Cementing the Divide?

Housing and Wealth Inequality across Europe

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This is an abstract

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List of Abbreviations

Abbreviation	Explanation
HFCS	Household Finance and Consumption Surveys
DWA	Distributional Wealth Accounts
ECB	European Central Bank
OECD	Organisation for Economic Co-operation and Development
BIS	Bank for International Settlements
OLS	Ordinary Least Squares
SCC	spatial correlation consistent

1 Introduction

Housing is Europes largest asset.

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![Housing as share of net wealth across Europe](../output/desc/map.png){#fig-map width=80%
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2 Literature

This thesis builds on the effort to collect detailed data on wealth distribution and inequality. Pioneered by Piketty and Saez (2003) and followed by his seminal book (Piketty 2014), where he documents wealth-to-income ratios in developed economics rising to levels prevously seen in 19th century Europe [1].

The renewed interest in Inequality inspired the creation of distributional national accounts. These datasets aim to link up national accounts with survey data to ensure macroeconomic consistency of inequality estimates. First presented for the US Income Distribution by Piketty, Saez, and Zucman (2018) and Wealth Distribution by Batty et al. (2022), they are now available as well for european income distributions (Blanchet, Chancel, and Gethin 2019) and wealth distributions (Blatnik et al. 2024). The latter is the main dataset used in this thesis, further explored in Section 3.

The analysis is most closely related to the literature researching asset prices as a central driver of wealth inequality. Kuhn, Schularick, and Steins (2020) use a newly construced historical dataset ranging back to 1948 to document the reactions of different parts of the wealth distribution to stock and house prices (2020, 37). They find that the share of the top decile of the wealth distribution reacts negatively to increases in house prices and the opposite with respect to stock prices, mostly due to differential exposure in Household portfolios (2020, 34). Additionally, they find that the portfolio valuation channel is predominantly responsible for shifts in the wealth distribution, especially in the lower half (2020, 42). A similar analysis is done by Adam and Tzamourani (2016), who multiply different asset valuations in european household portfolios by a 10% price increase. The authors document an increase in wealth inequality in response to rising stock prices and a decrease in response to housing price apprecations, although with a large heterogeneity across the Euro Area for the latter. Martínez-Toledano (2022) finds similar efffects, focusing on the relation of House Price Cycles and wealth inequality in spain. She puts a special emphasis on the differential effects in boom and busts and the role of portfolio adjustments by richer Households.

As described above, differential portfolio choice explains the effect of valuation changes on inequality. Cocco (2005) presents a theoretical model of optimal portfolio allocation to explain why younger and poorer households invest in housing and do not take part in the stock market. Sierminska and Doorley (2013) document these differences for age cohorts empirically across European and North American countries, highlighting the role of institutions in portfolio choices. A description of household balance sheets across socio-economic groups is provided by Causa, Woloszko, and Leite (2019) for OECD Countries. They highlight Housing as the most important asset, especially for the middle class, but document pronounced variations in countries at the bottom of the wealth distribution (2019, 22). Additionally, they stress the importance of mortages, due to the increased vulnerability in housing price busts or elevated interest rate periods for leveraged households (2019, 30).

[1] The measurement of Wealth by Piketty was criticised by Bonnet et al. (2014), who find that using (imputed) rent as a housing capital measurement, Piketty's fast rising capital-income ratios are actually stable. Allègre and Timbeau (2015) outline internal incosistencies in their critique while emphasizing the central contribution of housing in explaining the wealth dynamics. A summary of the role of housing in the debate around Piketty's work is provided by Stephens (2017).

Another explanation for differential gains from assets along the distribution are heterogeneous rates of return. Richer households have higher profits than poorer households adn this holds true when controlling for portfolio differences. This relationship is documented by Fagereng et al. (2020) using detailed norwegian individual tax records, who find that this effect is persistent even across generations. Similar heterogenous patterns are found by Bach, Calvet, and Sodini (2020) in swedish data and by Wolff (2025) for housing in the US.

Moreover, the thesis relates to the literature examining the cross-country wealth differences in the European Union. The central role of housing is highlighted by Biewen, Glaisner, and Kleimann (2025), who find that homeownership is the main household characteristic that explains these differenes. Mathä, Porpiglia, and Ziegelmeyer (2017) adds to this the role of diverse housing price dynamics to explain the variations in net wealth accumulated across Europe. Similarly, Kaas, Kocharkov, and Preugschat (2019) emphasize that homeownership is the channel to explain the differences, and that a large part can be accounted for by distinct home ownership rates in the bottom half of the wealth distribution. Furthermore they decompose inequality into inequality between owners and renters and intra-group inequalities and find that the the former is foremost responsible for the relationship between inequality and homeownership.

