SECTORIAL HOLDINGS AND STOCK PRICES: THE HOUSEHOLD-BANK NEXUS

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Abstract

We analyze the evolution and price implications of aggregate sectorial holdings of stocks, using detailed information on the universe of publicly traded stocks in the euro area. We document that: i) households' (HH) direct holdings represent a higher fraction of total ownership in domestic bank stocks than in non-financial corporation (NFC) stocks; ii) HH holdings of stocks increase (decrease) following a decline (increase) in the stock price, especially for domestic bank stocks; and iii) an increase in domestic HH holdings is followed by future (persistent) increases in the price of NFC stocks, but not for bank stocks. Moreover, during equity issuances, an increase in the share of domestic HH holdings is followed by a future (persistent) decrease in the stock price of bank stocks, but not for NFC stocks. Our results are consistent with HH being liquidity providers in the stock market, and at the same time subject to negative information asymmetries. We argue that this latter effect is more prevalent in domestic bank stocks than in NFC given the close relationships between HH and banks.

Keywords: household ownership, stock prices, equity issuance, banks, non-financial corporations, liquidity provision, informational asymmetries.

JEL classification: G11, G14, G21, G50.

Resumen

Este trabajo analiza la evolución y las implicaciones en el precio de las acciones de las tenencias de acciones por parte de distintos sectores. Para ello se utiliza información detallada sobre el universo de acciones cotizadas de la zona del euro. Se encuentra lo siguiente: i) los hogares cuentan con un mayor peso en el accionariado de los bancos que en el de las empresas no financieras; ii) las tenencias de acciones de los hogares aumentan (disminuyen) cuando cae (sube) el precio de las acciones, especialmente cuando se trata de las acciones de bancos nacionales, y iii) un aumento de las tenencias de acciones de los hogares domésticos es seguido por incrementos persistentes del precio de las acciones de las empresas, mientras que esto no ocurre para los bancos. Además, tras una emisión de acciones, un aumento de la participación de los hogares en el accionariado de los bancos es seguido por una caída del precio de estas acciones, mientras que esto no ocurre en las empresas. Nuestros resultados sugieren que los hogares actúan como proveedores de liquidez en los mercados de acciones, si bien al mismo tiempo están sujetos a asimetrías de información. Este último mecanismo puede ser más relevante cuando los hogares compran las acciones de los bancos, dadas las estrechas relaciones entre las entidades y los hogares.

Palabras clave: participación de los hogares en el mercado de acciones, precio de las acciones, emisiones de acciones, bancos, empresas no financieras, provisión de liquidez, asimetrías de información.

Códigos JEL: G11, G14, G21, G50.

1. Introduction

What are the roles of different sectors when investing in the stock market? Do households play a different role in bank than in non-financial corporation stocks? Households' direct holdings of stocks represent a sizeable part of the stock market. According to the Securities Holdings Statistics by Sector (SHSS), euro area households' (HH) direct holdings of stocks accounted for 10% of total stock market capitalization of euro area firms as of the end of 2017.[1] In order to understand the role of HH direct investment in the stock market, we analyze (aggregate) trading behavior of HH, and that of other sectors, and its implications for future price developments. In doing so we highlight the different patterns present in bank stocks with respect to non-financial corporations (NFC), as well as between domestic and foreign investors.

We document that in our sample: (i) bank stocks represent a larger fraction of direct holdings for HH than for other market participants, especially for bank stocks with which the HH shares residence (domestic); (ii) HH increase their direct holdings after price declines in a given stock, especially for domestic bank stocks; (iii) after an increase in (domestic) HH direct ownership in a given NFC stock the stock price increases, but bank stock prices do not; (iv) in equity issuances, an increase in (domestic) HH direct ownership is followed by future price declines in bank stocks, but not in NFC stocks.

Our interest in HH direct investment is based on two facts. First, HH direct holdings are large and, as suggested by recent events (such as the "GameStop short squeeze", IMF (2021)), can have implications in the stock market if the market is not fully efficient. Second, HH are a special type of investor when compared to other participants in the stock market (institutional investors). HH have different liquidity needs than other participants –liquidity channel-, but also have lower financial sophistication -information channel–. Given the close relationships that HH have with banks with respect to financial investment decisions (as banks have close ties with their clients), we focus on documenting the existing differences between HH and other sectors' trading patterns when trading bank versus NFC stocks. These differences allow us to highlight the potential frictions that HH face in the stock market, and their aggregate price implications.

To perform our analysis, we use data from the SHSS. This dataset identifies aggregate sectorial holdings for each publicly traded security in the euro area on a

[1] HH holdings refer to the market value of listed, ordinary stocks of the euro area in HH portfolios.

quarterly basis. One of the advantages is that it identifies aggregate HH direct holdings, as well as those of other sectors such as mutual funds (MF), insurance and pension funds (IPF), banks or NFC. In doing so it identifies the residence of the holder, allowing us to differentiate between domestic and foreign investors for each investor type. To the best of our knowledge, this is the first study that, using the universe of holdings of publicly traded stocks in Europe for the period 2009-2017, explores the dynamic relationships between price developments and aggregate stock holdings of HH and other sectors, and documents stark differences between domestic and foreign HH (as well as other sectors) when trading bank or NFC stocks.

Analyzing HH direct holdings and comparing them to other sectors is relevant as HH can have a different role than other market participants in the stock market. Previous research has shown that HH can play the role of liquidity providers in the stock market and invest when prices are low due to liquidity tensions (e.g. Kaniel et al. 2008) –liquidity channel-.[2] However, HH have also been shown to be less sophisticated and less informed than other participants in the stock market (Barber and Odean, 2000 and Barber et al. 2009) and, hence, can be slower and less efficient in incorporating new information about stock fundamentals –information channel-. This latter effect can be more relevant for domestic investors, as less sophisticated investors have been shown to have a higher home bias (Karlson and Norden 2007). Hence, the information channel can make (domestic) HH more prone to buy stocks that, due to a negative information shock which HH do not fully incorporate, have a decline in their future price. If such information is not instantaneously absorbed in the stock price, it will continue to decline in the future up to the moment in which the information is completely incorporated.

If HH are subject to a (negative) information channel, HH can act not only as liquidity providers, buying when the price goes down because of liquidity tensions and obtaining positive profits when such tensions cease to exist, but can also be subject to a "lemons" problem, buying when the price goes down because some (better informed) market participants are receiving negative signals about the stocks' fundamentals and are selling the stock. In such case HH would make a loss on such trade.

We argue that the close relationship that banks have with their clients (HH), to which they offer advice and special conditions if they invest in their own stocks (Hoechle

[2] See Timmer (2018) for evidence on how liquidity needs between institutional investors (investment funds and pension funds or insurance companies) affect buying or selling debt securities after a price decline.

et al. 2018), can make the informational asymmetry higher in bank stocks than in NFC stocks. This can be more relevant when bank and holder share nationality, i.e. domestic banks, as it is more probable that such investors share a relationship with the bank.

This study provides evidence consistent with both a liquidity and informational channel in HH stock investing. Our evidence suggests that informational asymmetries can be especially relevant in the case of domestic bank stocks, which we argue can be related to the close relationships between HH and banks in making financial decisions.

In line with the close relationship that HH and banks have, we document in Section 2 that the weight of HH direct holdings in bank stocks is higher than in NFC stocks, and that this is especially the case when banks and HH share the same residence (domestic banks), which we argue is a proxy of the closeness of such relationship. At the end of 2017 HH direct holdings represented 13.8% of the market capitalization of euro area bank stocks, versus 9.6% in the case of NFC stocks. This "bias" towards bank stocks is more prominent when we split holdings of the HH sector on the basis of its residence. Direct holdings of HH that share residence with the headquarter of banks (exposures of domestic HH to domestic banks) represented 13.0% of the market capitalization of the euro banking sector as of the end of 2017 (8.7% in the case of NFCs). This percentage falls significantly to 0.8% for foreign HH (HH that do not share residence with the bank) and, importantly, is similar to holdings of NFC stocks by foreign HH, which is 0.9%.

After documenting the differences in aggregate stock holdings of different (domestic and foreign) sectors, in Section 4 we analyze the aggregate trading patterns of HH (and other sectors) following a decline (increase) in stock prices, and their differences in bank versus NFC stocks. We also analyze if domestic investors in each given sector buy more (or less) stocks after a price decrease than foreign investors in such sector. We then analyze in Section 5 if changes in (domestic) HH holdings (or those of any other sector) are related to future price changes, studying if there are differences in this relationship in bank versus NFC stocks. We analyze both normal times and also periods of equity issuances, as such periods are ones of high informational asymmetries between the firm and its investors (Myers and Majluf, 1984 and Miller and Rock, 1985).

Regarding our first set of results, we document that HH, as well as NFC, increase (reduce) their holdings in a given stock the quarter after a drop (increase) in the price of the stock. On the other hand, institutional investors, mainly MF and banks, reduce

(increase) their holdings the quarter after a drop (increase) in the stock price. We find that this pattern of HH direct investment is more relevant in bank stocks than in NFC stocks and that such pattern is driven by domestic HH and not by foreign HH. In particular, a decline of one standard deviation in NFC prices (-15%) leads to a modest increase of domestic HH holdings of 0.5%. The change in holdings is five times greater for the same shock in bank stock prices. Similarly, we also document the existence of a differential behavior of domestic vs foreign NFC holders in the case of bank stocks. Finally, we show how the reaction to price decreases by domestic HH and NFC in bank stocks is four times larger than to price increases. This is not the case for other sectors such as IPF, MF or banks. This result highlights that during periods of negative bank shocks (which translate into stock prices declines) there is an increase in the holdings of domestic HH and NFC (and not of banks, IPF or MF).

Concerning our second set of results, we find that an increase in the share of domestic HH holdings predicts future permanent increases in NFC stock prices. This result is in line with the liquidity provision mechanism present in Kaniel et al. (2008) among others. The argument is as follows: HH act as liquidity providers in moments of price pressure that drive the stock price down and buy the stock at a depressed price. Once the price pressure lifts HH benefit from the reversal of such stock price to its original fundamental price. Interestingly, we find that this is not the case in bank stocks, as we document that an increase in the share of domestic HH holdings does not predict future increases in bank stock prices. This latter result suggests a potential negative information channel that domestic HH can be subject to when buying (bank) stocks – information channel-. Consistently with domestic HH having a closer link with banks than foreign HH, we find that an increase in the share of foreign HH holdings predicts an increase, and not a decline, in bank stock prices in the future.

Finally, in order to further analyze the relevance of the potential negative informational asymmetries that HH can be subject to when trading stocks, we study equity issuances. We do so as equity issuances are situations in which the asymmetries of information between investors and the firm managers can heighten. Our last set of results documents that when during an equity issuance of bank stocks the share of domestic HH holdings increase, this is followed by future persistent price declines in the following quarters. In particular, for follow-on (seasoned) issuances of bank stocks an increase in HH holdings of one standard deviation leads to a decline in the price per share of 15%

(on average) four quarters after the issuance, and this effect is persistent.[3] This finding is consistent with HH being less informed than other investors about the underlying reason of the equity issuance and, therefore, the underlying quality of the stock -information channel-. In this respect, we document that these aforementioned results are only present in equity issuances of bank stocks and not in equity issuances of NFC, and only present when the increase is in domestic (and not foreign) HH share.

We end our analysis by performing, in Section 6, several tests that ensure the robustness of our results. We first perform our analysis undergoing a seemingly unrelated regression, instead of an OLS, procedure. We then restrict our sample to focus only on (i) bank and NFC stocks that are of similar (large) market value and (ii) periods in which the aggregate price trends of both bank and NFC stocks are also similar. We find that our results hold in all these robustness checks.

Our novel findings highlight the aggregate implications of underlying frictions in the stock market. Our study suggests that the HH sector plays a liquidity role in the stock market, and at the same time is subject to informational asymmetries, which are larger in the case of domestic bank stocks. We argue that this can have non-trivial effects for the economy. By providing liquidity in the market, HH can help ameliorate negative feedback loops in stock prices. However, this can come at a financial cost for HH if such prices do not revert, which we find is more prevalent in bank stocks. Also the fact that domestic HH holdings increase during distress situations (stock price declines), and that banks' equity issuances expose HH to informational asymmetries, can affect regulators' incentives and decision making in relevant ways.

1.1. Related literature

This study is related to two strands of research. The first strand of literature comprises those studies analyzing the stock trading behaviors of different agents. We contribute to this literature by being the first ones that analyze aggregate direct HH stock holdings and document the important differences that exist between the buying and selling patters in bank and NFC stocks and in domestic and foreign investors of each holder-sector.

Keniel et al (2008) provides evidence on how individual investors buy stocks following price declines in the previous month and how, in doing so, they obtain abnormal

[3] By focusing on price performance the quarters after the issuance takes place we avoid possible mechanical price dilution effects that occur during the quarter in which the issuance takes place.

returns. They argue that this evidence is consistent with individual investors being risk averse and playing a liquidity role in the stock market. Timmer (2018) provides evidence on how institutional investors subject to liquidity pressures are more prone to sell bonds which are bought by institutions with lower liquidity pressures obtaining a profit in doing so. Our results complement the ample literature on trading behaviour of different types of investors, by providing evidence on the relevance of HH direct holdings and showing the different patterns that occur in bank stocks and NFC stocks as well as between foreign and domestic investors. We argue that our novel findings are also in line with the presence of asymmetries of information, and not only liquidity provision, being especially relevant for HH trading in bank stocks.

Evidence in Gibson et al. (2004) and Chemmanur et al (2009) highlights that institutional investors trading during an equity issuance is a predictor of future stock performance. Such studies conclude that institutional investors, by being more informed than other investors, are able to obtain positive returns during equity issuances. We add to this previous results by providing relevant information on other important agents in the stock market, HH, and showing that increases in domestic HH ownership patters are predictors of future negative stock performance for banks but not for NFC following an equity issuance.

The second strand of literature related to our study is the one analyzing the important role that banks have in household financial decisions. We complement this literature by providing evidence of the aggregate effect of such relations. We show that HH show different trading patterns when trading bank stocks than NFC stocks and that this is especially true when they share residence with the bank. Hoechle et al. (2018) shows evidence consistent with bank financial advisors favoring the interest of the bank when advising clients, and these advices resulting in worse results for the client. Golez and Marin (2015) find similar incentives problems related to trading decisions of bank affiliated-funds. We show evidence consistent with these incentive problems having a (negative) impact for domestic HH trading behaviour in bank stocks.

The remainder of the paper is structured as follows. Section 2 presents the data sources used for our analysis as well as descriptive statistics of our variables of interest. Section 3 details our estimation methodology. Section 4 presents the results of our estimations related to the evolution of sectorial holdings following a price change and Section 5 presents the results regarding the evolution of stock prices after changes in

sectorial holdings. Section 6 performs different robustness checks that show how our main results are robust to different empirical specifications and sample selections and finally section 7 presents our concluding remarks.

2. Data

This section provides in section 2.1 a description of the data sources used in our analysis, and in section 2.2 descriptive statistics of the variables used in our study differentiating between bank stocks and NFC stocks.

2.1. Data sources

Our dataset is constructed using the SHSS, a large repository of holdings of securities collected by the Eurosystem. The SHSS covers, on a quarterly basis, aggregate holdings of securities of institutional (e.g. mutual funds, insurance companies, pension funds) and retail sectors (mainly, HH and NFC) based in euro area countries and in the rest of the world, albeit with limitations for this latter case. Holdings are directly reported to the Eurosystem or collected via custodians, which ensures a comprehensive coverage, particularly from Q4 2013 onwards.[4] The main advantage of this database is that holdings data is available on a security-by-security basis, allowing for a granular view of stocks holdings over time. In addition, the SHSS collects some characteristics of securities, such as their prices or market capitalization.

