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Every Cloud has a Silver Lining: On the Relation between Bank-Affiliated Asset Manager Bias and Mutual Fund Fees

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Abstract

Considering the institutional factors of the German mutual fund market, we analyze equity fund holdings of German retail clients who received financial advice between 2005 and 2014 to investigate whether those investors overweight the bank-affiliated asset manager and if so, whether this bank-affiliated asset manager bias leads to higher fees, i. e. Total Expense Ratios. Our analysis clearly indicates the presence of large bank-affiliated asset management biases for clients of all different banking sectors. Thus, German retail clients follow the biased financial advice they receive from their bank. Surprisingly, this bank-affiliated asset manager bias significantly reduces portfolio costs measured via mutual fund fees. Therefore, German banks disproportionately promote products of bank-affiliated asset managers but this biased advice does not lead to higher portfolio costs.

Keywords: Financial Advice, Mutual Investment Funds, Asset Management, Firm Bias, Management Fees

JEL Classification: G11, G23, G51

I. Introduction

The financial advice industry has been subject to a continuously aggravated regulatory environment over the last couple of years. The reasons for the increasing regulatory requirements can be found in the fact that both, academic studies (*Bergstresser* et al. 2009; *Inderst/Ottaviani* 2012a; *Inderst/Ottaviani*

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2012b) and empirical evidence especially before the Great Financial Crisis have revealed that clients are opposed to and suffering from biased financial advice. The consequences of such biased financial advice include allocation inefficiencies, aggravation of existing investment biases (*Mullainathan* et al. 2012), increasing transaction costs (*Hackethal* et al. 2012a), lower risk-adjusted returns (*Karabulut* 2013), and other deficits which lead to welfare losses for retail investors.

In this study, we analyze the relation between potentially biased financial advice and mutual fund fees, i. e. Total Expense Ratios. Mutual fund fees are a suitable criterion to analyze the presence and consequences of biased financial advice due to several reasons. On the one hand, financial advisers are incentivized to recommend more expensive products due to existing reimbursement agreements with the fund providing asset manager. On the other hand, asset managers and financial advisers are not only obliged to publish ex-post fees and expenses associated with the investment but also have to inform the client before the mutual fund purchase is done. Thus, regulatory requirements such as MiFID ensure an increased ex-ante fee transparency for retail investors so that clients are aware of all costs associated with investments in mutual funds and have the possibility to react to high or increased fund fees by modifying their allocation, e. g. switch to less expensive funds. Besides, even though they are not constant, mutual fund fees are comparatively stable over time, at least they are certainly steadier than mutual funds' active performance. Additionally, asset managers individually determine fees. This is in contrast to relative performance, which is the result of a mixture of timing, selection, and luck (*Phillips* et al. 2016). Since *Jensen* (1968) pioneered the research on active performance, the vast majority of the existing studies conclude that the net performance of the majority of mutual funds (after expenses) is inferior to that of a comparable passive market proxy (*Otten/Bams* 2002). Some well-known examples include *Fama/French* (1993), *Carhart* (1997), and *Fama/French* (2010). However, there are also numerous other studies denying the existence of sustainable positive alpha generation ability (*Barras* et al. 2010; *Busse* et al. 2010; *Daniel* et al. 1997; *Elton* et al. 1993; *Glode* 2011; *Malkiel* 1995; *Pastor* et al. 2002). Superior performance in the short-term is a short-lived phenomenon that mostly disappears when funds are evaluated over longer periods (*Bollen* et al. 2004). Most studies argues that the key drivers for the negative relative performance are load fees, expenses, and turnover (*Cuthberson* et al. 2010; *Wermers* 2000) which explains the negative relation between fees and performance. *Gil-Bazo/Ruiz-Verdú* (2009) find that funds with worse before-fee performance charge higher fees. More recently, *Galagedera* et al. (2020) argue that mutual funds that charge high fees perform relatively poorly in disbursement management. So why investors buy actively managed mutual funds, even though on average such funds underperform index funds? *Gruber* (1996) argues this is because unsophisticated investors such

as retail clients at least in part base their investment decisions on advice from brokers and advertising. Consequently, investors do not punish poor performers by withdrawing assets (*Del Guercio/Tkac* 2002).

Existing research mainly focuses on the negative consequences of financial advice, thereby ignoring the institutional set up as a potential driver for supply side factors influencing the quality of financial advice. In this study, we control for those institutional factors by analyzing the German mutual fund industry. Germany is a special case for financial advice for retail investors due to several reasons. First, in contrast to other countries such as the UK where with the implementation of the Retail Distribution Review in 2014, the Financial Conduct Authority prohibited transaction based advisory fees, the advisory process in Germany is by far dominated by transaction based advisory fees. Therefore, portfolio mandates based on an advisory or all in fees are rather unusual in the German retail market. Second, the structure of the German banking system is clearly different compared to other countries. For instance, in the US, the Glass-Steagall Act in 1933 constituted the separation of commercial and investment banks[1]. In contrast, the German banking system is, despite ongoing discussions of introducing a separate banking system as a consequence of the Great Financial Crisis, characterized by a so called universal banking system, i. e. large universal banks provide commercial banking as well as investment banking and asset management services within one company. Consequently, so called "closed architectures" are very common in the German banking market. Investment products such as mutual investment funds and investment certificates, which are offered to retail clients via financial advice, are often "in-house" products from the company-owned or bank-affiliated asset manager or investment bank. Additionally, the German banking system contains another peculiarity in international comparison by its so-called "three-pillar banking system", i. e. the banking landscape in Germany is dominated by three different banking types: state-owned savings banks, cooperative banks, and private banks.