A methodology similar to the one in this thesis was first used by Wolff (1995, 31, p.77) for US wealth inequality between 1922 and 1989. The author regressed the wealth share of the top 1% on the share of income accrued by the group and the ratio of stock prices to housing prices. Both factors are statistically significant, with the Prices Ratio explaining most of the divergence of wealth and income inequality between 1945 and 1979. Most recently, Kuhn, Schularick, and Steins (2020) use a similar regression to describe the "race between the stock market and the housing market" (2020, 37). They regress the first differences of the wealth share hold by the top 10% of the US american wealth distribution on the first differences in housing prices, stock prices (proxied by the S&P 500) and the share of income going to the top 10%. The results indicate a negative reaction of the wealth share to Housing Prices and a positive one to Stock Prices, although with limited statistical significance due to small sample size. Fuller, and and Regan (2020) use similar explanatory variables in a panel regression of western european and OECD countries to explain the rising wealth-to-income ratios by (**?**). The authors find that the increase is explained by rising house prices as well as to a lesser extent prices of other assets.

This thesis makes a contribution to the literature by examining how different segments of the wealth distribution respond to changes in stock and asset prices. It provides estimates for eurozone as a whole, as well as for a large number of European countries. The following section describes the underlying data for this analysis and provides descriptive statistics of the wealth distribution.

3 Data and descriptive statistics

To understand the wealth dynamics, the analysis employs a variety of different datasets, the main being the Distributional Wealth Accounts (henceforth DWA) compiled by the European Central Bank (Blatnik et al. 2024). The DWA provides quarterly wealth positions of different deciles of the wealth distribution for 21 european countries from 2011 until 2025, splitting up the net wealth according to the amount hold in different asset classes (Housing Wealth, Mortages etc.).

A novelty of the DWA is their consistency with macroeconomic estimates of wealth from the quarterly financial accounts. A limitation of existing distributional data based only on surveys is the underreporting of wealth, which is adressed in the DWA following the US example by Batty et al. (2022) for the Federal Reserve.

The exact methodology to derive quarterly distributional accounts as well as a first analysis of the dataset is described by Engel et al. (2022). They distribute the wealth estimates from the quarterly sectoral financial accounts (QSA) according to the distribution in the Household Finance and Consumption Surveys (HFCS), which are carried out by Eurozone member banks every 3-4 years (Network 2013). To overcome the problems of differential nonresponse (richer Households are underrepresented in the surveys) and the differential underreporting (richer Households undervalue their assets) they use the method proposed by Vermeulen (2016). He builds on the finding that the upper tail of the Wealth Distribution follows a Pareto curve, which can be used to create synthetic rich Households on a Curve fitted to the HFCS data and Households from external rich lists (e.g. Neßhöfer and Bornefeld (2024) for Germany). After this step, Engel et al. (2022) use linear interpolation to distribute the QSA between HFCS survey waves and extrapolate after the most recent HFCS wave in 2021.

The authors perform a wide range of sensitivity and robustness checks for the DWA, but it is important to stress that it is still an experimental dataset, which can not guarantee the same accuracy as data obtained by wealth taxation or other methods.

This analysis draws on the DWA for the time from 2011 until 2021. Potential extrapolation errors after the last HFCS wave and lagged effects of the Covid shock on the housing market are therefore not included in the dataset. The full range of countries is used, including Hungary, which is not part of the Eurozone, but increases the reliability of the results. The countries are abbreviated in Figures and Tables by ther ISO 2-digit country codes. A table with descriptive statistics and their respective full name is provided in Table 5 in Appendix A.

Furthermore, assets are combined to simplify and ease the interpretation of results (as in Kaas, Kocharkov, and Preugschat 2019). Unlisted shares and non-financial Business Wealth are combined to form Business Wealth; debt securities, listed shares, investment fund shares and life insurance entitlements form the Financial Wealth and Debt is made up of Mortgage Loans and other Loans.

Additionally, wealth estimates for the Deciles 6 to 9 of the wealth distribution are combined to form the Middle 40% wealth group, next to the Bottom 50% and the Top 10% (henfecorth the wealth groups). This follows the literature Kuhn, Schularick, and Steins (2020), as the middle 40% have a portfolio composition and wealth levels distinct from the other groups (see Figure 2). Their wealth is predominatly made up of housing equity, whereas in the top decile business and financial assets play a much larger role.

The portfolios of the bottom 50% display the largest heterogeneities across Europe [2]. In most countries, they closely resemble the composition of the middle class with housing as the main asset (examples include Italy, Ireland and Finland). Outliers to this rule include Germany, Austria and the Netherlands. The wealth of the lower half in these countries is predominantly made up of the other assets and housing contributes less than 50% to total wealth.