Our main interest is in holdings of common stocks issued by euro area counterparties. To obtain this information, we use the equity module of the SHSS, which includes common stocks as well as other equity instruments (e.g. preferred shares). We focus on common stocks and match our sample with the Centralised Securities Database (CSDB) –also run by the Eurosystem-, which contains a richer set of attributes per security. The final sample comprises holdings per institutional sector and country of 3,889 stocks from Q1 2009 to Q4 2017, of which 3,300 are NFC stocks, 131 are bank stocks and 458 are shares issued by non-bank financials.[5] Our set of stocks comprise all

[4] Before Q4 2013 there are some gaps in holdings data in certain countries. When not reliable, we have dropped these holdings from our dataset. Holdings coverage is almost complete after that date. For instance, Fache and Rodríguez (2018) show that in Q4 2015 the coverage of SHSS holdings reached nearly 93% of that recorded in the euro area accounts. It is important to note that such study refers to holdings of equity and debt instruments, while we focus on euro area common stocks.

[5] When compared to the Securities issues statistics (SEC) of the European Central Bank, our sample covers on average 93% of the total market capitalization of listed shares in the euro area.

listed shares, including delisted stocks provided that they were active at some point during the sample period. Finally, for each common stock the CSDB allows to identify periods when new shares are issued. For this subset of periods, we differentiate follow-on (seasoned) issuances from other issuances (e.g. scrip dividends) by merging our data with that of the Deal Screener of Refinitiv.

2.2. Holdings data

2.2.1. Holdings at a glance

Table 1 summarizes holdings of euro area common stocks as of the end of 2017, which is the last observation in our dataset. Holdings are broken down into issuer sectors (rows) and holder sectors (columns). There are two main issuer categories, financials, which includes the subsegment of banks, and NFC.[6] Holders are euro area institutional sectors and are divided into HH (individual investors), NFC, Banks, insurance and pension funds (IPF), mutual funds (MF), and "Other". "Other" comprises all remaining categories (e.g. holdings of the public sector or direct investment of financial holdings, among others).[7] We also show holdings of investors based in the Rest of the World (RoW). It is important to highlight that for this sector data is less reliable given the lower informational requirements for non-European investors.[8] The table is split into three panels. Panel A collects the distribution of holdings in EUR bn. Panels B and C describe the weight of holdings in total market capitalization as well as the distribution of holdings per sector, respectively.[9]

Table 1 shows that HH are major holders of euro area common stocks, especially in the case of banks. HH direct holdings accounted for EUR 753 bn in Q4 2017 (Panel A), representing 10.0% of the total market capitalization of our set of common stocks (Panel B). Interestingly, while HH ownership stands at 9.6% in the NFC segment, it reaches 13.8% for banks, being this share much higher than that of NFC and other euro

[6] In this quarter, we cover 95.1% of the market capitalization of all euro area common stocks, according to ECB´s SEC statistics. Holdings coverage, or the ratio of holdings to market capitalization, is 87.8% for financials (95.6% in the case of banks stocks), and 90.7% for NFC stocks.

[7] When calculating aggregate holdings of euro area HH, we consider French non-profit institutions serving households (NPISH) within the French HH sector as we cannot separate HH holdings from NPISH holdings in this country.

[8] Holdings of the RoW are subject to the so-called custodian bias as the client of the non-euro area custodian that reports holdings may be another custodian, with clients in the euro area.

[9] Given the incomplete disclosure of RoW our rows in Panel B do not add up to 100%.

area institutional investors such as Banks and IPF, and comparable to that of MF.[10] This result barely changes when we consider holdings in previous quarters (see Figures 1.A to 1.C). Although not shown in the table, we note that HH ownership of banks is very different across jurisdictions. For instance, in Spain, where banks predominantly focus on retail activities, the share of HH in total banks´ equity more than doubles that of their European peers (25.9%).

The preference of HH for bank stocks is further confirmed when looking at each sector's investment portfolio, i.e. the distribution of holdings per equity segment (Table 1 Panel C). In Q4 2017, holdings in bank stocks represented 13.4% of the portfolio of common stocks of HH. Only the allocation of Banks holders and "Other" holders towards these stocks is higher, which could be due to holdings of own stocks in the former case, and the role of strategic investors and semi-public entities in the so-called "Other" sector.[11] In Table A1 in the appendix, we provide further evidence showing that this bias towards bank stocks is fundamentally driven by domestic investors, especially HH. Interestingly, the allocation towards banks is much higher for domestic HH than for non-domestic HH. For domestic HH banks represent 14.0% of their direct holdings versus 7.9% for non-domestic HH (1.8 times more -Table A1 Panel C-), while for domestic HH NFC stocks represent 75.9% of their portfolio versus 69.3% for non-domestic HH (1.1 times, -Table A1 Panel C-)

A further analysis of HH ownership reveals that HH share is not always higher in banks than in NFC stocks. Figure 2 shows the (average) share of HH in the two types of common stocks by quintiles of the distribution of the market capitalization of banks (as before, data refers to the last data point –Q417-). In the first quintile, which concentrates 53% of all NFC (NFC are on average smaller than banks), HH ownership is higher in this sector than in financial companies. As the market capitalization of companies grows, HH ownership diminishes in the case of NFC, while in banks this trend is less clear. It is relevant to note how in the second, fourth and fifth quintiles, the share of HH becomes

[10] The share of the RoW in the market capitalization of euro area stocks stands at 37%, or 41% of total holdings in the SHSS. This is similar to the documented by Fache and Rodríguez (2015) for quoted shares (which includes common stocks and other types of shares) using this same database. Holdings data in that work refers to Q4 2013.

[11] For illustrative purposes, Table A1 shows holdings information differentiating between domestic and non-domestic holders. The main messages of this section hold. In particular, the allocation of domestic HH towards bank stocks is higher than that of NFC, IPF and MF holders.

more important in banks than in NFC. For illustrative purposes, a histogram depicting the complete distribution of HH ownership in the two stock types is presented in Figure 3.[12]

Overall, the aggregate size of HH exposures suggests that the trading behavior of this sector might be relevant in driving price developments in stocks. On the other hand, the role of HH could be different in banks than in NFC given the concentration of HH holdings in the former stocks, and the ties of retail customers with their banks.

2.2.2. Summary statistics

Table 2 and 3 summarize the main variables of interest for the empirical analysis.

Table 2 describes trading behavior variables and price changes for each holder: *netbuy* and *return*. *Netbuy* is the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level (we multiply this variable by 100 for expositional purposes). *Return* stands for the lagged return of the stock (its price change in the previous quarter). We focus on five holder types, HH, NFC, Banks, IPF and MF, and two issuer or equity segments, banks and NFC.[13] Holders are shown in columns, while issuers in rows. Panel A refers to the sample of Banks, Panel B to NFC, and Panel C to Banks and NFC.

The number of observations is larger for HH than for other holders as there are more groups of this type of investor (more countries of residence). Except for IPF holders, *netbuy* is higher in banks than in NFC issuers, i.e. holdings increase (on average) more when investors trade bank versus NFC securities. *Netbuy* is also higher in HH than in other holders. It is also relevant to note that the standard deviation of *netbuy* is pronounced across firms and holders.[14]

Table 3 focuses on domestic HH (those who invest in securities of their own country) and examine changes in ownership and future price performance. $\Delta dshare$ is

[12] Our main results control for stock fixed effects which ameliorate concerns regarding differences in unobservable characteristics among stocks. In order to further analyze possible comparability issues we analyze different subsets of stocks in section 6.2.

[13] The institutional sectors in this study (Banks, IPF and MF) are the same as those in Timmer (2018)

[14] We note that netbuy is higher than zero for all holders. This happens for different reasons. First, netbuy is positively skewed, and positive changes in holdings are, on average, slightly higher than negative changes (which increases the mean of *netbuy* above zero). Second, *netbuy* tends to be much higher than zero in periods in which the number of shares issued augments (within the same firm). Excluding these periods (14% of total observations), the mean of *netbuy* is closer to zero (and even negative for bank holders). In the empirical part, we have performed some exercises (available upon request) to ensure that our results are not affected by these periods. Finally, we note that we do not know whether the RoW is a net buyer of net seller of securities as holdings data is less reliable for this sector.

the percentage change in the share of domestic HH ownership per security, being the share the ratio between the number of shares held by domestic HH to the total number of shares. Future price performance is the cumulative change in the log of prices at future horizons. For instance, in the second column of this panel, $\Delta Price_{(t+1)}$ reflects price changes between quarter t+1 and t, while in the third column $\Delta Price_{(t+2)}$ takes the cumulative price change between quarter t+2 and t. $\Delta Price_{(t+8)}$, in the final column, is the cumulative price change between quarter t+8 and t, or two years after.

The mean value of $\Delta dshare$ is slightly positive for the full sample (Panel C), being somewhat lower for banks (Panel A) than for NFC (Panel B). With regards to future returns, future price changes are (on average) positive in NFC but negative for banks stocks. The underperformance of banks is expected as our sample period (2009-2017) covers the financial and the sovereign crisis, when banks stocks were severely hit.[15] Standard deviations are large, particularly for longer horizons, and similar between the two firm types.

3. Empirical specification

This section presents our empirical framework. We first discuss our strategy to analyze the evolution of sectorial stock holdings following a price change, section 3.1. We then discuss our strategy related to the implications of sectorial ownership on future stock price developments, section 3.2.

3.1. Sectorial stock holdings and past price evolution

In order to analyze how different sectors behave following changes in the price of a given stock, we follow an identification strategy similar to that of Abassi et al (2016). Our objective is to identify which sectors of the economy buy or sell a given stock following a price increase and if the pattern is the same for domestic and foreign investors in each sector.

We first run the following set of regressions for each holder-sector:

$$Netbuy^{x}_{s,t,c} = \beta Return_{s,t-1} + \propto_s + \gamma_t + \Delta_c + \varepsilon_{s,t,c} \quad (1)$$

[15] In table A10 we perform our analysis focusing only in periods in which the aggregate price trends are similar both for bank and NFC stocks. See section 6.2 for a description of such analysis

where x determines the holder-sector under analysis, s identifies the security, t the quarter and c the residence of the investor. *Netbuy* is the change in the holdings of stock s, at quarter t, by holders of country c, where holdings are defined as the log of the number of shares held by sector x in firm s. *Return* is the quarterly change of the price of stock s, divided by the price of security s in the previous quarter. As Timmer (2018) we lag *Return* by one quarter to prevent that our results are driven by sectorial trading decisions having a price impact in such quarter (we also perform a robustness exercise, in the appendix, showing that results are unaffected by using current returns). In these sector-by-sector specifications we also include security fixed effects, $\propto_s$, time fixed effects, γ_t, and holder-country fixed effects, Δ_c. Our main variable of interest is β. For investors that buy (sell) after a price increase (decrease) β is positive, while it is negative for those investors that buy (sell) after a price decline (increase).

We perform two variations of our base specification in order to analyze possible heterogeneous behaviours within a given sector. We analyze if domestic and foreign investors in a given sector behave in the same way, and also if sectors exhibit the same behaviour in bank stocks and in NFC stocks.

In order to analyze the relevance of the shared residence (domestic holders), we extend our main specification and include an interaction term with the variable DOM, where DOM identifies those investors in a given sector that have the same residence as the firm. We take the firms' headquarters as the residence of the firm. The coefficient on this interaction term allows us to distinguish the behaviour of domestic and foreign investors in each given sector.[16] This first variation can then be written as follows:

$$Netbuy^{x}_{s,t,c} = \beta_1 Return_{s,t-1} + \beta_2 Return_{s,t-1}\, x\, DOM + \propto_s + \gamma_t + \Delta_c + DOM + \varepsilon_{s,t,c} \quad (2)$$

We also differentiate between quarters in which there was an increase in the stock price and quarters in which there was a decline, in order to analyse if there was a symmetric reaction to price increases and declines. We include a dummy variable RISE that takes the value 1 if the return was positive and a dummy variable DROP that takes the value 1 if the return was negative, and interact them with returns (only positive returns are considered with RISE, and negative returns with DROP). The specification follows:

$$Netbuy^{x}_{s,t,c} = \beta_1 Return_{s,t-1}\, x\, DROP + \beta_2 Return_{s,t-1}\, x\, RISE + \propto_s + \gamma_t + \Delta_c + \varepsilon_{s,t,c}\,. \quad (3)$$

[16] We cover euro area holdings, which implies that foreign investors are those based in the euro area but in a different country where the firm is located.

We also extend our basic specification in order to differentiate between sectorial behaviour in bank stocks and NFC stocks. We do so by first running separate regressions of equation (1) for each type of stocks, and then by introducing a dummy variable BANK that takes the value one if the stock is a bank stock in our full sample. The interaction term Return*BANK highlights the different behaviour of each sector in bank stocks with respect to NFC stocks. In this specification we also include the interaction term with the dummy variable DOM that takes the value one if the holder-sector is domestic as well as security fixed effects, time fixed effects and holder country fixed effects. In our most saturated specifications we also include firm-time, firm-holder-country and time-holder-country fixed effects. The specification for this analysis is:

$$Netbuy^{x}_{s,t,c} = \beta_1 Return_{s,t-1} + \beta_2 Return_{s,t-1}\ x\ DOM + \beta_3 Return_{s,t-1}\ x\ BANK + \beta_4 BANK\ \ x\ DOM + \beta_5 Return_{s,t-1}\ x\ BANK\ x\ DOM + \propto_s + \gamma_t + \Delta_c + DOM + \varepsilon_{s,t,c}. \quad (4)$$

3.2. Price implications of stock holdings

To analyze the evolution of stock prices after a given sector increases (or decreases) their holdings in the stock, and similarly to Timmer (2018) among others, we run the following specification

$$\Delta Price_{s,t+k} = \beta \Delta dshare^{x}_{s,t} + \propto_s + \gamma_t + \varepsilon_{s,t+k}. \quad (5)$$

where $\Delta Price_{s,t+k} = Price_{s,t+k} - Price_{s,t}$, being $Price_{s,t+k}$ the log of the price per share of firm s in quarter t+k (t in the case of $Price_{s,t}$), and $\Delta dshare^{x}_{s,t} = share^{x}_{s,t}/share^{x}_{s,t-1} - 1$, where $share^{x}_{s,t}$ is the ratio between the number of shares of firm s held by sector x in quarter t to the total number of shares of firm s in t, i.e. the ownership share of sector x. In this specification we also include security and time fixed effects.

Our coefficient of interest β captures if a change in the overall weight of a given sector is related to future price changes in such stock. Following the argument in Keniel et al. (2008) we would expect a positive coefficient for those sectors that act as liquidity providers in the stock market. However, if some sectors are subject to a lemons problem when buying or selling stock we would expect a negative coefficient, as they increase (decrease) their holdings when the stock is overvalued (undervalued).

As in our previous analysis we perform this analysis both for the subsample of bank stocks and NFC stocks to see if sectors perform different roles in each type of stocks.

