0.017)	(0.015)	(0.001)	(0.009)	(0.018)	(0.015)
Δ Share Price$_{t-1}$	0.004	-0.011	0.006	0.005					0.005	-0.002	-0.002	-0.006
	(0.002)	(0.003)	(0.012)	(0.013)					(0.004)	(0.002)	(0.009)	(0.014)
Δ House Price$_{t-1}$	0.006	0.028	-0.028*	-0.004					0.006	0.034	-0.035**	-0.012
	(0.003)	(0.010)	(0.008)	(0.018)					(0.006)	(0.011)	(0.006)	(0.017)
Δ Global Share Price$_{t-1}$					0.005	-0.008	0.006	0.009	0.000	-0.014	0.015	0.016
					(0.007)	(0.006)	(0.016)	(0.015)	(0.011)	(0.010)	(0.014)	(0.008)
Δ Global House Price$_{t-1}$					-0.009	0.002	-0.016	0.005	-0.012	-0.001	-0.010	0.010
					(0.024)	(0.024)	(0.041)	(0.021)	(0.022)	(0.027)	(0.044)	(0.031)
Δ Real GDP per capita$_{t-1}$	-0.042	-0.096*	0.101	0.223	-0.022	0.011	0.002	0.177	-0.030	-0.077*	0.098	0.205
	(0.051)	(0.015)	(0.076)	(0.115)	(0.055)	(0.055)	(0.108)	(0.088)	(0.062)	(0.007)	(0.097)	(0.127)
Δ Debt to GDP ratio$_{t-1}$	-0.739	-4.962	-1.907	2.546	-0.980	-5.490	-1.367	2.891	-0.691	-5.062	-1.796	2.605
	(0.328)	(1.503)	(7.162)	(6.328)	(0.539)	(0.877)	(7.097)	(6.239)	(0.257)	(1.286)	(7.241)	(6.506)
Δ Short-term interest rate$_{t-1}$	-0.017	0.032**	-0.050	-0.002	-0.017	0.039***	-0.048	-0.003	-0.015	0.033***	-0.046	-0.004
	(0.020)	(0.002)	(0.060)	(0.032)	(0.018)	(0.000)	(0.054)	(0.034)	(0.019)	(0.000)	(0.056)	(0.035)
Δ Long-term interest rate$_{t-1}$	0.031	0.024	-0.250	-0.136	0.030	0.043	-0.276	-0.142	0.029	0.026	-0.259	-0.140
	(0.026)	(0.017)	(0.180)	(0.184)	(0.018)	(0.013)	(0.201)	(0.169)	(0.021)	(0.007)	(0.203)	(0.185)
Δ TFP$_{t-1}$	1.587	6.632	-22.473	-11.625	1.281	4.958	-22.392	-11.412	0.888	5.964	-23.070	-11.411
	(0.522)	(6.040)	(20.546)	(9.074)	(0.641)	(8.142)	(22.923)	(9.328)	(0.143)	(6.681)	(22.838)	(8.920)
Δ Trade openness$_{t-1}$	0.009*	-0.012	-0.017	-0.045	0.011	-0.034	-0.004	-0.040	0.008	-0.017	-0.015	-0.040
	(0.001)	(0.018)	(0.027)	(0.036)	(0.005)	(0.027)	(0.022)	(0.028)	(0.005)	(0.022)	(0.029)	(0.039)
Δ OADR$_{t-1}$	-0.184	0.228	0.256	0.409	-0.177*	0.183	0.319	0.390	-0.165	0.251	0.249	0.358
	(0.039)	(0.160)	(0.304)	(0.253)	(0.027)	(0.178)	(0.357)	(0.214)	(0.032)	(0.120)	(0.366)	(0.182)
Constant	0.034	-0.002	-0.040	-0.192	0.063	0.039	-0.041	-0.196	0.057	-0.013	-0.002	-0.187*
	(0.023)	(0.058)	(0.103)	(0.083)	(0.023)	(0.109)	(0.166)	(0.077)	(0.032)	(0.114)	(0.150)	(0.054)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	96	96	137	137	96	96	137	137	96	96	137	137
Within R^2	0.322	0.290	0.207	0.237	0.319	0.272	0.202	0.239	0.335	0.295	0.209	0.240

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The Bottom 50% and 50%-90% include the United States and France, while the top 1% and 10% include the United Kingdom as well. The panel is unbalanced as the latest observation for the United Kingdom is 2012. World indices are constructed as the median of country level price indices.