As all these characteristics are strongly influencing the entire process of financial advice in the retail business, German retail clients may suffer from biased financial advice due to specific institutional set up of the German financial banking system. Therefore, in-house products such as mutual investment funds and investment certificates offered by the bank-affiliated investment companies might be the preferred choice for one-sided incentivized bank advisors. A strong indication of the existence of such a biased financial advice would be a significant overweight of mutual investment funds offered by the bank-affiliated asset manager in the portfolios of the bank's clients. This bias is referred to as the

[1] Even though the Glass-Steagall Act was later repealed by the Gramm-Leach-Bliley Act in 1999, the separation of commercial and investment banks is still characteristic for the US banking sector.

bank-affiliated asset manager bias in the remaining of the paper. The existence of such a bank-affiliated asset manager bias may also lead to higher overall portfolio costs for retail clients as banks may restrict their product offering to high cost products provided by the bank-affiliated asset manager, only.

In order to investigate if such an ill-functioning supply side effect is existent in the German mutual fund market, we analyze equity mutual fund holdings of German retail clients who received financial advice between 2005 and 2014 to investigate whether these investors overweight the bank's bank-affiliated asset manager and if so, whether this bank-affiliated asset manager bias leads to higher overall portfolio costs, i. e. Total Expense Ratios. Using a unique data set obtained via combining data from different statistics of the Deutsche Bundesbank and Morningstar Direct, we extend the literature on the supply side of financial advice by analyzing the existence and the effect of a bank-affiliated asset manager bias in the portfolios of German retail clients.

To preview our key results, we document the existence of a bank-affiliated asset manager bias, implying that German retail clients significantly overweight mutual investment funds issued by the bank-affiliated asset manager. The severity of that asset manager bias varies between the different banking sectors with clients of cooperative and savings banks being prone to a larger asset manager bias than clients of private banks. Additionally, we also find that the asset manager bias increases, the higher the branch density, the larger the average portfolio size, and the larger the market share of the bank-affiliated asset manager is. In contrast, the larger the bank and the more aggressive a client's investment style, the lower is the asset manager bias ratio. Unexpectedly, we furthermore find that the average portfolio costs, measured by the Total Expense Ratios, are significantly lower for retail clients having a portfolio at a bank with a bank-affiliated asset manager. Average Total Expense Ratios increase the higher the bank's profitability, the more aggressive a client's investment style, and the larger the bank is. In contrast, the existence of a bank-affiliated asset manager as well as a higher branch density reduce the average Total Expense Ratios. The documented findings are stable to changes in the proxy to measure the existent asset manager bias and fees as well as to changes in the underlying econometric estimation method. Our results are of high relevance for the current regulatory efforts of politicians and regulators as they contradict the need of a clear-cut separation of product issuance on the one hand, and the supply of financial advice on the other hand.

The remainder of this study is organized as follows. Section 2 relates our work to the previous literature on financial advice. Section 3 describes our data and provides descriptive statistics. The applied methodological approach is presented in section 4, before we present our results in section 5. Section 6 contains the applied robustness checks. Finally, section 7 concludes.

II. Literature Review

Financial advice has become a major concern for regulators and financial market authorities especially since the Great Financial Crisis, thus, a vast literature focusing on different areas of financial advice have occurred. One major strand of this literature tries to answer the question whether or not financial advice is generally beneficial for retail investors. Unfortunately, academic studies provide mixed results. Some studies document that financial advice do not provide any value added for investors by reporting the inability of financial advice to de-bias their client's portfolios. Financial advisers even encourage return-chasing behavior and push for actively managed funds that have higher fees leading to lower net returns and inferior risk-return trade-offs (*Mullainathan* et al. 2012; *Hackethal* et al. 2012a; *Bergstresser* et al. 2009). In contrast, other researchers find at least some positive aspects of financial advice as it helps to reduce costly investment mistakes such as under-diversification, home bias, and portfolio churning (*Karabulut* 2013; *Kramer* 2012; *Gaudecker* 2015). Additionally, *Gjiergi* et al. (2013) document financial advisers to also provide useful tax advice.