In order to better identify the existence of possible asymmetries of information we also analyse a subset of periods in which equity issuances occur for a given firm. These instances have been argued to be situations in which informational asymmetries across market participants heighten. We first identify a quarter in which an equity issuance occurs as quarters in which the total number of shares of a given company increases, which comprises both scrip issuances and follow-on (seasoned) offerings. Next in order to improve identification, we conduct an analysis only for the subset of quarters in which the firm undergoes a follow-on offering, which we identify using information on seasoned equity offerings provided by the Deal Screener of Refinitiv. The sample period of issuances is the same as that of the main sample from 2009:Q1 to 2017:Q4.

4. Results regarding the evolution of sectorial stock holdings

We now proceed to report and discuss the results of our study regarding the evolution of sectorial stock holdings. In particular, we document the relationship between HH (and other sectors') holdings and past changes in stock prices. We find that HH and NFC buy (sell) stocks following a price drop (increase), especially so in bank stocks and when they are domestic investors.[17]

4. 1 Sectorial investment behaviour

We now present results on how each sector's holdings vary following a price change in the stocks, as detailed in equation (1). As already explained, in all of our estimations, when possible, we saturate the model with time fixed effects, security (firm) fixed effects and holder country fixed effects to capture time invariant characteristics of stocks or country traits, as well as aggregate market conditions, that could determine sectorial investment behaviour.

Table 4 shows the results for each sector in columns. Both HH (column 1) and NFC (column 2) sectors increase their holdings of a given stock after a price decline in such stock. Note that both columns 1 and 2 in Table 4 depict a negative and significant

[17] To estimate the equations, we winsorize observations at the 2.5th and 97.5th percentile of the distribution of netbuy, price returns and Δdshare to ensure that our results are not driven by outliers.

coefficient. On the other hand, Bank (column 3), MF (column 5) and to a lesser extent IPF (column 4) sectors decrease their holdings of a given stock after a price decline in such stock. Note that for these latter sectors the coefficient is positive and significant for Bank and MF, but is not significant for the IPF sector. These results highlight that after a price decline the relative relevance of HH and NFC sectors on stock ownership increases, being HH the sector that has a higher relative increase in their holdings.

Table 5 performs the same analysis taking into account if investors of a given sector are domestic or foreign, and differentiating between bank stocks in Panel A and NFC stocks in Panel B, as depicted in equation (2).[18] Table 5 shows how while HH buy (sell) following a price decline (increase) both in bank and NFC stocks, this is especially true in the case of bank stocks. Note that both coefficients of interest are negative and higher for bank stocks than for NFC stocks in column (1) which represents the HH sector holdings.

In order to have a better understanding of the relevance that the links between banks and HH might have in the trading decisions of these holders, we differentiate between domestic and foreign investors. Our argument is that a domestic HH (or a domestic NFC) is more prone to have relations with a given bank than a foreign HH (or foreign NFC) and that such relations can shape their investment decisions. Note also that less sophisticated investors are more prone to invest in domestic stocks (Karlsson and Norden 2007) and hence domestic investors are more prone to be distorted. We also argue that consistently with previous literature (e.g. Hoechle et al. 2018) this special relationship regarding investment is much more prone to happen in the banking industry than in NFCs.

The differential behavior of domestic HH (and NFC) is captured by the interaction Return x DOM, which is negative and significant for bank stocks (Table 5 Panel A), but not for NFC stocks (Table 5 Panel B). Thus, for bank stocks domestic HH and domestic NFC sectors are more reactive to past price changes than foreign ones, while for NFC stocks this is not the case. This result on the relevance of sharing the same residence between investors and the banks suggests that the investment behavior of HH and NFC is related to the close ties that these two sectors have with their banks.[19]

[18] As already explained an investor is domestic if its residence is the same as that of the firm.
[19] Results hold also when we exclude "hold" decisions, or periods when holders do not change their holdings, i.e. netbuy=0.

A joint estimation of these effects as expressed in equation (4) is reported in Table 6, which covers the full sample of bank and NFC stocks, and includes a series of time varying fixed effects. The results in Table 6 are in line with those in Table 5 and highlight the different behaviour of HH (and NFC) after price declines especially in domestic banks. Results remain broadly the same if we consider current returns in stocks (Table A2) rather than lagged returns as in our baseline specifications.[20]

We end our analysis of how sectorial holdings change after a price change by differentiating in Table 7 between price increases and price drops, as explained in equation (3), and focusing only on domestic sectors. While we find that the pattern depicted in Tables 5 and 6 is maintained, we document that HH and NFC react much more after price drops and in bank stocks, as point estimates are nearly four times bigger with respect to price increases. Table A3 shows consistent results for a joint estimation of these effects.

All in all, our results document that the ownership structure of firms changes after a decline in their stock price. HH and NFC direct ownership of stocks increases (decreases) after a price decline (increase) and this is especially true for domestic holdings of bank stocks. Specifically, and regarding the economic effects of these results, a decline of one standard deviation in NFC prices leads to an increase of domestic HH holdings of 0.5%. The change in holdings is five times bigger for the same shock in banks.

The relevance of these results depends, among other issues, on the existence or not of frictions in the stock market. If there would be no frictions in the stock market, like those steaming from informational asymmetries, this shift in ownership would be the natural consequence of, for example, different liquidity needs of each investor. However, if, as argued by Barber and Odean (2000) among others, HH are less informed than other investors, this shift in ownership could be the result of informational asymmetries and affect the correct pricing of stocks, as they would be held by less informed agents during price declines. This would also affect the welfare of those subject to informational asymmetries, as they could be overpaying (underselling) for stocks.

In the next section we proceed to analyze the implications for stock prices of changes in sectorial ownership in order to shed some light on the plausibility of the existence of informational asymmetries in the stock market.

[20] We also note that institutional investors also change their behavior when trading domestic stocks.

5 Price implications of sectorial stock ownership

In this section we document the relationship between changes in sectorial ownership and future price developments of a given stock. We first document that an increase in (domestic) HH ownership is a predictor of future price increases in NFC stocks, in line with the presence of a liquidity channel, but not in bank stocks. We then document that in equity issuances, which have been argued to be situations where asymmetries of information heighten (Myers and Majluf, 1984 and Miller and Rock, 1985), increases in domestic HH ownership are predictors of future price declines in bank stocks, in line with the presence of an information channel, and not in NFC.

We argue that the combination of these two sets of findings, as well as those presented in section 4, highlight that HH might be having a role of liquidity providers and, at the same time, being subject to a lemons problem derived from informational asymmetries, being this latter case especially true in domestic bank stocks.

5. 1 Price implications of sectorial ownership

Table 8 reports the results of estimating equation (5) for bank stocks in Panel A and for NFC stocks in Panel B. In Panel C, we present a joint estimation for both types of stocks. For expositional purposes, we focus on the domestic HH sector in the main text and we report results for both foreign HH and other sectors in the Appendix. Each column represents the cumulative change in prices up to each quarter.

Our results show how an increase in the share of domestic HH holdings in a given quarter is a predictor of a permanent future price increases in NFC stocks in the following quarters (Panel B). Specifically, an increase in HH holdings of 1 standard deviation results in an increase in the price per share of NFC stocks of 0.5% (on average) from t+3 onwards. This result is in line with the liquidity mechanism present in Kaniel et al (2008). However, as Table 8 shows this is not the case for bank stocks (Panel A). In particular, for bank stocks, an increase in HH holdings does not predict a future increase in prices the quarters following such increase (results are confirmed for the joint sample -Panel C-).[21] These results point out that while overall domestic HH have a behavior consistent

[21] Results holds when we consider netbuy rather than Δdshare (Table A4). However, we use Δdshare as it is indirectly controlling for the behavior of other holders. For instance, if Δdshare increases it means not only that HH holdings augment but also that HH buy more than other sectors. Also to make results more comparable with the case of equity issuances (next section) in which the total number of shares increase.

with them being liquidity providers in NFC stocks and obtaining positive profits when the price pressure lifts in the subsequent quarter(s), this is not true for the case of bank stocks.

Table A5 in the appendix reports results for all holder-sectors. Price performance is poorer in bank stocks than in NFC stocks when retail holders (HH and NFC) increase holdings, although for non-domestic HH there is a positive drift in the price per share of banks in the medium term. Focusing on institutional holdings, the positive sign of the interaction $\Delta dshare \times Bank$ for institutional holders (except for domestic IPF) suggest that prices go up the quarters after these investors invest in these stocks, although this result is in general not statistically significant.[22]

5.2 Price implications of sectorial stock ownership in equity issuances

In order to test if domestic HH could be subject to a lemons problem, especially in bank stocks, we turn to analyzing what happens between domestic HH holdings and future price developments in the event of equity issuances comparing them with foreign HH holdings and with that of other sectors. We focus on these periods as they have been argued to be situations in which informational asymmetries between market participants heighten.

In particular, in this subsection we report the results of estimating equation (5) only for those quarters in which an equity issuance happens for a given stock. In order to do so we characterize all quarters in which a firm undergoes an equity issuance and analyze the price behavior in the following quarters. In general, we identify equity issuances as periods when the number of issued shares increase, which include scrip issuances as well as follow-on offerings. Since during follow-on offerings informational asymmetries may be stronger (and thus the "lemons problem" faced by HH), we separately run regressions for this subset of issuances.

Table 9 shows how changes in domestic HH holdings are related to future price developments in stocks differentiating between all equity issuances (Panel A) and follow-on offerings (Panel B). We find that when domestic HH increase their holdings of banks stocks more than other sectors (increase their share or ownership) in the quarter in which an equity issuance happens, this predicts a fall in prices in the following quarters (negative

[22] When using the joint sample, we incorporate time*issuer sector fixed effects to account for the different environment that banks and NFC have faced over the sample period.

sign of the interaction Δ*dshare x Bank*). Interestingly, the effect is not instantaneous, and the coefficient grows in absolute terms as the quarters evolve, which is consistent with information taking time to be included in prices. The pattern is much clearer in follow-on issuances (Panel B), in both statistical and economic terms. In this set of observations, a positive shock in HH holdings of 1 standard deviation leads to a decline in the price per share of bank stocks of over 15% (on average) from t+3 onwards. Effects are not statistically different from zero for NFC stocks.

Comparing this set of results (Table 9) as well as results reported in Table 8, we can conclude that domestic HH are much more prone to be subject to a lemons problem when buying bank stocks than when buying NFC stocks.

As before, Table A6 reports results for all holder-sectors. We focus on the subsample of follow-on issuances. One relevant finding is that the price performance of bank stocks is not negative when foreign HH increase holdings of these stocks. This in line with our argument of domestic HH having closer ties to domestic banks (and being subject to a lemons problems). We also document how the negative drift in banks prices is also present when domestic NFC increase their ownership but not when non-domestic NFC do so. No consistent effects are found for institutional investors, with the exception of domestic MF and banks (domestic or not), as prices increase in banks´ stocks when these investors gain exposure following an equity issuance.[23]

6 Robustness exercises

In this section we perform a set of robustness exercises regarding our main results. We first address possible concerns regarding the interdependence of investment decisions section 6.1, and then we address possible concerns regarding comparability of NFC and bank stocks in our sample section 6.2.

6.1 Addressing the interdependence between investment decisions of holders

When studying the trading behavior of investors, we run our regressions individually for each investor category. However, there can be a concern about how independent these regressions are, as the trading behavior of one sector may be influenced

[23] Table A7 replicates the analyses of section 5 using the future percentage price change in stocks rather than changes in the log of future prices, conditional on changes in domestic HH ownership. Price performance is still worse for banks than for NFC, particularly after follow-on equity issuances.

by the trading behavior of other sectors. In order to ameliorate the potential inference bias that could arise when decisions of different types of investors are related, we perform a robustness analysis in which we run a common regression for all investors, using the seemingly unrelated regression (SUR) procedure.

For this analysis we first need to restrict the sample to observations for which *netbuy* is defined for all holders (HH, NFC, Banks, etc.) in the same firm and quarter, which we call "common exposures". Given the holdings information, this analysis is only feasible for domestic holders, i.e. those that share residence with the issuer of the stock. Otherwise, the sample would be restricted to observations in which netbuy is defined for *all* the combinations of *holder sectors-countries*, and in the same quarter (too few observations). In parallel, the number of equations to be estimated by means of the SUR would be quite high (one per *holder sector-country*).

Table A8 presents the outcome of this robustness exercise. For expositional purposes, panel A refers to OLS estimates (our base estimations) and Panel B reports the outcome of the SUR estimation. Point estimates are the same in the two exercises as the set of predictors is identical under the two methods. However, the SUR provides more efficient estimates of standard errors as shown by the p-value of the Breusch-Pagan test for independent equations (reported at the bottom of the table). Importantly, the finding that HH buy (sell) after a price decrease (increase) with NFC stocks and even more with banks stocks also holds for this new specification. In particular, the interaction between *Return (in t-1) x Bank* is negative and significant under the SUR method at the 1% confidence level (slightly above this level using OLS).

6.2 Banks and NFC: comparability issues

One other possible source of concern is the comparability between banks and NFCs in our sample. While both banks and NFCs in our sample are listed companies, the size of NFC is on average smaller than that of banks. For instance, as of the end of 2017, around 50% of NFCs had a market capitalization below EUR 100 million, while the percentage of banks below this level was 20%. On the other hand, the market environment of banks and NFC has differed in recent years, with periods in which banks stocks have underperformed, and others in which they have outperformed, NFCs stocks. Since in general conditions surrounding these two type of issuers have been heterogeneous, one could have concerns regarding whether NFCs and banks stocks are actually comparable securities for investors during our study and hence our results could be biased.

To alleviate comparability issues, we restrict attention to a more homogeneous sample of banks and NFCs. In this new sample we focus on *common exposures* as defined in Section 6.1 and further restrict the sample to those stocks (of both banks and NFC) with a market capitalization of over EUR 50 million (or over EUR 100 million).[24] With this approach, we effectively eliminate stocks in which institutional investors hold no exposures (less "comparable" securities), and at the same time prevent that our results are driven by (very) small firms.

Table A9 studies the trading behavior of HH with this restricted set of observations. Columns 1 to 3 of the table refer to regressions in which there are only domestic HH. The other columns also include non-domestic HH. To further improve comparability, we have removed very small exposures from the portfolio of non-domestic investors.[25] In line with previous results, HH increase their holdings after a price decline. Besides this effect is prevalent in domestic HH, but not in foreign HH, and especially so with banks stocks in comparison to NFC stocks (negative sign of the interaction *Return (in t-1) x Bank* in columns 1-3, and of the interaction *Return (in t-1) x Bank x DOM* in columns 4-12).

In order to ameliorate the problem of different aggregate trends we restrict in Table A10 our attention to time periods in which the stock price evolution in both NFC and bank stock prices are similar and find that the pattern also holds.[26]

We finally resort to document that the results in section 5 are robust to this restricted sample of larger stocks (market capitalization above EUR 50 million). In particular, Table A11 shows that banks underperform NFC following an increase in domestic HH ownership, and that after a follow-on issuance an increase in domestic HH ownership is related to future price declines in bank stocks.[27]

[24] We define companies with a market capitalization of over EUR 50 or 100 million as those that during at least 33% of observations present a market capitalization above these levels.
[25] In particular, we calculate the share of each holder in the market capitalization of a stock, and remove observations when the share lies below 0.01%.
[26] For each period, we calculate the average lagged return in banks and NFC. We then calculate the difference between these two returns, and obtain the distribution of this new variable (comprised between -12% and +9%). Periods with similar returns are those in the interquartile range of this distribution (-3%, +2%), which we use to run the regressions of table A10.
[27] Panel B considers follow-on offerings and keep all observations for banks as there are not many issuances of this type for this sector.