Table A4: Wealth returns

	Wealth	Equity			Housing				Bond
	(1) TR	(2) TR	(3) DR	(4) CGR	(5) TR	(6) CGR	(7) RR	(8) RYR	(9) TR
Δ IFI$_{t-1}$	-0.027	-0.103***	-0.007***	-0.096***	-0.004	-0.003	-0.001	-0.001	-0.015
	(0.011)	(0.007)	(0.000)	(0.008)	(0.008)	(0.009)	(0.001)	(0.001)	(0.027)
R^2	0.341	0.187	0.748	0.168	0.495	0.493	0.804	0.818	0.247
Δ IFI$^{PE}_{t-1}$	-0.068	-0.221*	-0.017*	-0.204	-0.025	-0.026	0.001	0.002	-0.100**
	(0.031)	(0.070)	(0.004)	(0.074)	(0.015)	(0.010)	(0.006)	(0.005)	(0.013)
R^2	0.342	0.184	0.751	0.164	0.496	0.495	0.804	0.817	0.258
Δ IFI$^{FD}_{t-1}$	-0.020	-0.059	-0.001	-0.058	-0.007	-0.008	0.002	0.002	-0.042
	(0.009)	(0.021)	(0.001)	(0.021)	(0.010)	(0.010)	(0.001)	(0.001)	(0.035)
R^2	0.269	0.321	0.598	0.323	0.443	0.460	0.856	0.894	0.277
Δ IFI$^{FDI}_{t-1}$	-0.027	0.019	-0.003	0.022	-0.042	-0.033	-0.009	-0.008	-0.064**
	(0.036)	(0.177)	(0.001)	(0.176)	(0.024)	(0.021)	(0.004)	(0.004)	(0.011)
R^2	0.329	0.168	0.734	0.150	0.502	0.498	0.821	0.831	0.252
Δ IFI$^{D}_{t-1}$	-0.018***	-0.026	-0.001	-0.025	-0.024*	-0.020*	-0.003	-0.003	-0.014
	(0.002)	(0.021)	(0.001)	(0.021)	(0.007)	(0.006)	(0.001)	(0.001)	(0.006)
R^2	0.352	0.172	0.735	0.154	0.533	0.523	0.836	0.840	0.251
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	144	144	144	144	144	144	144	144	144

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.TR = total return, DR = dividend return, CGR = capital gain return, RR = rent return, RYR = rent yield return. Percent returns.