Another strand of literature deals with the different demand and supply side effects of financial advice in general. Concerning demand side effects, the majority of studies focus on the impact of trust and financial literacy on investment behavior. With respect to the latter, some studies analyze the effect of investors' financial literacy on the demand for financial advice finding that individuals with higher financial literacy are more likely to solicit financial advice, even though they are less likely to follow it (*Calcagno/Monticone* 2015; *Bucher-Koenen/Koenen* 2015, *Bhattacharya* et al. 2012). In the same sense, *Collins* (2012) documents that financial advice often serves as a complement to, rather than a substitute for, financial capability as individuals with higher incomes, educational attainment, and certain levels of financial literacy are most likely to receive financial advice. Additionally, researchers study the effect of financial literacy on investment behavior. For instance, *Müller/Weber* (2010) document a positive influence of financial literacy on the likelihood of investing in low-cost funds. By analyzing the effect of financial literacy on investment behavior during and after the Great Financial Crisis, *Bucher-Koenen/Ziegelmeyer* (2014) report that less knowledgeable investors are less likely to own risky assets and that those investors are reluctant to reinvest in risky assets, once they have experienced losses. This behavior gives rise to serious distributional consequences, as households with lower financial literacy face lower returns in the end.

Furthermore, other studies investigate how investment decisions are influenced by the level of trust investors have in their advisor. *Gennaioli* et al. (2015) document that a higher degree of trust in the advisor reduces an investor's risk perception of investments and even allows advisors to charge higher fees. In the

same sense, *Monti* et al. (2014) show that portfolio decisions appear to depend more on investors' perceptions about the investor–advisor relationship than on the risk and return characteristics of investments comprising the portfolio choice set. Consequently, researchers try to identify the relevant determinants that influence trust in financial advisors. In their study, *Lachance/Tang* (2012) report that trust declines with age and increases with willingness to take investment risk. Additionally, having some financial literacy increases trust, but having too much decreases it. Controlling for financial exposure, trust and costs are the two most important determinants of financial advice-seeking behavior. Due to the negative experiences of various retail clients during the Great Financial Crisis, *Hurley* et al. (2014) by investigating the consequences of the Great Financial Crisis on investor's trust in their advisors for different banking types report significant losses in trust in large banks but similar or even increased levels of trust in community banks.

In contrast to those demand side effects, studies on the supply side of financial advice in the majority of cases deal with the relation between bank profitability and the existence of conflicts of interests, thereby calling for increased consumer protection. In that sense, *Hoechle* et al. (2018) document that financial advisors induce transactions that are associated with above average profits to the bank and thereby above average costs to their clients. Similarly, *Hackethal* et al. (2012b) report that investors who rely strongly on advice generate more than twenty percent higher revenues for the adviser. They also find that investors rely more on advice when they perceive less of a conflict of interest and when they have a lower opinion of their own and a higher opinion of their advisors' expertise. In the same sense, other studies deal with the existence and consequences of conflicts of interests in the financial advice industry. On the one hand, those studies report that the prevailing agency conflicts in some parts of the industry can turn advice into a curse rather than a blessing for consumers, especially when consumers are not sufficiently wary (*Inderst/Ottaviani* 2009, 2012a, 2012b). On the other hand, financial outcomes could even be improved with the help of financial advisers when the interests of the advisor and investor are aligned (*Finke* 2013). *Bolton* et al. (2007) show that the information advantage of financial advisers over investors about the suitability of financial products does not necessarily lead to the existence of conflicts of interests as high regulation standards, a competitive pressure, as well as negative reputation costs for misselling reduces the incentives for financial institutions to provide misleading advice, and hence align interest of investors and financial advisers efficiently.

The above mentioned studies prove that if the interests of advisor and advisee are not aligned, the existence of conflicts of interests could lead to severe negative wealth effects for households. Therefore, it is essential for regulators to better understand the effects of the differentiating individual institutional set ups in

which financial advice is provided. *Pauls* et al. (2015) by contrasting the services of advisors at community banks versus large banks in Germany show that supply-side variations stemming from different institutional set ups indeed affect customers' trust and behavior.

The aim of this study is similar, as we further investigate the effects of varying institutional set ups in which financial advice is provided by analyzing whether biased advice on mutual investment funds leads to an overweight in mutual investment funds of the bank-affiliated asset manager and whether this bank-affiliated asset manager bias harm retail investors in the form of higher average portfolio costs.