The distribution of these asset classes among the wealth groups in the Eurozone is described in Figure 1. As visible, Housing is distributed most equally of the wealth categories, with the Top Decile owning 47% of the total Housing Wealth. It is followed by Net Wealth with 57%, and Financial Wealth and Business Wealth with 72% and 85% respectively.

This sequence holds in all european countries, with the absolute numbers differing considerably for the latter two assets [3]. While almost all financial wealth is hold by the top decile in Croatia and Greece, it is less than half in the Netherlands and Malta. For business wealth, the most significant share held by the top 10% is in Austria and Germany, while Greece and Cyprus feature the most equal distribution.

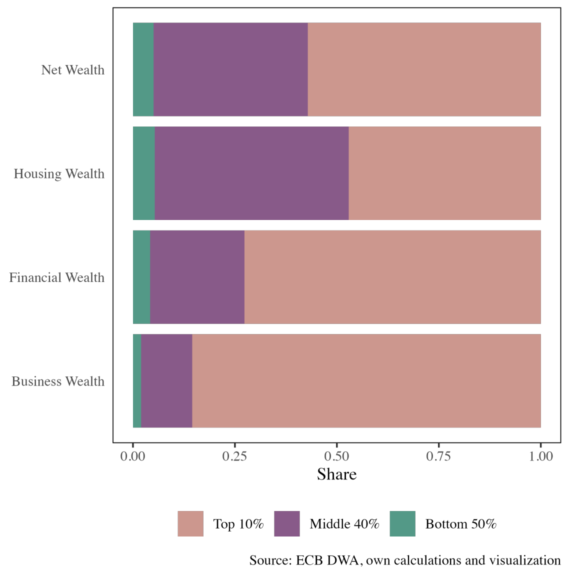

Figure 1: Asset distribution among wealth groups (Eurozone Average)

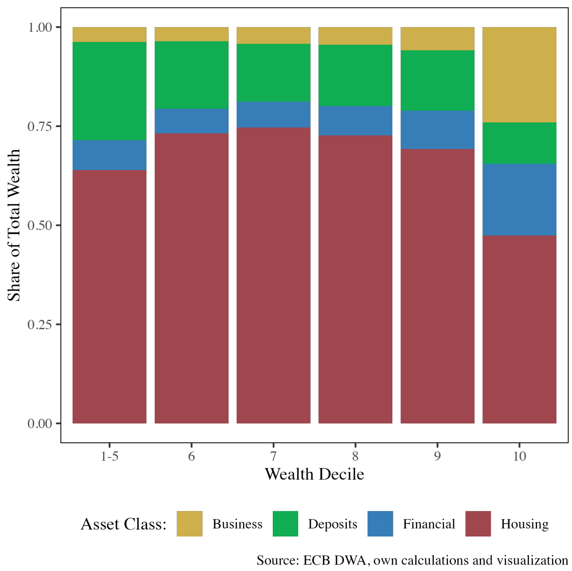

Figure 2: Portfolio Composition of Deciles (Eurozone Average)

Figure 3 tracks the portfolios of the wealth groups over the observed time frame. The figure

[2]the complete breakdown is provided in Figure 6 in Appendix B.
[3]The expanded version of Figure 1 is available as Figure 5 in Appendix B

confirms the large heterogeneity of wealth portfolios in the literature and additionally adds a time dimension displaying the diffferent growth trends of net wealth.

The lower half of the distribution have little wealth, with housing and deposits playing the largest role. They are highly leveraged and essentially did not increase their net wealth until 2015, after which it grew slowest of all groups. The portfolio of the Middle 40% is dominated by housing. Compared to the Bottom 50%, they exhibit much higher net wealth and much lower debt. In the top decile, Business as well as Financial Wealth play a larger role, while debt plays a smaller one. The net wealth of the top 10% grew fastest, from 539 thousand euros to 849 thousand euros per capita, a 57% increase in the span of 12 years.