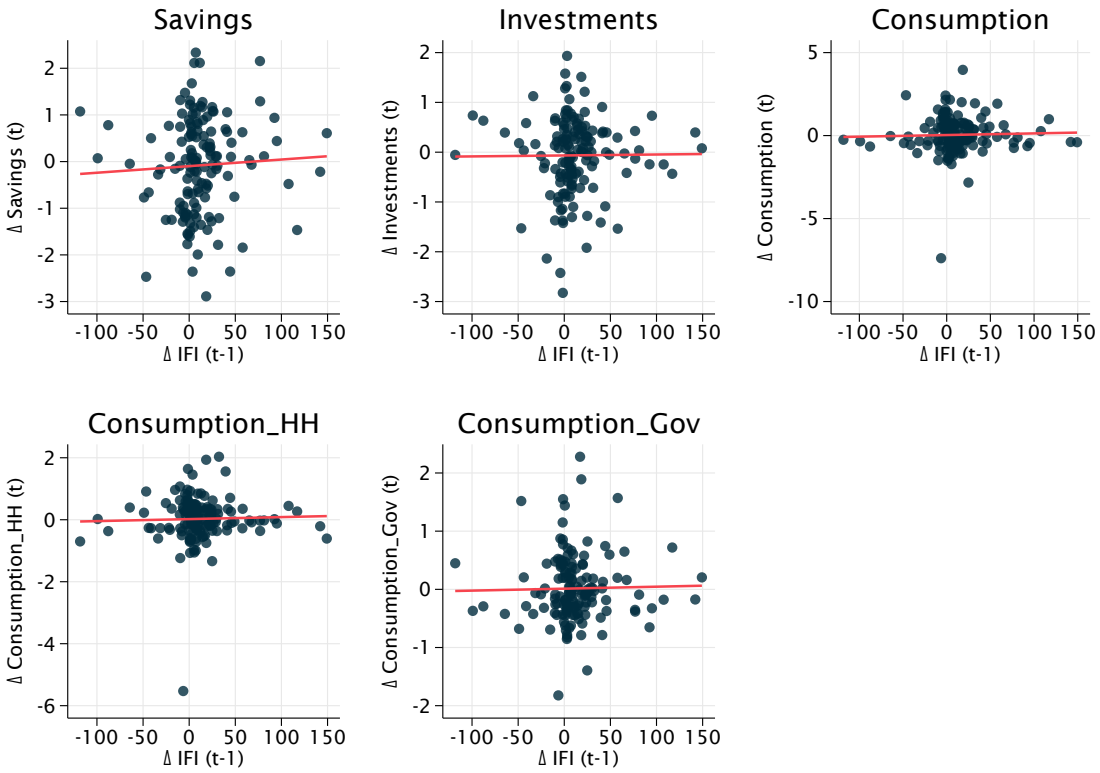

Figure A5: Correlations, without controls

Notes. Sources: International Monetary Fund (IMF), External Wealth of Nations (EWN), World Bank (WB), author's calculations.

Table A5: Savings, Invesments, Consumption

	Δ Dependent variable (all scaled by GDP, time t)				
	(1) Savings	(2) Investments	(3) Consumption	(4) Cons HH	(5) Cons Gov
Δ IFI_{t-1}	0.0038	0.0022	0.0003	0.0015	-0.0013
	(0.002)	(0.002)	(0.004)	(0.002)	(0.002)
Controls	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓
Observations	140	143	144	144	144
R^2	0.261	0.345	0.243	0.118	0.384

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Gross savings and investments. Data from the World Bank.

Table A6: Savings and wealth

	Dependent variable: Δ Wealth $Share_t$			
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%
Δ IFI_{t-1}	-0.002**	-0.003	0.005	0.006**
	(0.000)	(0.001)	(0.002)	(0.001)
Δ Gross $Savings/GDP_{t-1}$	-0.039**	-0.138**	-0.041	0.066
	(0.001)	(0.007)	(0.239)	(0.126)
Δ IFI_{t-1} × Δ Gross $Savings/GDP_{t-1}$	0.001***	0.000	0.003	-0.000
	(0.000)	(0.003)	(0.004)	(0.001)
Controls	✓	✓	✓	✓
Country FE	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓
Observations	91	91	132	132
R^2	0.314	0.246	0.204	0.237