III. Data and Descriptive Statistics

1. Data

To investigate whether German retail investors who use financial advice for their investment decisions are prone to an asset manager bias and if so, whether this asset manager bias leads to higher average fees, we base our study on a unique data set by combining two different data sources, statistics obtained from the Deutsche Bundesbank and Morningstar Direct. More precisely, we take advantage of different statistics provided by the Deutsche Bundesbank. The different data sources include the securities holdings statistics ("Statistik über Wertpapierinvestments", *SHS*), the balance sheet statistics ("Monatliche Bilanzstatistik", *BISTA*), the bank statistics (Bankenstatistik, *BS*), and the profit and loss account statistics ("Gewinn- und Verlustrechnung", *GuV*). The securities holdings statistics (*SHS*) contain information about the mutual investment fund holdings of German retail investors. All monetary financial institutions registered in Germany are obliged to report the holdings of mutual investment funds hold by their retail clients to the securities holdings statistics in the private household section on a quarterly basis. Therefore, the securities holdings statistics of the Deutsche Bundesbank contain the entire holdings of all mutual investment funds hold by retail clients for each monetary financial institution (MFI). Additionally, the securities holdings statistics (*SHS*) also contain information on different financial indicators used as control variables in the analysis. These indicators include the number and market value of the security accounts of private households reported to Deutsche Bundesbank for each MFI. Similar, the balance sheet statistics (*BISTA*), the bank statistics (*BS*), and the profit and loss account statistics (*GuV*) also contain information on additional financial indicators used as control variables in the analysis. Exemplary, the balance sheet statistics (*BISTA*) contain information on the size of the balance sheet of each MFI used in the analysis on a monthly basis. The bank statistics (*BS*) contain the number of branches in Germany of each MFI. In contrast, the profit and loss

account statistics (*GuV*) contain information on the return on equity of each MFI used in the analysis.

The second data set is Morningstar Direct, which is one of the largest and most frequently used data basis for mutual investment fund studies. The benefit of the Morningstar Direct data for our study is twofold: First, we use the Morningstar fund universe to allocate all mutual investment funds registered in the securities holdings statistics into the corresponding Morningstar Global Categories. Second, we obtain the costs, i. e. Total Expense Ratio (TER) and up-front fees, for each mutual fund registered in the securities holdings statistics.

The aim of this study is to analyze the impact of financial advice on investment behavior of German retail clients. The study's aim restricts the data set in the following way. First, we only investigate the mutual investment fund holdings of monetary financial institutions that provide financial advice. Therefore, we exclude all monetary financial institutions that are not providing financial advice directly, e. g. direct banks. Second, we focus on actively managed mutual investment funds only. This is because passively managed Exchange Traded Funds (ETFs) are not offered directly by the monetary financial institutions providing financial advice in Germany due to the absence of up-front fees as well as significantly lower management fees. As banks have almost no incentive to actively offer Exchange Traded Funds to their clients, those funds account for only ca. 1 % of total assets under management reported in the securities holdings statistics in Q4 2005 and ca. 7 % in Q1 2014, respectively[2]. Third, by using the reported mutual investment fund holdings of the private household section within in the securities holdings statistics of the Deutsche Bundesbank, we focus on retail clients, only, thereby excluding holdings of institutional investors such as insurance and pension funds.

To conduct the investigation of whether or not an asset manager bias is existent, we focus on the three largest Morningstar Global Categories with respect to their reported holdings within the securities holdings statistics in the period between Q4 2005 and Q1 2014. These categories are Equity Germany (containing the Morningstar Categories Germany Large-Cap Equity, and Germany Small/Mid-Cap Equity), Equity Europe (containing the Morningstar Categories Europe Flex-Cap Equity, Europe Large-Cap Blend Equity, Europe Large-Cap Growth Equity, Europe Large-Cap Value Equity, Europe ex-UK Large-Cap Equity, Europe ex-UK Small/Mid-Cap Equity, Other Europe Equity, Europe Small-Cap Equity, Eurozone Large-Cap Equity, and Eurozone Small-Cap Equity), and Equity World (containing the Morningstar Categories Global Large-Cap Blend

[2] Most of the financial advice providing monetary financial institutions are offering Exchange Traded Funds indirectly in two ways. First, they launch products such as fund of funds that are able to or exclusively invests in Exchange Traded Funds. Second, they are enabling their clients to buy Exchange Traded Funds via self-directed orders.

Equity, Global Equity Income, Global Flex-Cap Equity, Global Large-Cap Blend Equity, Global Large-Cap Growth Equity, Global Large-Cap Value Equity, and Global Small-Cap Equity). We then divide all monetary financial institutions that have reported assets under management in these Morningstar Categories in the observation period into two groups. The first group consists of banks that either have an asset management department within the group or that have a strategic partnership with an external investment company (bank-affiliated asset manager). The second group consists of banks that do not own an asset management department within the group or do not have a strategic partnership with an external investment company (no bank-affiliated asset manager). In the remaining of the study, we use the former as observation group and the latter as control group.

2. Descriptive Statistics

Table 1 shows the development of the mutual investment funds' assets under management of the three largest Morningstar Global Categories within the securities holdings statistics in the observation period. Therefore, Equity Germany, Equity Europe, and Equity Global represent ca. 80 % of the entire mutual equity fund assets that are reported in the securities holdings statistics for private households. Additionally, Table 1 documents that those largest three Morningstar Global Categories consists of 1,374 different mutual funds, representing 17.24 % of the entire number of reported mutual investment funds in Q3 2014[3].