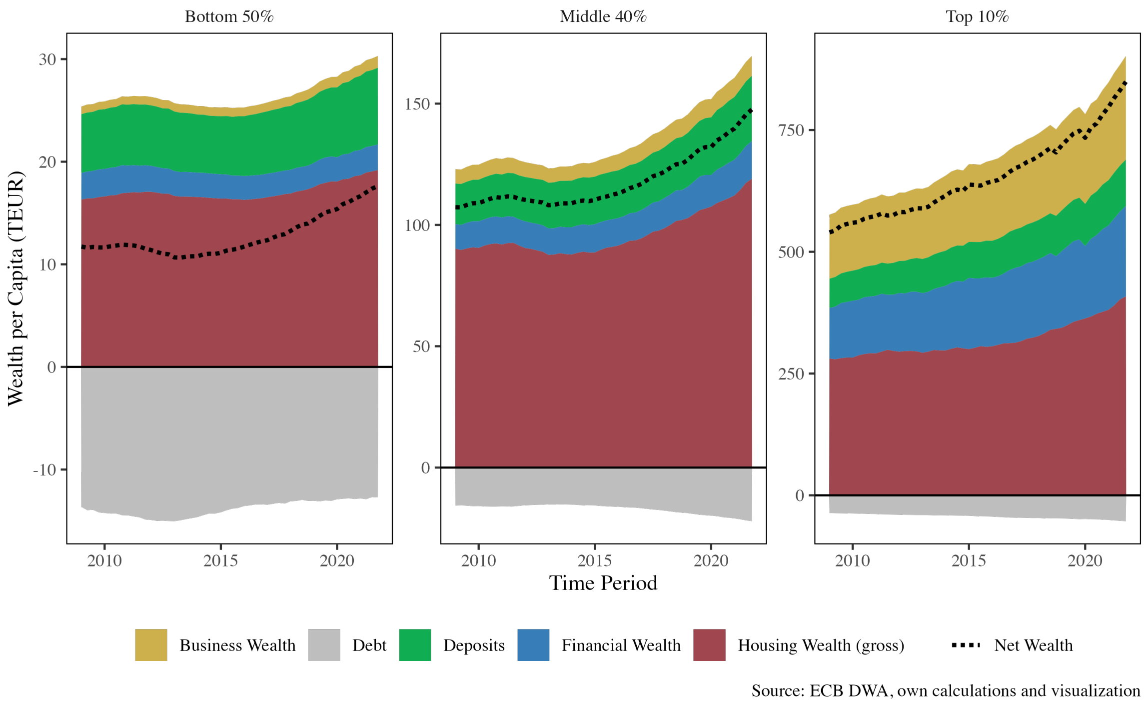

Figure 3: Differential Wealth Trends (Eurozone Average)

For Housing Price Data, the Residential Property Price Dataset from the Bank of International Settlement (BIS) is used (Scatigna, Szemere, and Tsatsaronis 2014). The dataset is widely used in cross country comparisons (i.e. Rünstler and Vlekke 2018) and includes quarterly time series for most developed countries in real terms.

Housing Prices in the Eurozone plateaud until 2015 and experienced a strong increase afterwards, as visible in Figure 4. This average marks strong differences in the individual member states. Southern European Countries like Spain, Italy and Greece experienced a devaluation after 2010, while many western and eastern european countries show strong increases in property price indices. Price Indices in Estonia and Luxemburg almost doubled in the observed timeframe, while they declined by 25 index points in Greece.

The next section lines out the econometric methodology to estimate the effect of these changes in valuation on wealth inequality.