7 Conclusions

This paper documents the dynamic relationships between aggregate sectorial holdings of stocks in the euro area and the price of such stocks. The evidence presented in the paper suggests that different sectors in the economy play different roles in the stock market, and are subject to different degrees of informational asymmetries.

We first document that following a price decline HH and NFC sectors are more prone to increase their holdings of stocks, while MF, IPF, and Banks are more prone to reduce them. We find that this effect is more pronounced for domestic HH (and domestic NFC) investing in bank stocks. We then resort to documenting stock price dynamics following a change in sectorial holdings and find how in the quarters following an increase in domestic HH holdings of a given NFC stock the price of such stock increases. However, for bank stocks an increase in domestic HH holdings is not followed by future price increases. These findings are consistent with HH providing liquidity to stocks and at the same time being subject to (negative) informational asymmetries, being the latter especially important for bank stocks. In order to provide further evidence in line with this argument, we document that during follow-on offerings an increase in domestic HH holdings is followed by a decline in future prices of bank stocks and not in NFC stocks.

Our results highlight the relevance of understanding the different behavior of sectors present in the stock market as we document that when stock prices decline the weight of less sophisticated (and domestic) participants increase, being this especially important in bank stocks. This situation can affect both price formation and regulatory responses that are based on stock prices, like for example the introduction of bank bailouts. National regulators can be more prone to introduce favorable bail-out regimes for stock holders if by doing so they favor their own nationals. As already discussed, our study also provides evidence in line with domestic HH being subject to informational asymmetries when buying bank stocks, especially during equity issuances. This latter evidence should be taken into account by both stock market and bank regulators in order to enhance the price informativeness of bank stocks. We argue that, given the close HH-bank relationships, banks can have an important role in ameliorating the informational asymmetries faced by HH, and at the same time improve price informativeness, by providing good financial advice to their clients.

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Tables

Table 1. Holdings in 2017 Q4 at a glance

Panel A. Holdings (EUR bn)	HH	NFC	Banks	IPF	MF	Other	Total EA	RoW	
Total	**753**	**1,046**	**202**	**215**	**1,148**	**625**	**3,989**	**2,777**	
Financials	187	49	74	53	244	189	796	630	
of which: Banks	101	19	38	17	119	98	392	308	
NFC	566	997	128	162	904	436	3,193	2,147	
Panel B. Weight in market cap. (%)	**HH**	**NFC**	**Banks**	**IPF**	**MF**	**Other**	**Total EA**	**RoW**	**holdings coverage (%)**
Total	**10.0**	**13.9**	**2.7**	**2.9**	**15.3**	**8.3**	**53.1**	**37.0**	**90.1**
Financials	11.5	3.0	4.6	3.3	15.0	11.6	49.0	38.8	87.8
of which: Banks	13.8	2.6	5.2	2.4	16.2	13.4	53.5	42.1	95.6
NFC	9.6	16.9	2.2	2.8	15.4	7.4	54.3	36.5	90.7
Panel C. Distribution of holdings (%)	**HH**	**NFC**	**Banks**	**IPF**	**MF**	**Other**	**Total EA**	**RoW**	
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	
Financials	24.8	4.7	36.8	24.7	21.3	30.2	20.0	22.7	
of which: Banks	13.4	1.8	18.7	8.0	10.3	15.7	9.8	11.1	
NFC	75.2	95.3	63.2	75.3	78.7	69.8	80.0	77.3	

This table summarizes holdings of euro area common stocks as of the end of 2017 (last observation), according to SHSS data. Holdings data is split into two issuer categories, financials, which includes the subsegment of banks, and NFC. Holders are euro area institutional sectors and comprise either HH (individual investors), NFC, Banks, insurance and pension funds (IPF), and mutual funds (MF), while Other comprises all remaining categories (e.g. holdings of the public sector or holdings of financial holdings, among others). Total EA is the sum of holdings of the previous holders. In addition, we show holdings of investors based in the Rest of the World (RoW), although holdings data is less reliable in this segment. Panel A collects the distribution of holdings in EUR bn. Panels B and C are simple derivations of Panel A and describe the weight of holdings of each holder sector in total market capitalization as well as the distribution of holdings per holder, respectively. In Panel B holdings do not sum up 100% (see last column, in which we report holdings coverage for each sector). This happens because holdings information is incomplete for the Rest of the World (RoW) sector, and because holdings coverage is somewhat below 100% for the other sectors.

Table 2. Summary Statistics. Trading behavior

Panel A. Banks	HH	NFC	Banks	IPF	MF
Netbuy (mean)	2.71	1.29	1.02	0.93	1.43
Netbuy (sd)	33.34	36.02	51.07	34.97	36.32
Return (mean)	0.01	0.01	0.01	0.01	0.01
Return (sd)	0.16	0.17	0.17	0.17	0.17
Observations	18,202	8,819	6,018	9,298	14,468
Panel B. NFC	**HH**	**NFC**	**Banks**	**IPF**	**MF**
Netbuy (mean)	1.49	1.02	0.01	1.25	1.23
Netbuy (sd)	31.09	32.45	54.69	36.00	34.34
Return (mean)	0.02	0.02	0.02	0.03	0.03
Return (sd)	0.16	0.15	0.15	0.15	0.15
Observations	340,666	139,909	80,809	122,258	206,401
Panel C. Banks and NFC	**HH**	**NFC**	**Banks**	**IPF**	**MF**
Netbuy (mean)	1.55	1.03	0.08	1.22	1.24
Netbuy (sd)	31.21	32.67	54.45	35.93	34.47
Return (mean)	0.02	0.02	0.02	0.03	0.03
Return (sd)	0.16	0.16	0.16	0.15	0.15
Observations	358,868	148,728	86,827	131,556	220,869

This table studies the trading behavior of each holder sector. Panel A refers to the sample of Banks, Panel B to NFC, and Panel C to Banks and NFC. Netbuy is the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter.

Table 3. Summary Statistics. Domestic HH ownership and future price performance

Panel A. Banks	Δdshare	ΔPrice (t+1)	ΔPrice (t+2)	ΔPrice (t+3)	ΔPrice (t+4)	ΔPrice (t+5)	ΔPrice (t+6)	ΔPrice (t+7)	ΔPrice (t+8)
Mean	0.28	-0.92	-0.94	-1.75	-2.56	-2.91	-3.13	-3.73	-4.44
sd	10.20	17.96	22.86	29.89	35.15	39.57	44.35	49.20	53.11
Observations	2784	2784	2638	2529	2413	2301	2201	2103	2003
Panel B. NFC	**Δdshare**	**ΔPrice (t+1)**	**ΔPrice (t+2)**	**ΔPrice (t+3)**	**ΔPrice (t+4)**	**ΔPrice (t+5)**	**ΔPrice (t+6)**	**ΔPrice (t+7)**	**ΔPrice (t+8)**
Mean	0.53	0.35	0.61	0.64	0.58	0.47	0.32	-0.14	-0.51
sd	11.11	19.74	24.97	31.32	37.22	42.55	47.36	51.93	55.85
Observations	66357	66357	63676	60945	58294	55605	53044	50536	47978
Panel C. Banks and NFC	**Δdshare**	**ΔPrice (t+1)**	**ΔPrice (t+2)**	**ΔPrice (t+3)**	**ΔPrice (t+4)**	**ΔPrice (t+5)**	**ΔPrice (t+6)**	**ΔPrice (t+7)**	**ΔPrice (t+8)**
Mean	0.52	0.30	0.55	0.54	0.45	0.33	0.19	-0.28	-0.67
sd	11.08	19.67	24.89	31.27	37.14	42.44	47.25	51.83	55.75
Observations	69141	69141	66314	63474	60707	57906	55245	52639	49981

The table focuses on domestic HH (those who invest in securities of their own country) and examines changes in ownership and future price performance in banks stocks (Panel A), NFC stocks (Panel B) and in both stocks (Panel C). Δdshare is defined as share(t)/share(t-1)-1, where share is the ratio between the number of shares held by HH to the total number of shares of the firm, expressed in percentage points. Future price performance consists of changes in the log of prices at future horizons. We multiply this variable by 100 to read it similarly to a percentage change. For instance, in the second column of the table, ΔPrice(t+1) summarizes price changes between quarter t+1 and t, while in the third column ΔPrice(t+2) takes the cumulative change in the log of prices between quarter t+2 and t. ΔPrice(t+8), in the final column, is the cumulative change in the log of prices between quarter t+8 (two years after the trade) and t.

Table 4. Sectorial response to a stock price change

Dependent variable: change in the log of the number of shares held					
	HH	**NFC**	**Banks**	**IPF**	**MF**
	(1)	(2)	(3)	(4)	(5)
Return (in t-1)	-5.414***	-1.907***	9.507***	0.988	7.415***
	(0.535)	(0.709)	(1.385)	(0.927)	(0.741)
R-squared	0.023	0.020	0.036	0.025	0.019
Observations	358836	148669	86721	131445	220814
Firm FE	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y
Holder country FE	Y	Y	Y	Y	Y

The table studies how the holdings of each sector varies following a price change in the stocks. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter. We run five regressions in total, each per holder sector (HH=households or individual investors; NFC=non-financial corporations; Banks are banks; IPF=Insurance and Pension Funds; MF=Mutual Funds). The sample of firms is made up of bank and NFC stocks. All specifications include firm fixed effects, time fixed effects and holder country fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table 5. Sectorial response to a stock price change. Domestic vs foreign holders

Dependent variable: change in the log of the number of shares held					
Panel A. Banks	**HH**	**NFC**	**Banks**	**IPF**	**MF**
	(1)	(2)	(3)	(4)	(5)
Return (in t-1)	-10.73***	-4.349	2.497	4.981	3.051
	(3.557)	(4.192)	(6.095)	(3.378)	(3.546)
Return (in t-1) x DOM	-6.931**	-10.27**	3.294	-16.23***	-0.206
	(2.947)	(4.005)	(9.522)	(4.021)	(4.638)
R-squared	0.041	0.022	0.033	0.031	0.029
Observations	18200	8815	6017	9296	14468
Panel B. NFC	**HH**	**NFC**	**Banks**	**IPF**	**MF**
	(1)	(2)	(3)	(4)	(5)
Return (in t-1)	-4.977***	-2.617***	5.963***	3.161***	7.953***
	(0.601)	(0.999)	(1.847)	(1.137)	(0.862)
Return (in t-1) x DOM	-1.028	1.619	9.051***	-7.337***	-1.678
	(0.702)	(1.179)	(2.500)	(1.570)	(1.211)
R-squared	0.022	0.020	0.038	0.026	0.019
Observations	340636	139854	80704	122149	206346
Controls					
Firm FE	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y
Holder country FE	Y	Y	Y	Y	Y
Domestic holder FE	Y	Y	Y	Y	Y

The table studies how the holdings of each sector varies following a price change in the stocks. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter. DOM is a dummy equal to one if the residence of the holder sector is the same as that of the firm/stock traded, and zero otherwise. In the two panels, we run five regressions in total, each per holder sector, differentiating between holdings of bank stocks (Panel A) and NFC stocks (Panel B). All specifications include firm fixed effects, time fixed effects, holder country fixed effects and domestic holder fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table 6. Sectorial responses to price changes. Full sample of bank and NFC stocks

Dependent variable: change in the log of the number of shares held

Banks and NFC	HH		NFC		Banks		IPF		MF	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Return (in t-1)	-5.039***	.	-2.629***	.	6.194***	.	3.093***	.	7.778***	.
	(0.599)	.	(0.996)	.	(1.839)	.	(1.125)	.	(0.856)	.
Return (in t-1) x DOM	-1.032	-4.777***	1.591	-0.659	8.960***	9.799***	-7.317***	-10.89***	-1.608	-6.105***
	(0.702)	(0.699)	(1.179)	(1.521)	(2.501)	(3.747)	(1.570)	(2.234)	(1.210)	(1.420)
Return (in t-1) x Bank	-2.744	.	3.368	.	-7.516	.	1.602	.	-0.282	.
	(3.126)	.	(3.239)	.	(5.339)	.	(2.652)	.	(2.864)	.
Bank x DOM	0.249	.	-0.611	.	-2.291*	.	-0.434	.	0.175	.
	(0.406)	.	(0.828)	.	(1.220)	.	(0.744)	.	(0.583)	.
Return (in t-1) x Bank x DOM	-5.177*	-6.898**	-11.69***	-15.59***	-3.202	-21.43*	-8.469*	-7.075	0.570	0.00143
	(3.108)	(2.770)	(4.171)	(4.326)	(9.832)	(12.88)	(4.348)	(6.351)	(4.827)	(4.732)
R-squared	0.023	0.287	0.020	0.351	0.037	0.427	0.026	0.345	0.019	0.274
Observations	358836	346949	148669	115230	86721	59098	131445	113970	220814	203899
Controls										
Firm FE	Y	.	Y	.	Y	.	Y	.	Y	.
Time FE	Y	.	Y	.	Y	.	Y	.	Y	.
Holder country FE	Y	.	Y	.	Y	.	Y	.	Y	.
Domestic holder FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm x Time FE	N	Y	N	Y	N	Y	N	Y	N	Y
Firm x Holder country FE	N	Y	N	Y	N	Y	N	Y	N	Y
Time x Holder country FE	N	Y	N	Y	N	Y	N	Y	N	Y

The table studies how the holdings of each sector varies following a price change in the stocks. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter. DOM is a dummy equal to one if the residence of the holder sector is the same as that of the firm/stock traded, and zero otherwise. Bank is a dummy equal to one if the issuer is a bank, and zero if the issuer is a NFC. We run ten regressions in total, two per holder sector (HH=households or individual investors; NFC=non-financial corporations; Banks are banks; IPF=Insurance and Pension Funds; MF=Mutual Funds). Specifications in columns 1, 3, 5, 7 and 9 include firm fixed effects, time fixed effects, holder country fixed effects and domestic holder fixed effects. Specifications in other columns include other time varying fixed effects as well as domestic holder fixed effects (which is not redundant as a very limited number of firms change their domicile over time). Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table 7. Positive and negative returns. Only domestic holders

Dependent variable: change in the log of the number of shares held					
Panel A. Banks	**HH**	**NFC**	**Banks**	**IPF**	**MF**
	(1)	(2)	(3)	(4)	(5)
Return (in t-1) x RISE	-5.477	-5.583	4.244	-10.26	-1.468
	(3.881)	(5.291)	(15.06)	(8.854)	(8.543)
Return (in t-1) x DROP	-23.93***	-21.93***	5.425	-10.01	9.915
	(7.554)	(7.910)	(17.91)	(7.719)	(9.658)
R-squared	0.091	0.058	0.065	0.073	0.066
Observations	2648	2482	2151	2180	2354
Panel B. NFC	**HH**	**NFC**	**Banks**	**IPF**	**MF**
	(1)	(2)	(3)	(4)	(5)
Return (in t-1) x RISE	-2.042**	-0.157	8.738***	-4.318*	3.622**
	(0.964)	(1.293)	(3.316)	(2.221)	(1.632)
Return (in t-1) x DROP	-3.890***	2.204	23.61***	-2.862	10.78***
	(1.352)	(1.731)	(4.400)	(3.085)	(2.437)
R-squared	0.074	0.055	0.084	0.066	0.077
Observations	63067	57258	35662	32283	41840
Controls					
Firm FE	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y
Holder country FE	Y	Y	Y	Y	Y