As mentioned above, the German banking sector is divided into a three-pillar system consisting of stated-owned savings banks, cooperative banks, and private banks. Table 2 reports the number of monetary financial institutions registered in the securities holdings statistics and the respective assets under management for each banking sector. At the end of 2005, there were 1,282 cooperative banks, 451 savings banks, and 101 private banks. Over the observation period, the number of monetary financial institutions constantly decreased by overall almost 300 monetary financial institutions in all three banking sectors due to the continuing consolidation process in the German banking sector, especially within the sector of cooperative banks. Despite the comparatively small number of registered monetary financial institutions within the private banking sector, this sector holds 46.62 % of total assets under management in Q1 2014. Cooperative

[3] As mentioned in the previous section, we exclude Exchange Traded Funds as they are not offered directly by most of the German banks that provide financial advice due to the low management fee and non-existing upfront fees. Instead, Exchange Traded Funds are bought by clients in self-directed orders or indirectly via fund of funds. Consequently, they only amount to 1 % to 7 % of market share in the three largest Morningstar Global Categories over the analyzed time period from Q4 2005 to Q1 2014.

Table 1

Assets Under Management and Number of Mutual Investment Funds of Analyzed Equity Funds

Quarter	*Equity Germany*		*Equity Europe*		*Equity Global*		*Total*	
	AuM [bn €]	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*
200512	17.4	532	44.1	115	29.8	480	91.2	1,127
200603	19.4	545	47.0	115	30.7	494	97.1	1,154
200606	17.3	554	42.3	117	28.0	501	87.7	1,172
200609	17.6	571	44.7	119	29.0	507	91.3	1,197
200612	18.2	590	46.7	119	29.8	517	94.7	1,226
200703	18.1	603	46.6	119	29.4	533	94.1	1,255
200706	19.1	624	46.8	122	30.6	546	96.5	1,292
200709	17.9	624	42.4	122	29.5	549	89.8	1,295
200712	17.2	640	39.0	123	28.4	577	84.6	1,340
200803	13.3	641	30.2	122	23.4	587	67.0	1,350
200806	13.0	663	28.2	120	23.5	601	64.7	1,384
200809	11.0	673	23.5	121	20.9	604	55.4	1,398
200812	9.8	681	18.8	121	16.6	607	45.1	1,409
200903	8.2	671	16.4	119	15.8	591	40.4	1,381
200906	10.1	662	19.1	119	18.7	580	48.0	1,361
200909	12.4	664	22.1	117	21.6	578	56.1	1,359
200912	12.8	649	22.5	111	23.0	566	58.3	1,326
201003	13.4	652	23.4	111	25.2	554	62.0	1,317
201006	12.8	666	22.1	110	25.1	552	60.0	1,328
201009	13.5	674	23.3	109	25.7	557	62.5	1,340
201012	15.5	672	24.5	108	28.7	555	68.6	1,335
201103	15.7	666	23.9	108	27.9	551	67.5	1,325
201106	16.3	669	23.2	108	27.3	560	66.8	1,337

Quarter	*Equity Germany*		*Equity Europe*		*Equity Global*		*Total*	
	AuM [bn €]	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*
201109	12.3	656	18.3	104	23.6	552	54.1	1,312
201112	13.1	656	19.5	106	25.5	553	58.1	1,315
201203	14.8	655	20.5	107	27.7	559	62.9	1,321
201206	13.4	657	19.0	107	27.3	560	59.7	1,324
201209	14.2	650	19.8	107	28.6	571	62.7	1,328
201212	14.7	636	20.3	109	28.5	580	63.6	1,325
201303	14.9	650	20.7	105	31.0	584	66.6	1,339
201306	14.7	656	20.0	106	30.9	587	65.6	1,349
201309	15.5	663	21.5	104	32.1	580	69.0	1,347
201312	16.8	666	23.0	106	33.3	588	73.0	1,360
201403	16.7	677	23.7	110	33.6	587	74.0	1,374

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities and Holdings Statistics, May 2016, own calculations.

This table lists the assets under management and number of mutual investment funds of the analyzed equity funds used in the study organized by Morningstar Global Categories for each quarter over Q4 2005 to Q1 2014.

and savings banks hold 30.54 % and 22.84 % of total assets under management, respectively in the same period. This illustrates the German banking sector, which is characterized by a comparatively large number of smaller cooperative and savings banks and a small number of large private banks.

Table 3 documents the number of monetary financial institutions and assets under management for the observation and control group, respectively. The observation group consisting of banks that have a bank-affiliated asset manager holds € 64.0 billion in the three largest Morningstar Global Categories in Q1 2014. On the other hand, banks that do not possess a bank-affiliated asset manager within the group hold € 10.0 billion, respectively. Thus, monetary financial institutions with a bank-affiliated asset manager hold the majority of all analyzed mutual investment fund holdings of retail clients.