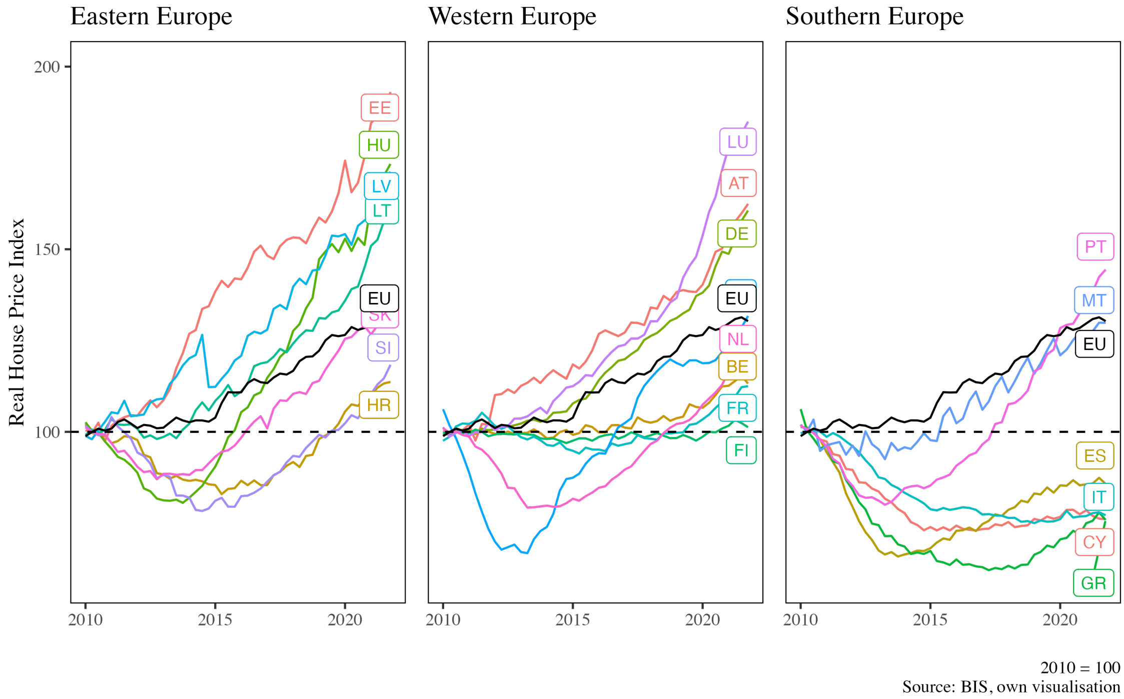

Figure 4: Residential Property Price Index

4 Empirical Strategy

As described above, different segments of the wealth distribution hold different portfolios, in size as well as in composition of asset classes. Their net wealth therefore reacts in distinct ways to identical changes in valuation of assets. This has a direct effect on the share of overall wealth held by the segment and consequently on general wealth inequality.

To estimate this response, a panel regression outlined in Equation 1 is estimated:

$$\Delta \log(\omega^g_{i,t}) = \beta_0 + \beta_1 \Delta \log(p^h_{i,t}) + \beta_2 \Delta \log(p^s_t) + \gamma_i + \delta_t + \epsilon_t \tag{1}$$

$\omega^g_{i,t}$ is the wealth share of a wealth group g (Bottom 50%, Middle 40%, Top 10%) in country i in quarter t. p^h describes the housing price index and p^s the stock market index. ϵ_t is an error term. Time and Unit Fixed Effects are denoted by δ_t and γ_i respectively. $\Delta \log$ is the first difference of the log, as in $\Delta \log(x_t) = \log(x_t) - \log(x_{t-1})$. The resulting estimates can be interpreted as the elasticity of the groups wealth share with respect to asset prices (Wooldridge 2013, p44).

A potential concern with this type of panel structure is spatial dependence. As the cross-section of countries is not randomly sampled, they are subject to common unobserved and observed disturbances, which potentially bias the standard errors of the parameter estimations. To adress this issue, the standard errors are computed using the spatial correlation consistent (SCC) method by Driscoll and Kraay (1998).

Table 2: Top 10% Panel Regression

	OLS Estimator			Mean Group Estimator	
	(1)	(2)	(3)	(4)	(5)
House Prices	-0.091***	-0.077***	-0.056	-0.055***	-0.057***
	(0.013)	(0.009)	(0.047)	(0.020)	(0.018)
Stock Prices		0.017***	0.027***		0.014***
		(0.007)	(0.009)		(0.004)
Unit Fixed Effects	No	Yes	Yes	-	-
Time Fixed Effects	Yes	No	Year + Quarter	Yes	No
N	860	860	860	860	860
R^2	0.071	0.087	0.076	0.443	0.313
Adj. R^2	0.013	0.062	0.050	0.408	0.269

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
OLS Estimators use the SCC Standard Errors by Millo (2017)

Another problem is the heterogeneity in responses subsumed under the parameter estimates in an Ordinary Least Squares (OLS) Regression. Due to differing portfolio compositions of the same wealth groups across Europe, β_1 and β_2 will not have the same slope in all countries and their estimates will not be able to explain the large variation.

To adress this, the parameters are estimated separately for each country. This allows the individual interpretation of the response to an identical price movement. In these regressions, the problem of heteroskedastic error terms due to the nature of the time series is adressed with the Newey and West (1987) standard error.

Additionally, the panel regression is extended with a mean group estimator. This estimator allows for heterogeneity in individual coefficients and averages them to obtain a common parameter estimate (Pesaran and Smith 1995). Time Fixed Effects are included in the computations by use of a demeaned mean group estimator (Coakley, Fuertes, and Smith 2006).

5 Results

Table 2 reports the results for the Top 10% Share. The first column includes time fixed effects, which absorb the stock prices due to the identical nature of the index in every country. Column 2 drops the time fixed effects, and includes unit fixed effects, while the third specification adds year and quarter fixed effects to control for seasonality. Column 4 and 5 present calculations using the Mean Group Estimator.

The top 10% wealth share decreases in response to house price increases. The estimates are consistently negative in all specifications and statistically significant, ranging from -0.091 in the first column to -0.057 in the last and preferred specification. A 10% increase in House Prices leads to approximately a half percentage point decrease in the top decile wealth share.