The table studies how the holdings of domestic holders varies following a positive or negative price change in the stocks. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter. RISE is a dummy equal to one for positive price changes (in t-1), and zero otherwise. DROP is a dummy equal to one for negative price changes (in t-1), and zero otherwise. In the two panels, we run five regressions in total, each per holder sector (HH=households or individual investors; NFC=non-financial corporations; Banks are banks; IPF=Insurance and Pension Funds; MF=Mutual Funds), differentiating between holdings of bank stocks (Panel A) and NFC stocks (Panel B). All specifications include firm fixed effects, time fixed effects and holder country fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table 8. Future price performance and domestic HH share

Dependent variable: change in the log of prices between t and t+k (k=1,2,…,8)								
Panel A. Bank	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0209	0.000	-0.0136	0.0246	0.0110	-0.00351	0.0773	0.0713
	(0.0145)	(0.0199)	(0.0223)	(0.0185)	(0.0282)	(0.0332)	(0.0471)	(0.0572)
R-squared	0.374	0.433	0.445	0.478	0.513	0.521	0.522	0.532
Observations	2784	2638	2529	2413	2301	2201	2103	2003
Panel B. NFC	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0258***	0.0369***	0.0448***	0.0535***	0.0501***	0.0604***	0.0658***	0.0808***
	(0.00423)	(0.00664)	(0.00834)	(0.0100)	(0.0102)	(0.0122)	(0.0139)	(0.0148)
R-squared	0.172	0.210	0.251	0.285	0.318	0.352	0.384	0.419
Observations	66357	63676	60945	58294	55605	53044	50536	47978
Panel C. Banks and NFC	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0268***	0.0394***	0.0471***	0.0545***	0.0516***	0.0630***	0.0667***	0.0803***
	(0.00415)	(0.00656)	(0.00812)	(0.00968)	(0.00986)	(0.0117)	(0.0134)	(0.0141)
Δdshare x Bank	0.0000206	-0.0394*	-0.0610***	-0.0320*	-0.0450*	-0.0876**	-0.00500	-0.00489
	(0.0152)	(0.0208)	(0.0213)	(0.0187)	(0.0265)	(0.0348)	(0.0463)	(0.0531)
R-squared	0.179	0.218	0.258	0.292	0.325	0.358	0.389	0.423
Observations	69141	66314	63474	60707	57906	55245	52639	49981
Controls								
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Time x issuer sector FE	Y	Y	Y	Y	Y	Y	Y	Y

The table shows how price changes at future horizons conditional on an increase or a decrease in domestic HH ownership. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is ΔPrice(t+k), where k=1,2,…8, and represents the cumulative change in the log of prices since quarter t to quarter t+k. We multiply this variable by 100 to read it similarly to a percentage change. Δdshare is defined as share(t)/share(t-1)-1, where share is the ratio between the number of shares held by HH to the total number of shares of the firm, expressed in percentage points . Bank is a dummy equal to one if the issuer is a bank, and zero if the issuer is a NFC. Panel A shows results for bank stocks, Panel B for NFC stocks and Panel C for both. All specifications include firm fixed effects and time*issuer sector fixed effects, which is not redundant in panel C. Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

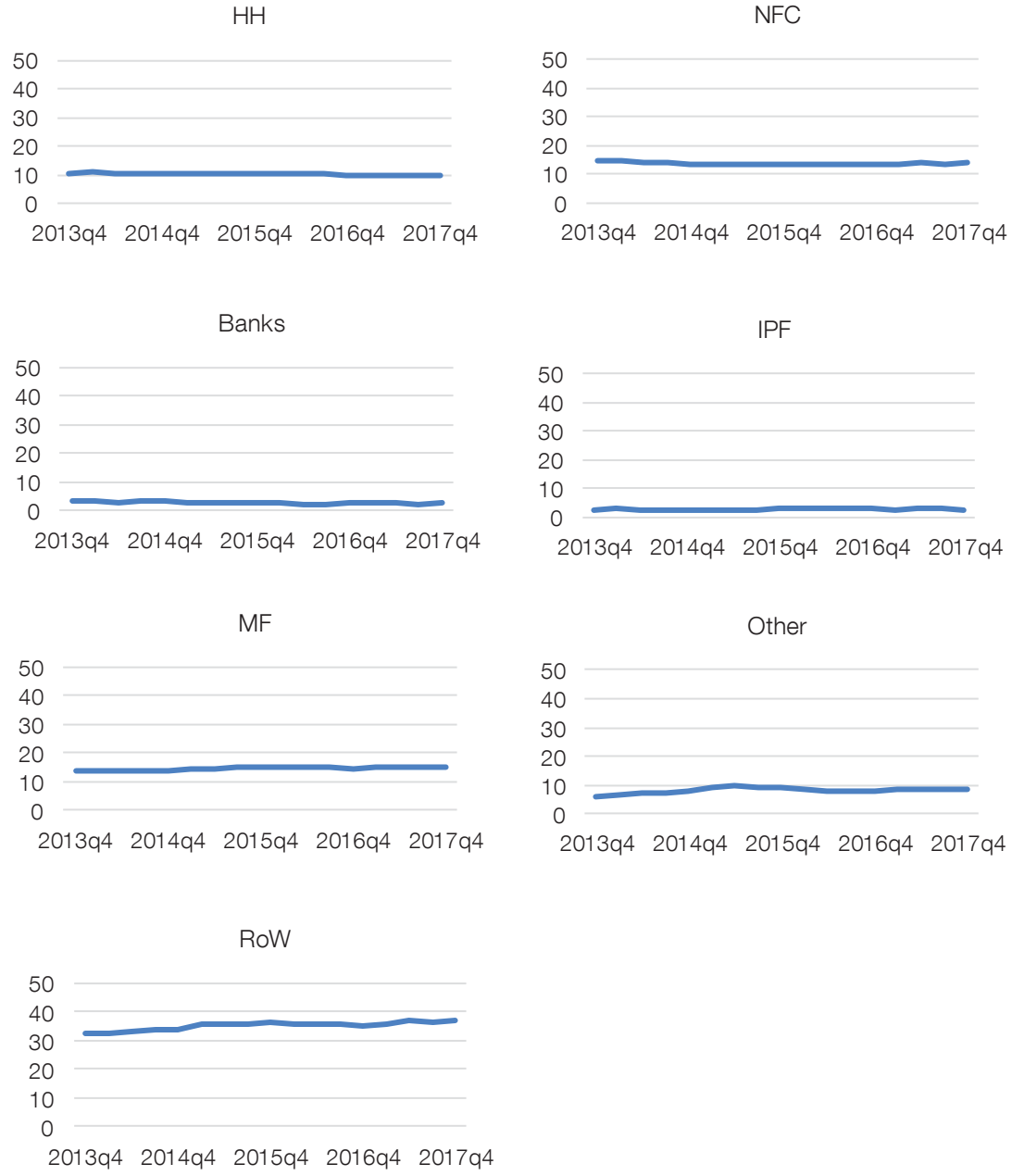
Table 9. Future price performance after equity issuances and domestic HH share

Dependent variable: change in the log of prices between t and t+k (k=1,2,…,8)								
Panel A. All issuances	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0111	0.0189	0.0165	0.00412	-0.00914	0.0130	0.0310	0.0325
	(0.00871)	(0.0137)	(0.0190)	(0.0204)	(0.0238)	(0.0263)	(0.0302)	(0.0313)
Δdshare x Bank	-0.0201	-0.0196	-0.127*	-0.0457	-0.0451	-0.0835	-0.0450	-0.0836
	(0.0302)	(0.0359)	(0.0653)	(0.0535)	(0.0838)	(0.0705)	(0.111)	(0.107)
R-squared	0.376	0.393	0.415	0.457	0.482	0.502	0.522	0.534
Observations	6478	6198	5889	5623	5365	5133	4842	4590
Panel B. Follow-on	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0169	-0.00315	-0.0570	-0.0402	-0.177*	-0.0736	0.0278	0.0110
	(0.0430)	(0.0685)	(0.0823)	(0.0956)	(0.102)	(0.131)	(0.142)	(0.137)
Δdshare x Bank	0.108	-0.244**	-0.625***	-0.740***	-0.560***	-0.910**	-1.818***	-1.841***
	(0.180)	(0.115)	(0.139)	(0.178)	(0.199)	(0.404)	(0.266)	(0.255)
R-squared	0.205	0.191	0.184	0.170	0.192	0.154	0.182	0.168
Observations	1637	1585	1512	1464	1383	1325	1263	1219
Controls								
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Time x issuer sector FE	Y	Y	Y	Y	Y	Y	Y	Y

The table shows how price changes in stocks at future horizons following an equity issuance and conditional on an increase or a decrease in domestic HH ownership. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is ΔPrice(t+k), where k=1,2,…8, and represents the cumulative change in the log of prices since quarter t to quarter t+k. We multiply this variable by 100 to read it similarly to a percentage change. Δdshare is defined as share(t)/share(t-1)-1, where share is the ratio between the number of shares held by HH to the total number of shares of the firm, expressed in percentage points. Panel A refers to all equity issuances, while Panel B restricts the sample to follow-on issuances. Bank is a dummy equal to one if the issuer is a bank, and zero if the issuer is a NFC. All specifications include firm fixed effects and time*issuer sector fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01.

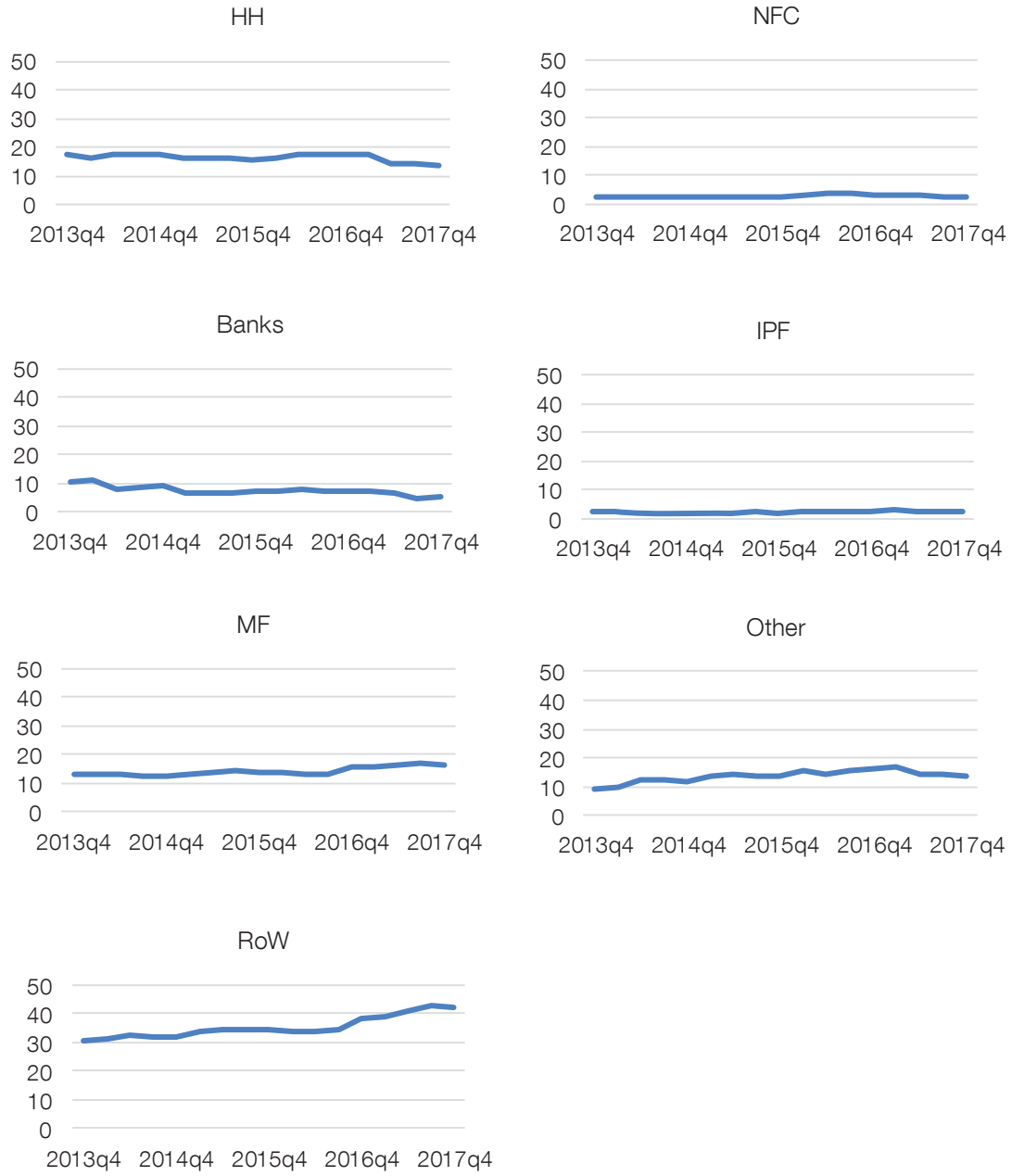
Figures

Figure 1.A. Share of each holder sector in the market capitalization of euro area stocks, in % (Q413-Q417)



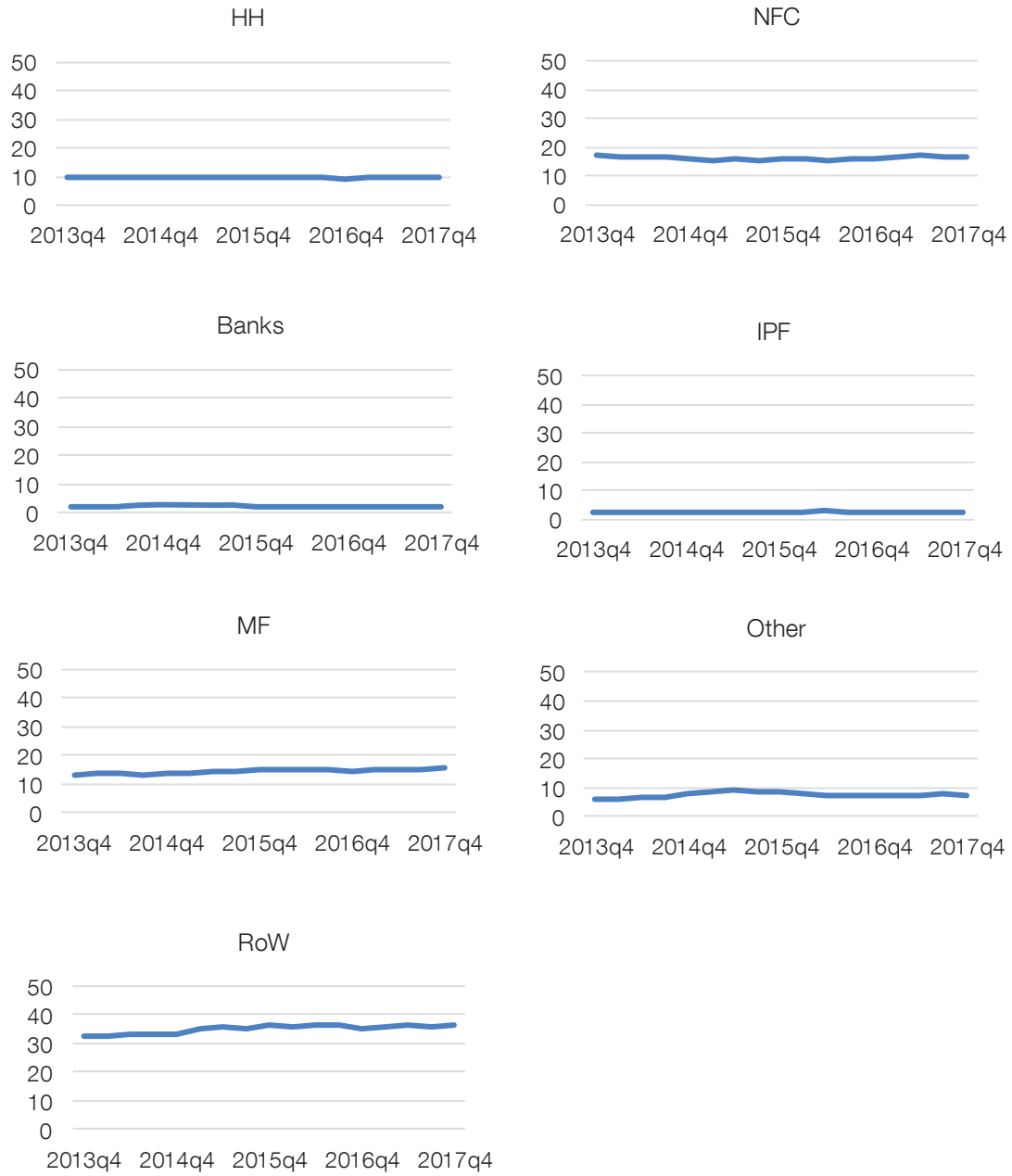
Holders sectors are the same as in Table 1. We do not show holdings data before Q413 as the coverage of holdings is incomplete for some countries before that date, which makes time series on holdings less comparable. Data is in %.