Table 2

Number of Monetary Financial Institutions and Assets under Management per Banking Sector

Quarter	*Private banks*		*Savings banks*		*Cooperative banks*		*Total*	
	AuM [bn €]	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*
200512	46.3	101	21.6	451	23.3	1,282	91.2	1,834
200603	49.5	102	22.8	446	24.9	1,281	97.1	1,829
200606	43.8	101	21.0	444	22.9	1,274	87.7	1,819
200609	45.4	101	22.0	444	24.0	1,255	91.3	1,800
200612	47.2	101	22.7	444	24.8	1,245	94.7	1,790
200703	47.7	102	22.2	438	24.2	1,245	94.1	1,785
200706	48.9	101	22.8	437	24.8	1,244	96.5	1,782
200709	45.3	99	21.2	435	23.4	1,229	89.8	1,763
200712	42.2	98	19.9	429	22.5	1,222	84.6	1,749
200803	32.8	99	15.8	428	18.3	1,222	67.0	1,749
200806	31.6	99	15.3	424	17.9	1,217	64.7	1,740
200809	26.4	99	13.2	418	15.9	1,203	55.4	1,720
200812	21.8	98	10.6	417	12.7	1,188	45.1	1,703
200903	19.3	98	9.4	415	11.6	1,188	40.4	1,701
200906	22.6	99	11.3	414	14.1	1,178	48.0	1,691
200909	25.8	99	13.4	411	16.9	1,163	56.1	1,673
200912	26.3	98	14.1	409	17.9	1,149	58.3	1,656
201003	28.4	100	14.7	409	18.9	1,149	62.0	1,658
201006	28.0	97	13.9	408	18.0	1,148	60.0	1,653
201009	29.1	96	14.5	408	18.9	1,133	62.5	1,637
201012	32.1	95	15.9	407	20.7	1,129	68.6	1,631
201103	31.5	94	15.7	407	20.3	1,130	67.5	1,631
201106	31.0	94	15.5	406	20.3	1,130	66.8	1,630

Quarter	*Private banks*		*Savings banks*		*Cooperative banks*		*Total*	
	AuM [bn €]	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*
201109	25.0	95	12.5	406	16.6	1,120	54.1	1,621
201112	26.6	94	13.5	405	18.0	1,113	58.1	1,612
201203	28.8	93	14.6	404	19.5	1,112	62.9	1,609
201206	27.1	92	13.7	404	18.8	1,111	59.7	1,607
201209	28.2	92	14.6	401	19.8	1,103	62.7	1,596
201212	28.7	91	14.9	401	19.9	1,093	63.6	1,585
201303	30.4	91	15.4	401	20.8	1,092	66.6	1,584
201306	29.9	91	15.1	401	20.6	1,092	65.6	1,584
201309	31.4	90	16.0	399	21.6	1,082	69.0	1,571
201312	33.5	90	16.9	398	22.7	1,069	73.0	1,557
201403	34.5	90	16.9	395	22.6	1,069	74.0	1,554

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities and Holdings Statistics, May 2016, own calculations.

This table lists the number of monetary financial institutions with reported holdings in the securities holdings statistics of private households in the analyzed Morningstar Global Categories in the observation period as well as the respective assets under management organized by banking sector reported by those monetary financial institutions.

Table 3

Assets Under Management and Number of Monetary Financial Institutions of Observation and Control Group

Quarter	*Observation group*		*Control group*		*Total*	
	AuM [bn €]	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*
200512	85.6	1,757	5.7	77	91.2	1,834
200603	90.8	1,752	6.3	77	97.1	1,829
200606	81.8	1,743	5.9	76	87.7	1,819
200609	85.1	1,724	6.2	76	91.3	1,800

(continue next page)

(Table 3 continued)

Quarter	*Observation group*		*Control group*		*Total*	
	AuM [bn €]	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*
200612	88.1	1,715	6.6	75	94.7	1,790
200703	86.4	1,709	7.6	76	94.1	1,785
200706	88.6	1,707	7.9	75	96.5	1,782
200709	82.5	1,690	7.3	73	89.8	1,763
200712	77.7	1,677	6.9	72	84.6	1,749
200803	61.4	1,677	5.6	72	67.0	1,749
200806	59.3	1,668	5.4	72	64.7	1,740
200809	50.8	1,648	4.6	72	55.4	1,720
200812	41.2	1,632	3.9	71	45.1	1,703
200903	36.8	1,630	3.6	71	40.4	1,701
200906	43.5	1,619	4.4	72	48.0	1,691
200909	51.0	1,601	5.2	72	56.1	1,673
200912	53.0	1,584	5.3	72	58.3	1,656
201003	55.3	1,584	6.7	74	62.0	1,658
201006	52.0	1,582	8.0	71	60.0	1,653
201009	54.0	1,566	8.5	71	62.5	1,637
201012	59.2	1,560	9.5	71	68.6	1,631
201103	58.3	1,561	9.2	70	67.5	1,631
201106	57.5	1,560	9.3	70	66.8	1,630
201109	46.6	1,550	7.5	71	54.1	1,621
201112	50.0	1,542	8.0	70	58.1	1,612
201203	54.3	1,540	8.6	69	62.9	1,609
201206	51.6	1,539	8.0	68	59.7	1,607
201209	54.2	1,528	8.4	68	62.7	1,596