Table 3: Middle 40% Panel Regression

	OLS Estimator			Mean Group Estimator	
	(1)	(2)	(3)	(4)	(5)
House Prices	0.058***	0.036***	-0.010	0.033**	0.031*
	(0.012)	(0.009)	(0.040)	(0.015)	(0.016)
Stock Prices		-0.019**	-0.031***		-0.014***
		(0.008)	(0.009)		(0.005)
Unit Fixed Effects	No	Yes	Yes	-	-
Time Fixed Effects	Yes	No	Year + Quarter	Yes	No
N	860	860	860	860	860
R^2	0.027	0.049	0.034	0.388	0.258
Adj. R^2	-0.034	0.023	0.008	0.349	0.210

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
OLS Estimators use the SCC Standard Errors by Millo (2017)

Rising stock prices are found to have an effect in the opposite direction. Estimates for the elasticity of the top decile wealth share range from 0.027 in the third specification and 0.014 in the last. An increase in stock prices increase the share of wealth hold by the Top 10%, while an increase in house prices compresses the share.

Contrasting effects are identified for the Middle 40% (Table 3). The elasticity of their wealth share with respect to house prices is positive, ranging from 0.058 in Model (1) to 0.031 in the preferred Model (5). An outlier is the estimate for the specification with Year and Quarter Fixed Effects, which is however not statistically significant. Stock prices on the other hand have a statistically significant negative effect on the middle segment of the wealth distribution. A 10% increase in stock prices leads to a decline in the share of net wealth of approximately 0.14 to 0.31 percentage points, depending on the specification.

The Bottom half of the wealth distribution exhibit similar effects to the middle 40%. TODO

The OLS estimates for all wealth groups display a low coefficient of determination due to the heterogeneity in the data. Using the Mean Group Estimator, the models can explain above 20% of the variance in the standard configuration and above 30% in the demeaned configuration for all groups.

Table 4: Bottom 50% Panel Regression

	OLS Estimator			Mean Group Estimator	
	(1)	(2)	(3)	(4)	(5)
House Prices	0.481***	0.393***	0.189	0.212	0.253
	(0.109)	(0.062)	(0.175)	(0.192)	(0.179)
Stock Prices		-0.028*	-0.051		-0.029
		(0.016)	(0.033)		(0.022)
Unit Fixed Effects	No	Yes	Yes	-	-
Time Fixed Effects	Yes	No	Year + Quarter	Yes	No
N	860	860	860	860	860
R^2	0.065	0.056	0.043	0.361	0.340
Adj. R^2	0.006	0.030	0.016	0.320	0.298

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
OLS Estimators use the SCC Standard Errors by Millo (2017)

6 Discussion

7 Conclusion

Appendix

Appendix A: Descriptive Table

The following Table presents the full country names and the net wealth per Capita in Euro in 2022.

Table 5: Descriptive Table with ISO 2 Codes

Name		Time Period		Net Wealth (EUR p.C)	
ISO2	Full Name	Start	End	Mean	Median
AT	Austria	2010 Q4	2024 Q3	213570	148200
BE	Belgium	2010 Q3	2024 Q3	254570	288469
CY	Cyprus	2010 Q3	2024 Q3	200490	358090
DE	Germany	2011 Q1	2024 Q3	221080	118634
EE	Estonia	2013 Q2	2024 Q3	94850	92574
ES	Spain	2011 Q4	2024 Q3	175130	202247
FI	Finland	2009 Q4	2024 Q3	165160	129728
FR	France	2009 Q4	2024 Q3	198810	175016
GR	Greece	2009 Q3	2024 Q3	89890	131323
HR	Croatia	2017 Q2	2024 Q3	39023	40130
HU	Hungary	2014 Q3	2024 Q3	73370	86680
I9	Eurozone	2009 Q1	2024 Q3	182787	152275
IE	Ireland	2013 Q2	2024 Q3	251940	357059
IT	Italy	2010 Q4	2024 Q3	180390	158171
LT	Lithuania	2016 Q4	2024 Q3	75990	69192
LU	Luxembourg	2010 Q4	2024 Q3	606820	759153
LV	Latvia	2017 Q3	2024 Q3	36900	27821
MT	Malta	2010 Q4	2024 Q3	270420	414803
NL	Netherlands	2014 Q4	2023 Q4	396990	215032
PT	Portugal	2010 Q2	2024 Q3	114100	125440
SI	Slovenia	2010 Q4	2024 Q3	119880	160980
SK	Slovakia	2010 Q3	2024 Q3	56080	101871

Appendix B: Portfolio and Asset Distribution across Europe

The following figures describe Asset Distribution as well as Portfolio Composition across Europe using the latest quarter of 2021.