Figure 1.B. Share of each holder sector in the market capitalization of banks based in the euro area, in % (Q413-Q417)



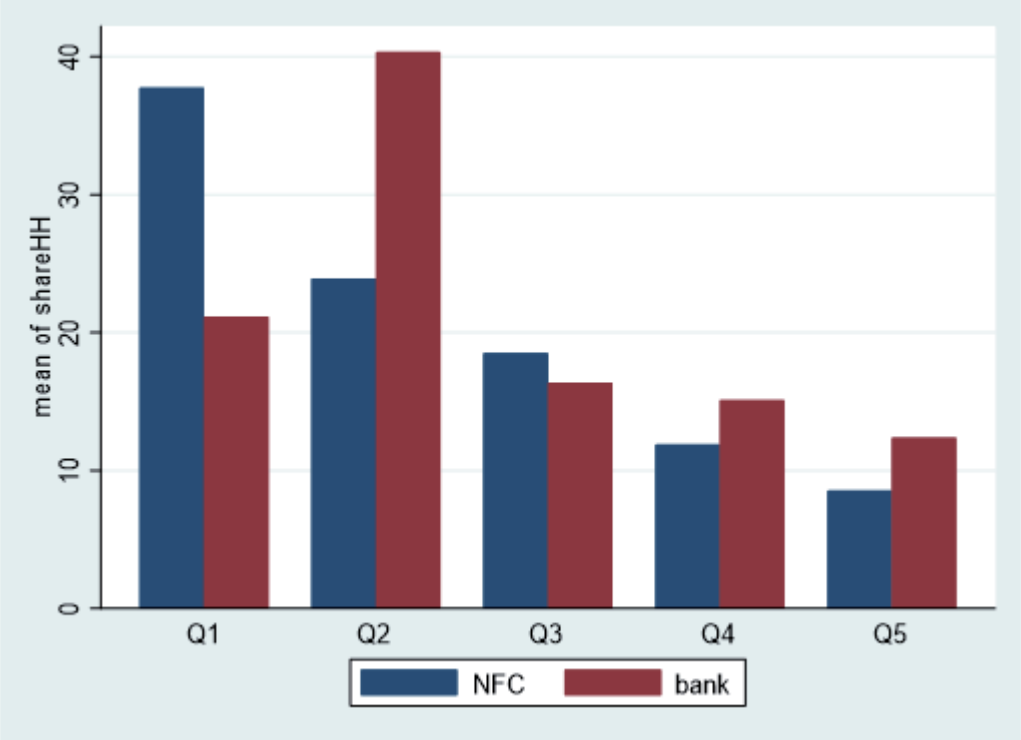
Holders sectors are the same as in Table 1. We do not show holdings data before Q413 as the coverage of holdings is incomplete for some countries before that date, which makes time series on holdings less comparable. Data is in %

Figure 1.C. Share of each holder sector in the market capitalization of NFC based in the euro area, in % (Q413-Q417)



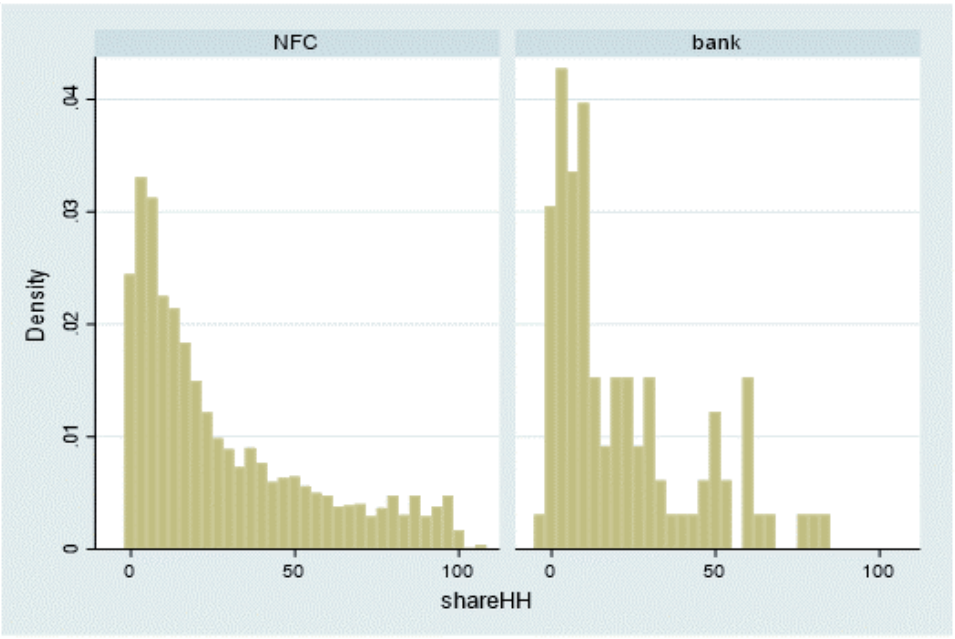
Holders sectors are the same as in Table 1. We do not show holdings data before Q413 as the coverage of holdings is incomplete for some countries before that date, which makes time series on holdings less comparable. Data is in %

Figure 2. HH ownership in banks versus NFC. Q4 2017.



The figure shows the average share of HH in banks and NFC (x axis) by quintiles of the distribution of the market capitalization of banks (y axis). "Q1" stands for the first quintile (banks with market capitalization below 100 million euros), "Q2" is the second quintile (market capitalization between 100-400 million euros), "Q3" for the third one (400-1,600 million euros), "Q4" for the fourth one (1,600-6,700 million euros), and "Q5" for the fifth one (more than 6,700 million euros). Data refers to Q4 2017 and is in %.

Figure 3. HH ownership in banks and NFC. Histograms. Q4 2017



The figure depicts the distribution of the share of HH in bank and NFC stocks (x axis). Data on HH ownership refers to Q4 2017 and is in %.

Appendix

Table A1. Holdings data. Breakdown between domestic and non-domestic holders

Panel A. Holdings (EUR bn)	HH		NFC		Banks		IPF		MF		Other	
	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU
Total	**678**	**75**	**983**	**62**	**163**	**39**	**126**	**89**	**358**	**790**	**468**	**158**
Financials	164	23	45	4	63	12	36	17	65	179	151	38
of which: Banks	95	6	18	1	30	7	10	8	32	87	78	20
NFC	514	52	939	58	100	27	90	72	294	611	316	120

Panel B. Weight of holdings in market cap. (%)	HH		NFC		Banks		IPF		MF		Other	
	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU
Total	**9.0**	**1.0**	**13.1**	**0.8**	**2.2**	**0.5**	**1.7**	**1.2**	**4.8**	**10.5**	**6.2**	**2.1**
Financials	10.1	1.4	2.7	0.3	3.9	0.7	2.2	1.1	4.0	11.0	9.3	2.3
of which: Banks	13.0	0.8	2.4	0.2	4.2	1.0	1.3	1.0	4.3	11.9	10.6	2.8
NFC	8.7	0.9	16.0	1.0	1.7	0.5	1.5	1.2	5.0	10.4	5.4	2.0

Panel C. Distribution of holdings (%)	HH		NFC		Banks		IPF		MF		Other	
	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU	domestic	other EMU
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Financials	24.1	30.7	4.5	7.2	38.4	30.0	28.6	19.2	18.1	22.7	32.3	23.8
of which: Banks	14.0	7.9	1.8	2.2	18.7	18.9	7.7	8.5	8.9	11.0	16.6	12.8
NFC	75.9	69.3	95.5	92.8	61.6	70.0	71.4	80.8	81.9	77.3	67.7	76.2

This table summarizes holdings of euro area common stocks as of the end of 2017 (last data point), according to SHSS data. Holdings data is split in the same way as Table 1, but in this table we differentiate between domestic holders and non-domestic holders, and omit holdings of non-euro area investors (RoW). Domestic holders share residence with the issuer of the stock. Non-domestic holders are investors from other euro area countries ("other EMU"). In Panel B holdings do not sum up 100% as we exclude holdings of the RoW sector and holdings coverage is somewhat below 100% for euro area sectors.

Table A2. Sectorial responses to price changes. Full sample of bank and NFC stocks. Current returns

Dependent variable: change in the log of the number of shares held

Banks and NFC	HH		NFC		Banks		IPF		MF	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Return (in t)	-13.27***	.	-16.01***	.	-15.27***	.	-9.551***	.	10.19***	.
	(0.674)	.	(1.108)	.	(1.957)	.	(1.072)	.	(0.871)	.
Return (in t) x DOM	-1.315*	-3.732***	6.118***	-0.763	-16.23***	-16.21***	2.397	-7.402***	-20.82***	-12.01***
	(0.765)	(0.726)	(1.258)	(1.523)	(2.540)	(3.818)	(1.568)	(2.108)	(1.355)	(1.474)
Return (in t) x Bank	-5.679*	.	-5.923	.	2.176	.	5.592**	.	6.691**	.
	(3.002)	.	(3.831)	.	(5.819)	.	(2.370)	.	(2.889)	.
Bank x DOM	0.0519	.	-0.873	.	-1.953*	.	-0.494	.	-0.450	.
	(0.366)	.	(0.735)	.	(1.113)	.	(0.708)	.	(0.603)	.
Return (in t) x Bank x DOM	-7.528**	-12.31***	-4.525	-12.10**	-7.890	-10.29	-8.342*	-6.056	13.74***	3.568
	(3.796)	(3.714)	(5.021)	(5.922)	(8.877)	(11.53)	(4.929)	(6.156)	(4.749)	(4.857)
R-squared	0.026	0.271	0.022	0.336	0.039	0.422	0.026	0.333	0.020	0.262
Observations	382136	368783	159006	122256	93262	63026	140083	120764	233973	215213
Controls										
Firm FE	Y	.	Y	.	Y	.	Y	.	Y	.
Time FE	Y	.	Y	.	Y	.	Y	.	Y	.
Holder country FE	Y	.	Y	.	Y	.	Y	.	Y	.
Domestic holder FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm x Time FE	N	Y	N	Y	N	Y	N	Y	N	Y
Firm x Holder country FE	N	Y	N	Y	N	Y	N	Y	N	Y
Time x Holder country FE	N	Y	N	Y	N	Y	N	Y	N	Y

The table studies how the holdings of each sector varies following a price change in the stocks. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the return of the stock, or its price change in the current quarter. DOM is a dummy equal to one if the residence of the holder sector is the same as that of the firm/stock traded, and zero otherwise. Bank is a dummy equal to one if the issuer is a bank, and zero if the issuer is a NFC. We run ten regressions in total, two per holder sector (HH=households or individual investors; NFC=non-financial corporations; Banks are banks; IPF=Insurance and Pension Funds; MF=Mutual Funds). Specifications in columns 1, 3, 5, 7 and 9 include firm fixed effects, time fixed effects, holder country fixed effects and domestic holder fixed effects. Specifications in other columns include other time varying fixed effects as well as domestic holder fixed effects (not redundant as a very limited number of firms change their domicile over time). Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table A3. Positive and negative returns. Only Domestic holders

Holders: only domestic					
Dependent variable: change in the log of the number of shares held					
Banks and NFC	**HH**	**NFC**	**Banks**	**IPF**	**MF**
	(1)	(2)	(3)	(4)	(5)
Return (in t-1) x RISE	-2.043**	-0.157	8.738***	-4.318*	3.615**
	(0.964)	(1.293)	(3.317)	(2.222)	(1.633)
Return (in t-1) x RISE x bank	-3.425	-5.422	-4.495	-5.933	-5.043
	(3.953)	(5.380)	(15.21)	(9.005)	(8.602)
Return (in t-1) x DROP	-3.878***	2.205	23.61***	-2.860	10.84***
	(1.352)	(1.731)	(4.402)	(3.085)	(2.436)
Return (in t-1) x DROP x bank	-20.44***	-24.25***	-18.19	-7.342	-1.535
	(7.619)	(8.035)	(18.19)	(8.255)	(10.01)
R-squared	0.074	0.055	0.084	0.066	0.076
Observations	65715	59740	37813	34463	44194
Controls					
Firm FE	Y	Y	Y	Y	Y
Time x issuer sector FE	Y	Y	Y	Y	Y
Holder country FE	Y	Y	Y	Y	Y

The table studies how the holdings of domestic holders varies following a positive or negative price change in the stocks. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter. RISE is a dummy equal to one for positive price changes (in t-1), and zero otherwise, whereas DROP is a dummy equal to one for negative price changes (in t-1), and zero otherwise. Bank is equal to one for bank stocks and is zero for NFC stocks. We run five regressions in total, each per holder sector (HH=households or individual investors; NFC=non-financial corporations; Banks are banks; IPF=Insurance and Pension Funds; MF=Mutual Funds). All specifications include firm fixed effects, time*issuer sector fixed effects, and holder country fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: $*$ $p < 0.1$, $**$ $p < 0.05$, $***$ $p < 0.01$.