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

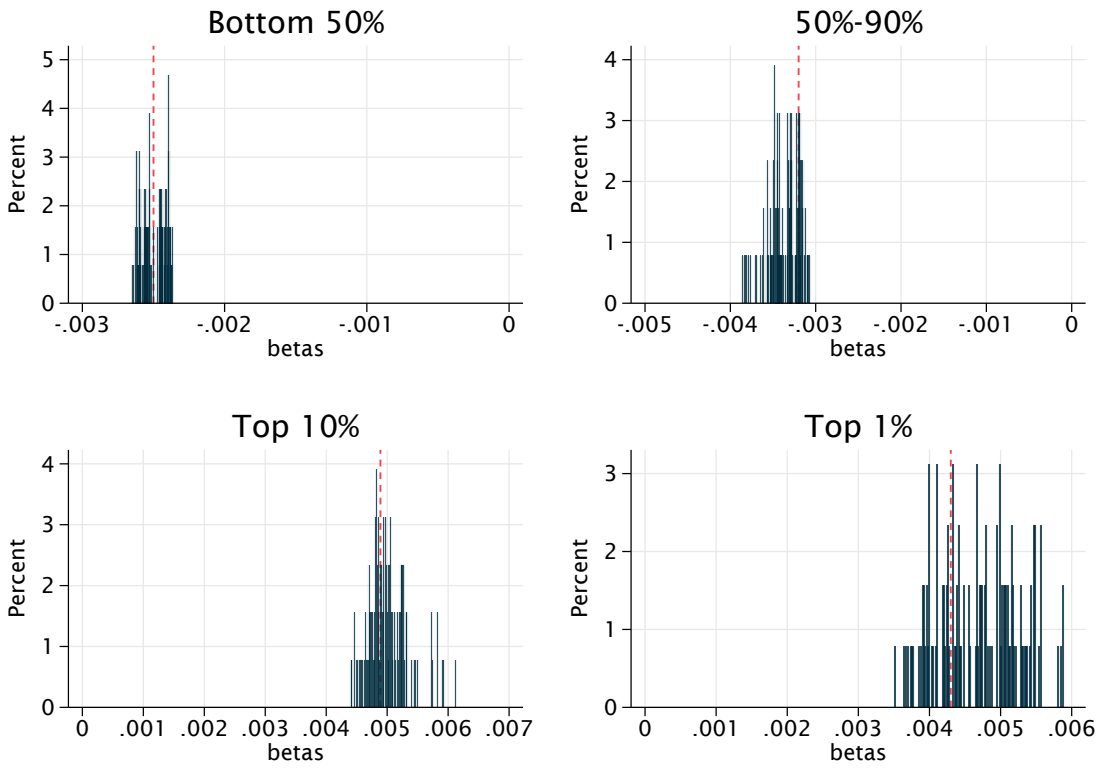

Figure A6: Coefficients resulting from 128 permutations of the baseline model

Notes. Betas of individual regressions of the wealth share against all possible combinations of regressors. The red dashed line is the coefficient of the model including all controls and country fixed effects. Due to technical reasons, the permutations exclude decade fixed effects. Although the magnitude is slightly smaller, this does not particularly affect the sign nor the statistical significance of the main baseline model (Equation 2).