Figure 5: Asset Distribution among Deciles

Figure 6: Portfolio Composition of Deciles

Appendix C: Time Series Regression Tables

Table 6: Top 10%: Individual regressions

	AT	BE	CY	DE	EE	ES	FI	FR	GR	HR	HU
House Prices	-0.078***	-0.101*	0.032	-0.095	-0.137***	-0.198***	-0.053	-0.134***	-0.037	-0.090***	-0.112*
	(0.021)	(0.057)	(0.038)	(0.068)	(0.033)	(0.032)	(0.040)	(0.022)	(0.031)	(0.021)	(0.058)
Stock Prices	0.013*	0.014**	-0.005	0.012	-0.010	0.029***	0.021***	0.032***	0.034***	-0.010	0.011
	(0.007)	(0.006)	(0.012)	(0.009)	(0.018)	(0.011)	(0.006)	(0.006)	(0.009)	(0.008)	(0.023)
N	44	45	45	43	34	40	48	48	49	18	29
R^2	0.214	0.136	0.016	0.090	0.196	0.491	0.138	0.366	0.137	0.044	0.069
Adj. R^2	0.176	0.095	-0.031	0.045	0.144	0.463	0.100	0.337	0.100	-0.084	-0.002

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Standard errors estimated following Newey and West (1987)

	EU	IE	IT	LT	LU	LV	MT	NL	PT	SI	SK
House Prices	-0.084**	-0.107	-0.069	0.036	-0.058**	0.095***	-0.051	0.189***	-0.072***	-0.139***	0.010
	(0.035)	(0.069)	(0.073)	(0.071)	(0.027)	(0.027)	(0.037)	(0.042)	(0.027)	(0.028)	(0.086)
Stock Prices	0.019***	0.027	0.050***	-0.032**	0.006	-0.013	0.019	0.046***	0.023***	0.008	0.013
	(0.005)	(0.023)	(0.009)	(0.014)	(0.006)	(0.013)	(0.021)	(0.007)	(0.008)	(0.010)	(0.020)
N	51	34	44	20	44	17	44	28	46	44	45
R^2	0.301	0.072	0.298	0.139	0.111	0.246	0.042	0.333	0.165	0.291	0.011
Adj. R^2	0.272	0.012	0.264	0.038	0.067	0.139	-0.004	0.279	0.127	0.256	-0.036

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Standard errors estimated following Newey and West (1987)

Table 7: Middle 40%: Individual regressions

	AT	BE	CY	DE	EE	ES	FI	FR	GR	HR	HU
House Prices	0.114***	0.107	-0.074***	0.115	0.121***	0.085***	0.001	0.128***	-0.024	0.118**	0.076
	(0.037)	(0.069)	(0.023)	(0.100)	(0.038)	(0.028)	(0.047)	(0.033)	(0.036)	(0.051)	(0.074)
Stock Prices	-0.020	-0.016*	-0.001	-0.022	-0.002	-0.031***	-0.032***	-0.034***	-0.032***	0.023	-0.017
	(0.013)	(0.009)	(0.008)	(0.015)	(0.024)	(0.010)	(0.007)	(0.008)	(0.007)	(0.016)	(0.029)
N	44	45	45	43	34	40	48	48	49	18	29
R^2	0.182	0.098	0.090	0.085	0.147	0.266	0.171	0.294	0.155	0.030	0.027
Adj. R^2	0.142	0.055	0.047	0.039	0.092	0.227	0.134	0.263	0.118	-0.099	-0.048

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Standard errors estimated following Newey and West (1987)

	EU	IE	IT	LT	LU	LV	MT	NL	PT	SI	SK
House Prices	0.085*	0.022	0.032	-0.095	-0.007	-0.046	-0.010	-0.112*	0.002	0.094***	-0.057
	(0.047)	(0.025)	(0.094)	(0.082)	(0.032)	(0.052)	(0.017)	(0.054)	(0.039)	(0.025)	(0.082)
Stock Prices	-0.023***	-0.016	-0.066***	0.046**	-0.016**	0.024	-0.003	-0.021	-0.036***	-0.005	-0.013
	(0.007)	(0.021)	(0.012)	(0.019)	(0.007)	(0.017)	(0.011)	(0.014)	(0.012)	(0.009)	(0.018)
N	51	34	44	20	44	17	44	28	46	44	45
R^2	0.262	0.030	0.271	0.191	0.068	0.078	0.003	0.104	0.104	0.179	0.037
Adj. R^2	0.232	-0.033	0.235	0.096	0.022	-0.054	-0.045	0.032	0.062	0.139	-0.009

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Standard errors estimated following Newey and West (1987)