Table A4. Future price performance with netbuy

Dependent variable: change in the log of prices between t and t+k (k=1,2,…,8)								
Panel A. Bank	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
netbuy	-0.00312	-0.0167	-0.0345	-0.00526	0.0431	0.0661	0.111**	0.00968
	(0.0182)	(0.0257)	(0.0227)	(0.0316)	(0.0392)	(0.0481)	(0.0445)	(0.0446)
R-squared	0.380	0.430	0.440	0.473	0.504	0.519	0.535	0.544
Observations	2737	2602	2496	2389	2280	2178	2076	1978
Panel B. NFC	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
netbuy	0.0211***	0.0351***	0.0420***	0.0496***	0.0487***	0.0641***	0.0717***	0.0904***
	(0.00395)	(0.00591)	(0.00724)	(0.00822)	(0.00952)	(0.0110)	(0.0120)	(0.0132)
R-squared	0.167	0.204	0.246	0.280	0.313	0.346	0.377	0.412
Observations	68067	65363	62558	59863	57134	54510	51909	49312
Panel C. Banks and NFC	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
netbuy	0.0211***	0.0351***	0.0420***	0.0496***	0.0487***	0.0641***	0.0717***	0.0904***
	(0.00395)	(0.00591)	(0.00724)	(0.00822)	(0.00952)	(0.0110)	(0.0120)	(0.0132)
netbuy x Bank	-0.0242	-0.0519**	-0.0765***	-0.0548*	-0.00563	0.00203	0.0394	-0.0807*
	(0.0184)	(0.0261)	(0.0236)	(0.0323)	(0.0400)	(0.0488)	(0.0456)	(0.0460)
R-squared	0.174	0.211	0.252	0.286	0.319	0.352	0.383	0.416
Observations	70804	67965	65054	62252	59414	56688	53985	51290
Controls								
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Time x issuer sector FE	Y	Y	Y	Y	Y	Y	Y	Y

The table shows how price changes at future horizons conditional on an increase or a decrease in domestic HH ownership. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is the future change in the price of the stock, calculated as the difference in the log of the price per share between quarter t and quarter t+k (where k=1,2,…8). Netbuy is the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply both variables by 100 to read them similarly to a percentage change. Panel A shows results for bank stocks, Panel B for NFC stocks, and panel C for both. All specifications include firm fixed effects and time*issuer sector fixed effects, which is not redundant in panel C. Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table A5. Future price performance and changes in sectorial ownership

Dependent variable: change in the log of prices between t and t+k (k=1,2,…,8)

Panel A. Domestic HH	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0268***	0.0394***	0.0471***	0.0545***	0.0516***	0.0630***	0.0667***	0.0803***
	(0.00415)	(0.00656)	(0.00812)	(0.00968)	(0.00986)	(0.0117)	(0.0134)	(0.0141)
Δdshare x Bank	0.0000206	-0.0394*	-0.0610***	-0.0320*	-0.0450*	-0.0876**	-0.00500	-0.00489
	(0.0152)	(0.0208)	(0.0213)	(0.0187)	(0.0265)	(0.0348)	(0.0463)	(0.0531)
R-squared	0.179	0.218	0.258	0.292	0.325	0.358	0.389	0.423
Observations	69141	66314	63474	60707	57906	55245	52639	49981
Panel B. Non-domestic HH	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	-0.00110	0.000961	0.0000783	-0.000466	0.00130	0.00191	0.00504	0.0103*
	(0.00183)	(0.00280)	(0.00360)	(0.00417)	(0.00454)	(0.00519)	(0.00577)	(0.00620)
Δdshare x Bank	0.0134*	0.0130	0.0256*	0.0282*	0.0552***	0.0551***	0.0489**	0.0118
	(0.00708)	(0.0103)	(0.0142)	(0.0168)	(0.0181)	(0.0208)	(0.0241)	(0.0249)
R-squared	0.203	0.236	0.273	0.303	0.330	0.360	0.390	0.421
Observations	65682	63109	60493	57922	55343	52876	50409	47991
Panel C. Domestic NFC	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.136***	0.116***	0.0447	0.145**	0.165**	0.165**	0.136	0.214**
	(0.0313)	(0.0423)	(0.0514)	(0.0626)	(0.0707)	(0.0800)	(0.0899)	(0.101)
Δdshare x Bank	-0.0429	-0.378**	-0.0187	-0.630*	-0.0456	-0.672	-0.0179	0.310
	(0.140)	(0.147)	(0.248)	(0.357)	(0.359)	(0.544)	(0.391)	(0.479)
R-squared	0.183	0.221	0.262	0.296	0.328	0.361	0.391	0.425
Observations	62938	60454	57888	55350	52814	50368	47986	45607
Panel D. Non-domestic NFC	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.137	0.437**	-0.0311	0.108	0.515	0.343	0.404	0.777**
	(0.117)	(0.198)	(0.264)	(0.287)	(0.331)	(0.362)	(0.417)	(0.384)
Δdshare x Bank	0.619**	1.406***	0.353	-0.525	-1.178***	-2.623***	-3.613***	-3.666***
	(0.244)	(0.359)	(1.115)	(0.584)	(0.416)	(0.731)	(0.855)	(0.891)
R-squared	0.250	0.288	0.320	0.344	0.372	0.400	0.428	0.455
Observations	38946	37249	35616	34003	32439	30893	29362	27803
Panel E. Domestic banks	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	-0.0481	-0.0854	-0.747*	-0.561	-0.428	-1.048*	0.0115	-0.491
	(0.247)	(0.327)	(0.415)	(0.482)	(0.527)	(0.605)	(0.689)	(0.715)
Δdshare x Bank	-0.181	0.220	1.490	0.300	1.597	2.997*	0.236	2.305
	(0.664)	(0.912)	(1.090)	(1.270)	(1.455)	(1.639)	(2.461)	(2.148)
R-squared	0.224	0.257	0.292	0.320	0.348	0.379	0.407	0.437
Observations	46841	45319	43724	42082	40401	38770	37179	35524
Panel F. Non-domestic banks	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.299	-0.000766	0.184	0.689	0.257	-0.0534	-1.170	-0.306
	(0.327)	(0.475)	(0.577)	(0.676)	(0.717)	(0.797)	(0.869)	(0.902)
Δdshare x Bank	-1.020	-0.537	-2.980**	-2.880	1.458	0.793	3.683*	6.409**
	(1.116)	(1.221)	(1.417)	(1.804)	(2.729)	(2.199)	(2.115)	(3.053)
R-squared	0.281	0.308	0.333	0.354	0.372	0.399	0.428	0.450
Observations	32938	31813	30678	29648	28557	27446	26324	25198

(**Table A5** –continued-)

Panel G. Domestic IPF	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.911**	1.358**	0.853	0.474	0.887	0.829	-0.200	2.077*
	(0.397)	(0.593)	(0.716)	(0.842)	(0.927)	(1.023)	(1.081)	(1.225)
Δdshare x Bank	-0.943	-0.555	0.466	-1.274	-2.512	-0.722	-1.846	-0.416
	(1.370)	(1.828)	(2.692)	(2.758)	(4.198)	(3.793)	(4.111)	(3.535)
R-squared	0.269	0.300	0.337	0.365	0.392	0.420	0.454	0.483
Observations	37237	35947	34629	33290	31890	30509	29193	27868
Panel H. Non-domestic IPF	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	-0.565	-0.584	-1.367	-2.411**	-2.880**	-3.971***	-3.894**	-2.826*
	(0.511)	(0.778)	(0.899)	(1.127)	(1.246)	(1.442)	(1.523)	(1.639)
Δdshare x Bank	-1.000	0.353	-1.461	0.444	-2.332	3.574	4.190	8.614
	(2.333)	(2.976)	(4.207)	(6.630)	(5.536)	(5.008)	(5.690)	(5.780)
R-squared	0.299	0.326	0.348	0.370	0.393	0.417	0.440	0.467
Observations	31592	30215	28804	27505	26227	24995	23784	22606
Panel I. Domestic MF	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.302***	0.0403	0.184	0.257	0.255	0.285	0.223	-0.0215
	(0.0774)	(0.113)	(0.142)	(0.172)	(0.200)	(0.225)	(0.250)	(0.276)
Δdshare x Bank	-0.151	0.677	0.0213	0.640	1.444	0.763	0.466	1.748
	(0.447)	(0.604)	(0.735)	(0.764)	(0.993)	(1.027)	(1.061)	(1.347)
R-squared	0.253	0.287	0.322	0.351	0.380	0.407	0.438	0.466
Observations	46804	44983	43176	41401	39655	37942	36260	34545
Panel J. Non-domestic MF	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0798	0.0438	-0.0495	-0.215	-0.461**	-0.641***	-0.670**	-0.804***
	(0.0755)	(0.115)	(0.157)	(0.190)	(0.213)	(0.244)	(0.261)	(0.281)
Δdshare x Bank	-0.966***	-0.916**	-0.799	-1.131	0.328	2.090*	1.539	2.407*
	(0.349)	(0.448)	(0.626)	(0.730)	(0.923)	(1.074)	(1.131)	(1.450)
R-squared	0.280	0.321	0.352	0.377	0.403	0.433	0.460	0.484
Observations	42184	40472	38781	37143	35504	33907	32308	30712
Controls								
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Time x issuer sector FE	Y	Y	Y	Y	Y	Y	Y	Y

The table shows how price changes at future horizons conditional on an increase or a decrease in domestic or non-domestic HH (panels A and B), NFC (panels C and D), Banks (panels E and F), IPF (panels G and H) and MF (panels I and J) ownership. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is the future change in the price of the stock (in percentage), calculated as the difference in the log of the price per share between quarter t and quarter t+k (where k=1,2,…8). We multiply this variable by 100 to read it similarly to a percentage change. Δdshare is defined as share(t)/share(t-1)-1, where share is the ratio between the number of shares held by any holder sector to the total number of shares of the firm, expressed in percentage points . Banks is a dummy equal to one for bank stocks and zero for NFC stocks. Each panel refers to one holder sector, i.e. HH, NFC, Banks, IPF and MF, considering both the domestic and the non-domestic segment (this yields 10 sectors in total). All specifications include firm fixed effects and time*issuer sector fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: ∗ $p < 0.1$, ∗∗ $p < 0.05$, ∗∗∗ $p < 0.01$.

Table A6. Prices after equity issuances and sectorial ownership. Follow-on offerings

Dependent variable: change in the log of prices between t and t+k (k=1,2,…,8)								
Panel A. Domestic HH	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0169	-0.00315	-0.0570	-0.0402	-0.177*	-0.0736	0.0278	0.0110
	(0.0430)	(0.0685)	(0.0823)	(0.0956)	(0.102)	(0.131)	(0.142)	(0.137)
Δdshare x Bank	0.108	-0.244**	-0.625***	-0.740***	-0.560***	-0.910**	-1.818***	-1.841***
	(0.180)	(0.115)	(0.139)	(0.178)	(0.199)	(0.404)	(0.266)	(0.255)
R-squared	0.205	0.191	0.184	0.170	0.192	0.154	0.182	0.168
Observations	1637	1585	1512	1464	1383	1325	1263	1219
Panel B. Non-domestic HH	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.00955	0.00776	0.0270	0.0408*	0.0347*	0.0407	0.0640**	0.0639**
	(0.00698)	(0.0147)	(0.0181)	(0.0210)	(0.0208)	(0.0248)	(0.0284)	(0.0300)
Δdshare x Bank	-0.0328	-0.00468	-0.0308	0.00759	0.000202	0.0502	-0.215*	0.0529
	(0.0236)	(0.0288)	(0.0409)	(0.0314)	(0.0622)	(0.0629)	(0.118)	(0.0753)
R-squared	0.239	0.215	0.197	0.200	0.218	0.200	0.192	0.194
Observations	1702	1662	1579	1533	1456	1409	1347	1299
Panel C. Domestic NFC	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0221*	0.0110	-0.0154	0.00611	0.0181	0.0122	0.0131	0.0179
	(0.0117)	(0.0194)	(0.0226)	(0.0239)	(0.0231)	(0.0297)	(0.0276)	(0.0349)
Δdshare x Bank	-0.132	-0.249	-1.365***	-0.905*	-1.308***	-1.002**	-4.852***	-4.479***
	(0.130)	(0.170)	(0.461)	(0.512)	(0.229)	(0.497)	(0.653)	(0.551)
R-squared	0.237	0.211	0.194	0.162	0.191	0.154	0.179	0.158
Observations	1553	1504	1438	1398	1316	1265	1211	1164
Panel D. Non-domestic NFC	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.00142	0.000492	0.000195	-0.00508	-0.00547	0.00457	0.00795	0.00629
	(0.00308)	(0.00458)	(0.00558)	(0.00698)	(0.00772)	(0.0163)	(0.0182)	(0.0172)
Δdshare x Bank	0.00641	0.00865	0.0133	0.0202*	0.00771	0.0291	0.0291	0.00928
	(0.00550)	(0.00875)	(0.00973)	(0.0122)	(0.0191)	(0.0254)	(0.0207)	(0.0218)
R-squared	0.332	0.327	0.302	0.276	0.287	0.302	0.306	0.290
Observations	1083	1047	990	959	907	879	831	797
Panel E. Domestic banks	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	-0.000647	-0.00254	-0.00261	-0.00541	-0.00881**	-0.00838*	-0.0108*	-0.0125**
	(0.00154)	(0.00227)	(0.00425)	(0.00345)	(0.00438)	(0.00462)	(0.00619)	(0.00575)
Δdshare x Bank	-0.00263	-0.0789***	0.228	0.00462	-0.114	0.569***	1.412***	1.572***
	(0.0124)	(0.0104)	(0.293)	(0.299)	(0.195)	(0.0932)	(0.185)	(0.111)
R-squared	0.272	0.250	0.231	0.208	0.228	0.224	0.243	0.222
Observations	1169	1146	1105	1073	1020	986	949	913
Panel F. Non-domestic banks	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.00571*	0.00429	-0.000988	-0.00449	-0.0103	-0.0134	-0.0148	-0.0102
	(0.00315)	(0.00416)	(0.00585)	(0.00691)	(0.00794)	(0.0129)	(0.0147)	(0.0134)
Δdshare x Bank	0.00494	0.00770	0.00457	0.00386	0.0330**	0.0373*	0.0545***	0.0760***
	(0.00547)	(0.00830)	(0.0122)	(0.0125)	(0.0151)	(0.0208)	(0.0180)	(0.0265)
R-squared	0.389	0.370	0.409	0.331	0.314	0.299	0.303	0.332
Observations	862	847	820	800	769	750	719	695

(**Table A6** –continued-)

Panel G. Domestic IPF	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.00959	0.00307	0.000731	-0.00773	-0.00957	0.0163	0.00954	0.0310
	(0.0115)	(0.0142)	(0.0157)	(0.0194)	(0.0236)	(0.0447)	(0.0531)	(0.0567)
Δdshare x Bank	-0.123*	-0.191**	-0.242	-0.558***	-3.493***	-4.999***	1.958***	1.672***
	(0.0664)	(0.0864)	(0.171)	(0.189)	(0.0236)	(0.0447)	(0.184)	(0.128)
R-squared	0.323	0.246	0.216	0.195	0.236	0.218	0.250	0.225
Observations	946	930	889	867	819	798	761	737
Panel H. Non-domestic IPF	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0132	-0.00520	-0.00476	0.00511	-0.0162	-0.0170	-0.0194	0.00319
	(0.00967)	(0.0177)	(0.0170)	(0.0178)	(0.0254)	(0.0347)	(0.0362)	(0.0421)
Δdshare x Bank	-0.0192	-0.0261	-0.126***	-0.0201	-0.650***	0.158	0.165**	-0.813***
	(0.0228)	(0.0368)	(0.0421)	(0.0536)	(0.187)	(0.125)	(0.0767)	(0.249)
R-squared	0.355	0.350	0.388	0.346	0.335	0.359	0.380	0.431
Observations	870	848	805	779	742	727	695	664
Panel I. Domestic MF	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	-0.0119	-0.00770	-0.0158	-0.0101	-0.0310	-0.0265	-0.0689	-0.0869**
	(0.0162)	(0.0212)	(0.0270)	(0.0256)	(0.0381)	(0.0425)	(0.0465)	(0.0416)
Δdshare x Bank	0.0229	-0.0763	-0.0873**	-0.0268	0.990***	1.135***	0.832**	1.851***
	(0.0936)	(0.0533)	(0.0412)	(0.123)	(0.115)	(0.330)	(0.417)	(0.678)
R-squared	0.294	0.271	0.217	0.194	0.212	0.199	0.224	0.222
Observations	1263	1226	1166	1128	1070	1034	991	955
Panel J. Non-domestic MF	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0245*	0.0165	0.0368*	0.0773***	0.0869**	0.0782**	0.109***	0.111***
	(0.0142)	(0.0170)	(0.0194)	(0.0298)	(0.0349)	(0.0374)	(0.0387)	(0.0375)
Δdshare x Bank	-0.0768	-0.265**	-0.187	-0.413**	-0.397	-0.218	-0.338	-0.0358
	(0.0653)	(0.128)	(0.138)	(0.191)	(0.315)	(0.316)	(0.341)	(0.437)
R-squared	0.326	0.326	0.326	0.320	0.302	0.282	0.325	0.320
Observations	1080	1053	996	963	921	884	840	808
Controls								
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Time x issuer sector FE	Y	Y	Y	Y	Y	Y	Y	Y