Quarter	*Observation group*		*Control group*		*Total*	
	AuM [bn €]	*No.*	*AuM [bn €]*	*No.*	*AuM [bn €]*	*No.*
201212	55.0	1,517	8.6	68	63.6	1,585
201303	57.7	1,516	8.9	68	66.6	1,584
201306	57.0	1,516	8.7	68	65.6	1,584
201309	59.9	1,504	9.1	67	69.0	1,571
201312	63.3	1,490	9.7	67	73.0	1,557
201403	64.0	1,487	10.0	67	74.0	1,554

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities and Holdings Statistics, May 2016, own calculations.

This table documents the assets under management as well as the number of monetary financial institutions of the observation and control group for each quarter from Q4 2005 to Q1 2014 in the analyzed Morningstar Global Categories.

IV. Methodology

The aim of our study is twofold. First, by analyzing mutual equity fund holdings of German retail clients who received financial advice between 2005 and 2014, we investigate whether these investors overweight the bank-affiliated asset manager. Second, we analyze the impact of this potentially existing asset manager bias assuming a negative welfare effect due to potentially higher portfolio costs for clients prone to the asset manager bias.

As we focus on monetary financial institutions that provide financial advice, only, we first manually exclude all monetary financial institutions that do not offer financial advice based on their business model. By doing so, we do not differentiate between the various forms of financial advice ranging from transaction based fee models to all-in fee models, as we are only interested in identifying those monetary financial institutions that do not provide financial advice at all. We therefore identify the officially stated business model of each of the analyzed monetary financial institutions to decide which monetary financial institutions to exclude in our analysis. The excluded monetary financial institutions are mainly self-directed broker or monetary financial institutions that provide other financial services outside of financial advice such as transaction banking. In a second step, we divide all remaining monetary financial institutions that are registered in the securities holdings statistics and reported mutual investment fund holdings in the Morningstar Global Categories under investigation into two different categories. One category containing the monetary financial insti-

tutions that possess a bank-affiliated asset manager within the group, representing the observation group. The other category containing the monetary financial institutions without a bank-affiliated asset manager, representing the control group. Then, we manually assign each monetary financial institution into one of the two categories based on the respective company affiliation or existing strategic partnerships of each asset manager as end of August 2015. We manually analyze the company affiliation for each of the registered monetary financial institutions for the entire observation period and take into account modifications in the ownership structure following mergers and acquisitions. Additionally, we also control for holding structures[4]. Thereby, we also solve the problem of having multiple bank-affiliated asset managers for one monetary financial institution, as we are able to assign each of those asset managers to one independently acting bank within the group.

After having divided all monetary financial institutions into the respective categories, we use this information to calculate the asset manager bias for all monetary financial institutions that possess a bank-affiliated asset manager. An asset manager bias prevails if the percentage share of the assets under management that are invested in mutual investment funds of the bank-affiliated asset manager within the security accounts of the bank is larger than the total market share of this asset manager for the specific Morningstar Global Category in the respective quarter. We derive the total market share of the asset manager for the specific Morningstar Global Category and quarter by adding up the assets under management of all mutual investment funds of this specific Morningstar Global Category that are hold by all monetary financial institutions in the securities holdings statistics. To measure the asset manager bias, we calculate the Asset Manager Bias ratio for each monetary financial institution as follows:

$$AMBratio_{i,j,q} = \frac{CSOAM_{i,j,q} - MSCOAM_{i,j,q}}{1 - MSCOAM_{i,j,q}}$$

Where $AMBratio_{i,j,q}$ is the asset manager bias ratio for monetary financial institution , Morningstar Global Category j and quarter q; $CSOAM_{i,j,q}$ is the percentage share of mutual investment funds of the bank-affiliated asset manager for monetary financial institution i, Morningstar Global Category j and quarter q; and $MSCOAM_{i,j,q}$ is the market share of the bank-affiliated asset manager of monetary financial institution i in the Morningstar Global Category j and quarter q.

[4] For instance, if a banking group owns several other monetary financial institutions containing other asset management departments that legally belongs to the parent company, but that operates completely independently of the parent company, we use the operating business practice to assign the monetary financial institution into the respective category.

An asset manager bias ratio greater (smaller) than zero indicates that the portion of mutual investment funds of the bank-affiliated asset manager hold by retail clients of that monetary financial institution is larger (smaller) than the market share of the asset manager in this Morningstar Global Category and quarter. If all mutual investment fund holdings are from the bank-affiliated asset manager, the asset manager bias ratio equals one.