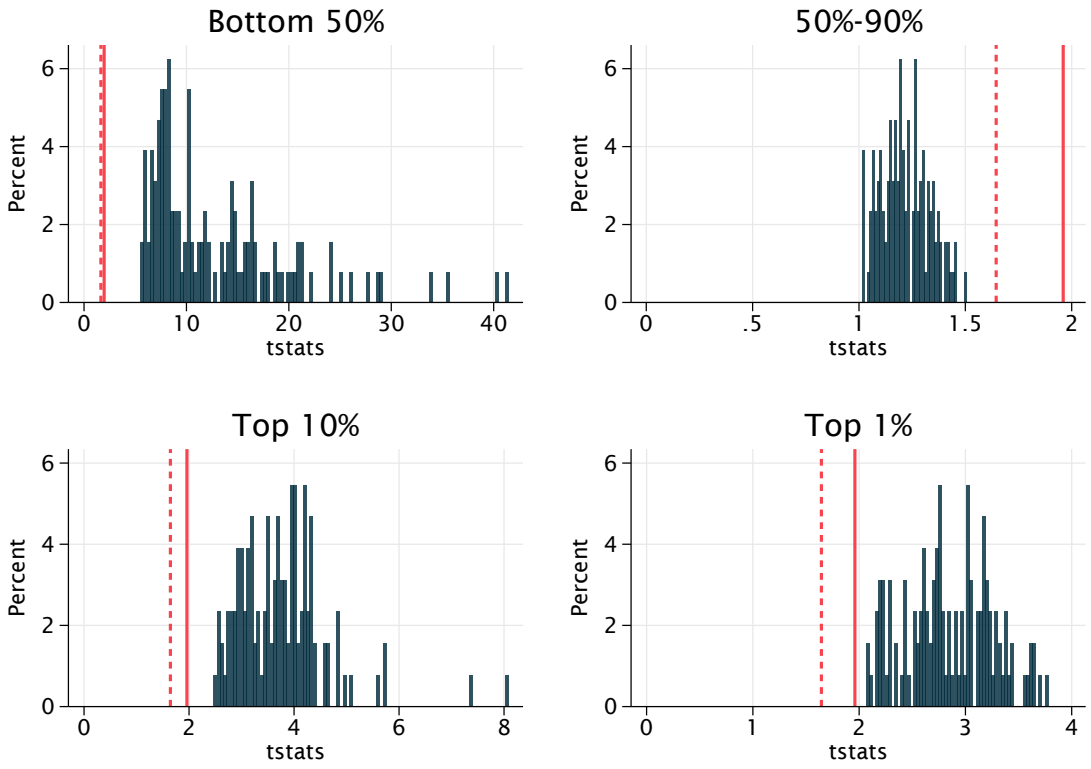

Figure A7: T statistics resulting from 128 permutations of the baseline model

Notes. t statistics of individual regressions of the wealth share against all possible combinations of regressors. The red solid line is the critical value for 95% statistical significance (1.96). The red dashed line is the critical value for 90% statistical significance (1.645). Due to technical reasons, the permutations exclude decade fixed effects. Although the magnitude is slightly smaller, this does not particularly affect the sign nor the statistical significance of the main baseline model (Equation 2).

Table A7: United States - Alternative data sources

	$\Delta W_t^q = \alpha + \beta \Delta IFI_{t-1} + \gamma \Delta X_{t-1} + \theta_t + \varepsilon_t$				
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%	N
WID (Benchmark)	-0.002	-0.007	0.013*	0.020***	48
FRED	-0.000	-0.016*	0.018**	0.006	29
Credit Suisse	-0.0002	-0.0001	0.0004	-0.0105	19
SCF+	-0.007***	-0.022	0.029*	0.012	12
Controls	✓	✓	✓	✓	
Decade FE	✓	✓	✓	✓	

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors. Each line represent a different regression as specified in the equation on top of the table, in which a different data source for wealth shares is used each time. The coefficient reported is the one associated with the explanatory variable ΔIFI_{t-1}.