The table shows how price changes in bank stocks at future horizons following a follow-on issuance and conditional on an increase or a decrease in domestic or non-domestic HH (panels A and B), NFC (panels C and D), Banks (panels E and F), IPF (panels G and H) and MF (panels I and J) ownership. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is ΔPrice(t+k), where k=1,2,…8, and represents the cumulative change in the log of prices since quarter t to quarter t+k, expressed in percentage. We multiply this variable by 100 to read it similarly to a percentage change. Δdshare is defined as share(t)/share(t-1)-1, where share is the ratio between the number of shares held by any holder sector to the total number of shares of the firm, expressed in percentage points. Bank is a dummy equal to one when the issuer is a bank and equal to zero when the issuer is a NFC. Each panel refers to one holder sector, i.e. HH, NFC, Banks, IPF and MF, considering both the domestic and the non-domestic segment (this yields 10 sectors in total). All specifications include firm fixed effects and time*issuer sector fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table A7. Future price performance and domestic HH

Dependent variable: percentage change prices between t and t+k (k=1,2,…,8)								
Panel A. Future price changes, all periods	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0289***	0.0442***	0.0519***	0.0592***	0.0572***	0.0723***	0.0774***	0.0945***
	(0.00435)	(0.00708)	(0.00914)	(0.0107)	(0.0118)	(0.0136)	(0.0142)	(0.0163)
Δdshare x Bank	-0.00703	-0.0329*	-0.0505**	-0.0265	-0.0392	-0.0356	0.0148	-0.0212
	(0.0143)	(0.0188)	(0.0206)	(0.0237)	(0.0280)	(0.0371)	(0.0499)	(0.0455)
R-squared	0.164	0.192	0.227	0.255	0.282	0.308	0.334	0.362
Observations	69141	66314	63474	60707	57906	55245	52639	49981
Panel B. Follow-on issuances	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0112	-0.0238	-0.0678	-0.0999	-0.339***	-0.272**	-0.0853	-0.0698
	(0.0512)	(0.0783)	(0.0878)	(0.0978)	(0.113)	(0.132)	(0.160)	(0.162)
Δdshare x Bank	-0.0376	-0.276**	-0.470***	-0.439***	-1.881***	-2.965***	-1.437***	-0.468***
	(0.168)	(0.110)	(0.144)	(0.144)	(0.113)	(0.132)	(0.160)	(0.162)
R-squared	0.210	0.198	0.199	0.165	0.208	0.150	0.191	0.158
Observations	1637	1585	1512	1464	1383	1325	1263	1219
Controls								
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Time*issuer sector FE	Y	Y	Y	Y	Y	Y	Y	Y

The table shows how price changes in bank stocks at future horizons (panel A) and following a follow-on issuance (panel B) conditional on an increase or a decrease in domestic HH ownership. The sample period runs from Q1 2009 to Q4 2017. The dependent variable is ΔPrice(t+k), where k=1,2,…8, and represents the cumulative percentage change in prices (rather than the cumulative change in the log of prices) since quarter t to quarter t+k. Δdshare is defined as share(t)/share(t-1)-1, where share is the ratio between the number of shares held by HH to the total number of shares of the firm, expressed in percentage points . Bank is a dummy equal to one when the issuer is a bank and equal to zero when the issuer is a NFC. All specifications include firm fixed effects and time*issuer sector fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: $*$ $p < 0.1$, $**$ $p < 0.05$, $***$ $p < 0.01$.

Table A8. Sectorial response to stock price changes. Domestic holders with common exposures

Panel A. OLS	HH	NFC	Banks	IPF	MF
	(1)	(2)	(3)	(4)	(5)
Return (in t-1)	-6.644***	-2.463*	10.19***	-4.489**	5.163***
	(0.901)	(1.364)	(2.897)	(1.993)	(1.466)
Return (in t-1) x Bank	-6.983**	-5.835	-9.697	-6.115	-5.121
	(3.214)	(3.892)	(11.07)	(5.317)	(4.648)
R-squared	0.102	0.081	0.123	0.083	0.104
Observations	19,865	19,865	19,865	19,865	19,865

Panel B. Seemingly unrelated regression (SUR)	HH	NFC	Banks	IPF	MF
	(1)	(2)	(3)	(4)	(5)
Return (in t-1)	-6.644***	-2.463*	10.19***	-4.489**	5.163***
	(0.779)	(1.269)	(2.842)	(1.745)	(1.249)
Return (in t-1) x Bank	-6.983***	-5.835	-9.697	-6.115	-5.121
	(2.330)	(3.796)	(8.502)	(5.219)	(3.737)
R-squared	0.116				
Observations	19,865				
Breusch-Pagan test for indep. equations (p-value)	0.000				

Controls	
Firm FE	Y
Time FE	Y
Holder country FE	Y

The table studies how the holdings of each sector varies following a price change in the stocks. Both in Panel A (OLS regressions) and B (seemingly unrelated regression -SUR-) the sample is restricted to observations in which netbuy is defined for all investors in the same stock and quarter (common exposures). The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter. Bank is a dummy equal to one if the issuer is a bank, and zero if the issuer is a NFC. In columns we collect results per holder sector (HH=households or individual investors; NFC=non-financial corporations; Banks are banks; IPF=Insurance and Pension Funds; MF=Mutual Funds). All specifications include firm fixed effects, time fixed effects, and holder country fixed effects. The p-value of the Breusch-Pagan test for independent equations is reported below Panel B and it is highly significant, indicating that the residuals of the five equations (one per holder) are not independent (and thus the SUR provides more efficient estimates of standard errors). Robust standard errors are shown in parentheses and are clustered at the security level: $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01.

Table A9. Sectorial response to stock price changes. Sample of common exposures

Dependent variable: change in the log of the number of shares held												
Investor category: HH												
Holder	**Only domestic**	**Only domestic**	**Only domestic**	**All**	**All**	**All**	**All**	**All**	**All**	**All**	**All**	**All**
Explanatory variables / subset of observations	All	Market cap > 50 million	Market cap > 100 million	All	Market cap > 50 million	Market cap > 100 million	All	Market cap > 50 million	Market cap > 100 million	All	Market cap > 50 million	Market cap > 100 million
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Return (in t-1)	-6.644***	-6.410***	-6.530***	-7.180***	-7.751***	-7.902***	-6.475***	-6.937***	-6.957***	.	.	.
	(0.901)	(0.936)	(1.000)	(1.205)	(1.249)	(1.329)	(1.212)	(1.244)	(1.327)	.	.	.
Return (in t-1) x DOM				-3.685***	-3.043**	-3.426***	-5.024***	-4.750***	-5.167***	-4.600***	-4.513***	-5.062***
				(1.230)	(1.246)	(1.286)	(1.298)	(1.301)	(1.348)	(1.406)	(1.448)	(1.506)
Return (in t-1) x Bank	-6.983**	-7.542**	-7.521**	1.940	2.259	2.305	1.767	2.134	2.135	.	.	.
	(3.214)	(3.250)	(3.437)	(5.254)	(5.279)	(5.444)	(5.113)	(5.122)	(5.299)	.	.	.
Bank x DOM				0.00828	0.00953	-0.151	.	.	.	.	.	.
				(0.827)	(0.837)	(0.879)	.	.	.	.	.	.
Return (in t-1) x Bank x DOM				-8.173*	-8.861**	-8.482*	-8.302*	-8.592**	-8.304*	-13.02***	-12.96***	-12.06***
				(4.444)	(4.471)	(4.585)	(4.372)	(4.375)	(4.525)	(4.248)	(4.251)	(4.319)
R-squared	0.102	0.086	0.086	0.047	0.045	0.046	0.150	0.150	0.150	0.400	0.398	0.399
Observations	19,865	17901	16118	83507	78298	72349	82509	77537	71730	80386	75824	70381
Controls												
Firm FE	Y	Y	Y	Y	Y	Y	.	.	.	.	.	.
Time FE	Y	Y	Y	Y	Y	Y	.	.	.	.	.	.
Holder country FE	Y	Y	Y	Y	Y	Y	.	.	.	.	.	.
Domestic holder FE	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm x Time FE	N	N	N	N	N	N	N	N	N	Y	Y	Y
Firm x Holder country FE	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Time x Holder country FE	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y

The table shows how the holdings of HH varies following a price change in the stocks. In the first three columns, the sample is restricted to 1) domestic holders, and 2) observations in which netbuy is defined for all investors in the same stock and quarter (common exposures). In the rest of columns, the sample includes non-domestic holdings, although we get rid of very small exposures (those with a total share in the market capitalization of the stock below 0.01%). The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter. DOM is a dummy equal to one if the holder is domestic (the dummy is equal to zero for non-resident holders). Bank is a dummy equal to one if the issuer is a bank, and zero if the issuer is a NFC. All specifications include firm, time and holder country fixed effects. In columns 4-12, we include domestic holder fixed effects as well. In some columns, we interact some of these fixed effects (see the bottom of the table). Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table A10. Sectorial response to stock price changes. Periods with similar returns between bank and NFC stocks vs other periods. Sample of common exposures.

Dependent variable: change in the log of the number of shares held				
Investor category: HH				
Holder	**Only domestic**	**All**	**All**	**All**
Explanatory variables / subset of observations	All	All	All	All
	(1)	(2)	(3)	(4)
Return (in t-1)	-6.200***	-10.22***	-9.981***	.
	(1.323)	(1.563)	(1.586)	.
Return (in t-1) x DOM	.	1.028	1.698	1.237
	.	(1.752)	(1.826)	(2.086)
Return (in t-1) x Bank	-11.45*	9.216	8.213	.
	(6.496)	(7.219)	(7.092)	.
Bank x DOM	.	1.524*	.	.
	.	(0.917)	.	.
Return (in t-1) x Bank x DOM	.	-15.93**	-13.16**	-12.99**
	.	(7.033)	(6.539)	(6.286)
R-squared	0.162	0.060	0.207	0.434
Observations	10182	44627	43351	42249
Controls				
Firm FE	Y	Y	.	.
Time FE	Y	Y	.	.
Holder country FE	Y	Y	.	.
Domestic holder FE	N	Y	Y	Y
Firm x Time FE	N	N	N	Y
Firm x Holder country FE	N	N	Y	Y
Time x Holder country FE	N	N	Y	Y

The table shows how the holdings of bank and NFC stocks of HH varies following a price change in these stocks. In the first column, the sample is restricted to 1) domestic holders, 2) observations in which netbuy is defined for all investors in the same stock and quarter (common exposures), and 3) periods in which the past return of banks and NFC are "similar". For this purpose, we calculate the average lagged returns in NFC and banks stocks for each period. We then calculate the difference between these two returns, and obtain the distribution of this new variable. Periods with "similar" returns are those in the interquartile range of this distribution. In column 1, the sample includes only domestic holdings. In the rest of columns, the sample includes non-domestic holdings as well, although we get rid of very small exposures (those with a total share in the market capitalization of the stock below 0.01%). The sample period runs from Q1 2009 to Q4 2017. The dependent variable is netbuy or the (average) quarterly change in stock holdings, measured as the number of shares held (expressed in logs) and calculated at the security level. We multiply this variable by 100 to read it similarly to a percentage change. Return stands for the lagged return of the stock, or its price change in the previous quarter. DOM is a dummy equal to one if the holder is domestic (the dummy is equal to zero for non-resident holders). Bank is a dummy equal to one if the issuer is a bank, and zero if the issuer is a NFC. All specifications include firm, time and holder country fixed effects. Columns 2-4 include domestic holder fixed effects as well. In some columns, we interact some of these fixed effects (see the bottom of the table). Robust standard errors are shown in parentheses and are clustered at the security level: $* p < 0.1$, $** p < 0.05$, $*** p < 0.01$.

Table A11. Future price performance and changes in sectorial ownership. Sample of common exposures, firms with a market capitalization of over EUR 50 million

Dependent variable: change in the log of prices between t and t+k (k=1,2,…,8)								
Panel A. Future price performance, all periods	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	0.0278***	0.0341**	0.0438**	0.0796***	0.111***	0.103***	0.0985***	0.153***
	(0.0104)	(0.0155)	(0.0183)	(0.0215)	(0.0224)	(0.0284)	(0.0317)	(0.0290)
Δdshare x Bank	-0.00965	-0.0152	-0.0737**	-0.0261	-0.117**	-0.0652	-0.0134	-0.0898
	(0.0277)	(0.0239)	(0.0344)	(0.0494)	(0.0456)	(0.0480)	(0.0817)	(0.0755)
R-squared	0.339	0.355	0.376	0.402	0.424	0.443	0.467	0.497
Observations	18721	18126	17532	16926	16264	15597	14953	14296
Panel B. Future price performance, after follow-on issuances	**t+1**	**t+2**	**t+3**	**t+4**	**t+5**	**t+6**	**t+7**	**t+8**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δdshare	-0.0444	-0.148	-0.172	-0.116	-0.274	-0.287	-0.362	-0.269
	(0.0957)	(0.140)	(0.185)	(0.204)	(0.194)	(0.208)	(0.239)	(0.290)
Δdshare x Bank	0.169	-0.0986	-0.510**	-0.664**	-0.464*	-1.244**	-1.428***	-1.561***
	(0.208)	(0.171)	(0.219)	(0.259)	(0.265)	(0.499)	(0.337)	(0.369)
R-squared	0.525	0.508	0.495	0.455	0.512	0.624	0.564	0.561
Observations	435	428	409	395	368	357	345	334
Controls								
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Time*issuer sector FE	Y	Y	Y	Y	Y	Y	Y	Y

The table shows how price changes at future horizons conditional on an increase or a decrease in domestic HH ownership (Panel A) and following a follow-on issuance (Panel B). The sample period runs from Q1 2009 to Q4 2017. The dependent variable is the future change in the price of the stock (in percentage), calculated as the difference in the log of the price per share between quarter t and quarter t+k (where k=1,2,…8). We multiply this variable by 100 to read it similarly to a percentage change. Δdshare is defined as share(t)/share(t-1)-1, where share is the ratio between the number of shares held by HH to the total number of shares of the firm, expressed in percentage points. The sample of NFCs is restricted to observations in which *netbuy* is defined for all investors in the same stock and quarter (common exposures), and to stocks with a market capitalization of over EUR 50 million in at least 33% of observations. All specifications include firm fixed effects and time*issuer sector fixed effects. Robust standard errors are shown in parentheses and are clustered at the security level: $*$ p < 0.1, $**$ p < 0.05, $***$ p < 0.01.

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