Table 8: Bottom 50%: Individual regressions

	AT	BE	CY	DE	EE	ES	FI	FR	GR	HR	HU
House Prices	0.357**	0.282***	0.169	0.756***	0.579***	0.696***	0.649***	0.293***	0.261***	0.220***	0.433***
	(0.161)	(0.104)	(0.123)	(0.203)	(0.208)	(0.105)	(0.136)	(0.078)	(0.088)	(0.070)	(0.084)
Stock Prices	-0.026	-0.035**	0.025	0.020	0.079	-0.041*	0.006	-0.051***	-0.003	-0.022	-0.013
	(0.027)	(0.016)	(0.027)	(0.046)	(0.080)	(0.022)	(0.015)	(0.018)	(0.030)	(0.024)	(0.043)
N	44	45	45	43	34	40	48	48	49	18	29
R^2	0.204	0.117	0.045	0.215	0.189	0.596	0.277	0.257	0.248	0.183	0.330
Adj. R^2	0.165	0.075	-0.000	0.176	0.137	0.574	0.244	0.224	0.216	0.074	0.278

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Standard errors estimated following Newey and West (1987)

	EU	IE	IT	LT	LU	LV	MT	NL	PT	SI	SK
House Prices	0.283***	2.188**	0.257*	0.056	0.400***	-0.856***	0.192**	-2.713***	0.681***	0.227***	0.162
	(0.074)	(0.849)	(0.134)	(0.128)	(0.063)	(0.125)	(0.077)	(0.620)	(0.100)	(0.045)	(0.097)
Stock Prices	-0.028	-0.003	-0.051***	0.037*	0.020	0.016	-0.043	-0.471**	-0.025	-0.021	-0.010
	(0.019)	(0.244)	(0.018)	(0.020)	(0.017)	(0.065)	(0.033)	(0.171)	(0.022)	(0.018)	(0.032)
N	51	34	44	20	44	17	44	28	46	44	45
R^2	0.226	0.137	0.234	0.078	0.176	0.675	0.197	0.255	0.541	0.412	0.057
Adj. R^2	0.193	0.081	0.197	-0.031	0.136	0.628	0.158	0.195	0.519	0.383	0.013

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Standard errors estimated following Newey and West (1987)

Appendix D: Reverse Causality Regression

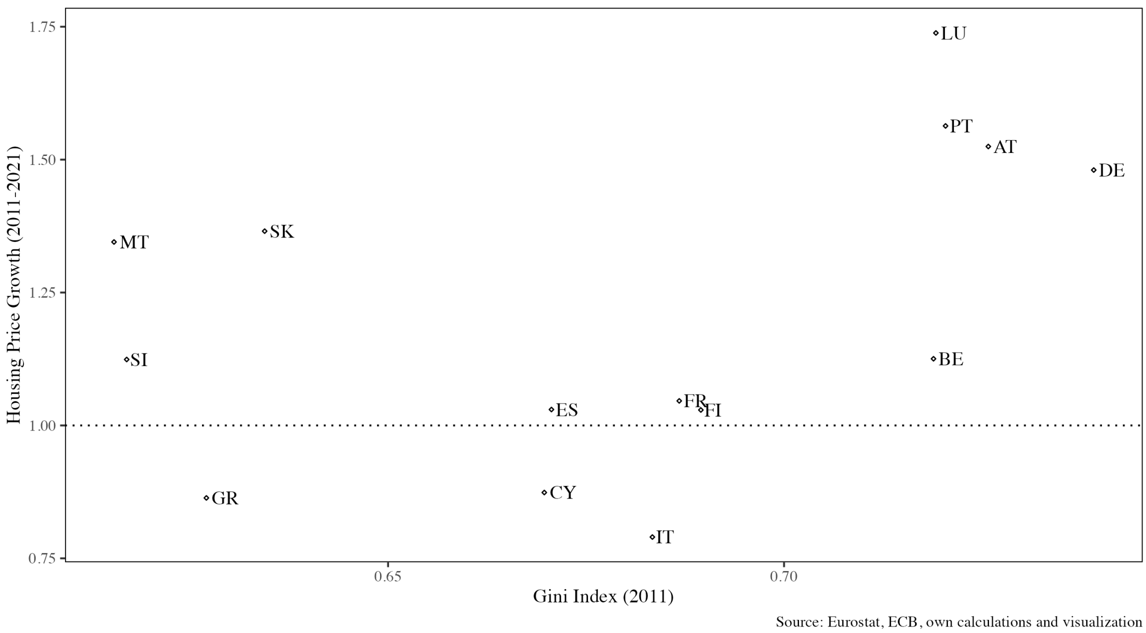

Figure 7: Inequality and Housing Price Growth

../output/appendix/table_hp_ineq.tex

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