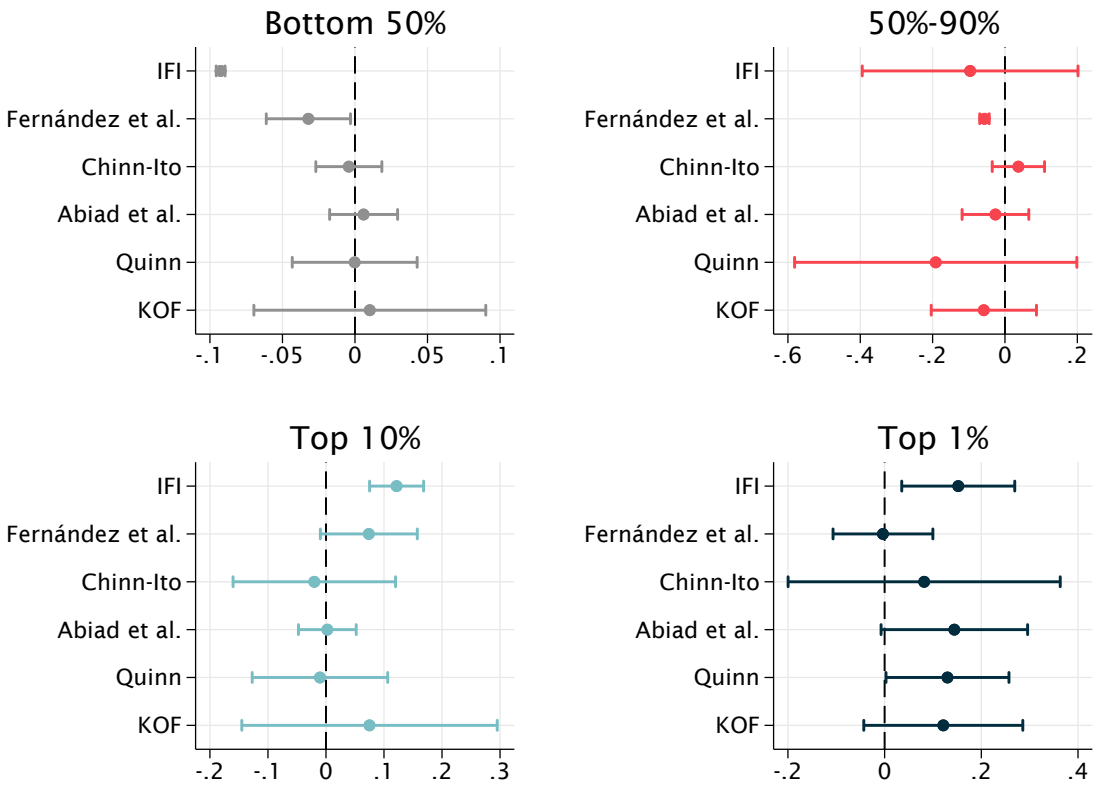

Figure A8: Robustness of coefficients to different proxies of financial globalisation

Notes. Coefficient of individual regressions of the wealth share against each (standardised) index of financial globalisation. 90% confidence bands. Note that opposite to all other measures, the index by Fernández et al. (2016) concerns restrictions to capital. Thus, the interpretation of its coefficient sign is opposite as the others. See Table A1 for sources and definitions.

Table A8: Robustness – Assets and Liabilities

	Dependent variable: Δ Wealth Share$_t$							
	(1) Bottom 50%	(2) 50%-90%	(3) Top 10%	(4) Top 1%	(5) Bottom 50%	(6) 50%-90%	(7) Top 10%	(8) Top 1%
Δ FA/GDP$_{t-1}$	**-0.003*****	**-0.006**	**0.009****	**0.014*****				
	(0.000)	(0.004)	(0.002)	(0.001)				
Δ FL/GDP$_{t-1}$					**-0.004****	**-0.005**	**0.006****	**0.011*****
					(0.000)	(0.003)	(0.001)	(0.001)
Δ Real GDP per capita$_{t-1}$	-0.017	-0.024	0.010	0.225*	-0.014	-0.021	0.011	0.221*
	(0.046)	(0.030)	(0.132)	(0.072)	(0.041)	(0.028)	(0.138)	(0.075)
Δ Debt to GDP ratio$_{t-1}$	-1.509*	-5.853**	-1.905	2.256	-1.497*	-5.862**	-1.559	2.571
	(0.183)	(0.197)	(7.796)	(6.481)	(0.195)	(0.115)	(7.369)	(6.184)
Δ Short-term interest rate$_{t-1}$	-0.021	0.025	-0.053	-0.001	-0.021	0.026	-0.054	-0.002
	(0.021)	(0.021)	(0.065)	(0.038)	(0.018)	(0.025)	(0.066)	(0.041)
Δ Long-term interest rate$_{t-1}$	0.036	0.078	-0.269	-0.148	0.034	0.075	-0.268	-0.147
	(0.018)	(0.021)	(0.160)	(0.152)	(0.017)	(0.021)	(0.163)	(0.158)
Δ TFP$_{t-1}$	1.857	4.558	-21.994	-11.979	1.584	4.254	-21.348	-10.856
	(0.624)	(4.977)	(20.983)	(9.915)	(1.119)	(4.468)	(20.612)	(9.433)
Δ Trade openness$_{t-1}$	0.012	-0.047	-0.005	-0.039	0.012	-0.047	-0.003	-0.036
	(0.006)	(0.025)	(0.021)	(0.014)	(0.003)	(0.021)	(0.018)	(0.018)
Δ OADR$_{t-1}$	-0.169	0.201	0.302	0.429	-0.175	0.200	0.285	0.423
	(0.031)	(0.198)	(0.253)	(0.197)	(0.038)	(0.205)	(0.227)	(0.201)
Constant	0.041	0.059	-0.080	-0.198	0.049	0.061	-0.067	-0.194
	(0.028)	(0.033)	(0.110)	(0.098)	(0.025)	(0.036)	(0.116)	(0.100)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	96	96	137	137	96	96	137	137
R^2	0.281	0.243	0.204	0.240	0.300	0.242	0.199	0.230

Notes: Clustered standard errors in parenthesis. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The Bottom 50% and 50%-90% include the United States and France, while the top 1% and 10% include the United Kingdom as well. The panel is unbalanced as the latest observation for the United Kingdom is 2012.