Additionally, we investigate whether or not the potentially existing asset manager bias harms retail investors in form of higher portfolio costs. Therefore, we analyze the portfolio costs by comparing the average portfolio costs of monetary financial institutions with and without a bank-affiliated asset manager. The monetary financial institution's portfolio costs are measured via the average Total Expense Ratios (TERs) for each monetary financial institution, quarter, and Morningstar Global Category. We explicitly focus on the Total Expense Ratios because they are the only reliable measure of portfolio costs as they are the same for every client and are constantly deducted from the net asset value of the mutual investment funds. Therefore, the Total Expense Ratio for a given mutual investment fund do not vary with respect to the holding period of the fund, the client's bank, or the amount invested in the fund. In contrast, other important fee components of the total costs associated with the portfolio investment such as transaction costs, portfolio fees, and upfront fees do not only vary between different banks but also between clients of the same bank as those costs are negotiable and could significantly vary depending on portfolio size and a client's characteristic. As these variations are not observable, those cost components would be an inappropriate proxy to compare portfolio costs of different banks.

Throughout this study, we investigate both, the existence of an asset manager bias and the effect of such an asset manager bias on portfolio costs by using different methods. First, we apply a univariate analysis and conduct T-Tests to determine the existence of an asset manager bias as well as to analyze the portfolio costs. In a second step, we use a multivariate analysis and estimate determinants of the asset manager bias as well as the impact of the asset manager bias on portfolio costs with different random effects estimation models.

V. Results

1. Presence of Asset Manager bias

The first research question is whether retail clients from monetary financial institutions that possess a bank-affiliated asset manager suffer from an asset manager bias.

Table 4 shows the development of the asset manager bias for all monetary financial institutions with a bank-affiliated asset manager as well as for each

Table 4

Development of Asset Manager Bias During the Observation Period

Quarter	*Asset Manager Bias Ratio*			
	Cooperative banks	*Saving banks*	*Private banks*	*Total*
200512	69.6 %	61.1 %	45.4 %	58.7 %
200603	69.3 %	59.9 %	43.9 %	57.7 %
200606	68.9 %	59.6 %	44.3 %	57.6 %
200609	68.7 %	58.9 %	44.1 %	57.2 %
200612	68.6 %	58.4 %	40.8 %	55.9 %
200703	69.2 %	57.8 %	41.7 %	56.2 %
200706	69.2 %	57.2 %	41.2 %	55.9 %
200709	69.0 %	57.0 %	41.5 %	55.8 %
200712	68.5 %	56.9 %	42.1 %	55.8 %
200803	67.7 %	56.3 %	41.0 %	55.0 %
200806	67.3 %	55.9 %	41.4 %	54.9 %
200809	66.4 %	55.6 %	41.0 %	54.3 %
200812	66.1 %	54.6 %	39.7 %	53.5 %
200903	65.3 %	54.8 %	41.2 %	53.8 %
200906	65.0 %	54.6 %	39.8 %	53.2 %
200909	64.7 %	54.4 %	39.4 %	52.8 %
200912	64.3 %	54.4 %	38.4 %	52.4 %
201003	64.4 %	54.7 %	38.1 %	52.4 %
201006	64.7 %	55.1 %	39.2 %	53.0 %
201009	64.5 %	55.0 %	40.6 %	53.4 %
201012	64.6 %	55.2 %	39.0 %	53.0 %
201103	64.5 %	55.0 %	37.2 %	52.3 %
201106	64.2 %	55.3 %	37.1 %	52.2 %
201109	63.9 %	55.3 %	38.1 %	52.5 %

Quarter	*Asset Manager Bias Ratio*			
	Cooperative banks	*Saving banks*	*Private banks*	*Total*
201112	63.7 %	55.3 %	38.9 %	52.6 %
201203	63.6 %	55.1 %	39.4 %	52.7 %
201206	63.2 %	55.1 %	37.4 %	51.9 %
201209	63.3 %	55.0 %	36.3 %	51.5 %
201212	63.3 %	54.9 %	36.4 %	51.5 %
201303	63.4 %	54.5 %	35.5 %	51.2 %
201306	63.4 %	54.4 %	34.0 %	50.6 %
201309	63.4 %	54.3 %	35.4 %	51.0 %
201312	63.5 %	54.4 %	37.3 %	51.7 %
201403	63.8 %	54.2 %	36.7 %	51.5 %

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities and Holdings Statistics, May 2016, own calculations.

This table reports development of the aggregated asset manager bias ratios for each banking sector during the observation period from Q4 2005 to Q1 2014. The asset manager bias ratio is calculated as follows:

$$AMBratio_{i,j,q} = \frac{CSOAM_{i,j,q} - MSCOAM_{i,j,q}}{1 - MSCOAM_{i,j,q}}$$

Where $AMBratio_{i,j,q}$ is the asset manager bias ratio for MFI i, Morningstar Global Category j and quarter q; $CSOAM_{i,j,q}$ is the percentage share of mutual investment funds of the bank-affiliated asset manager for MFI i, Morningstar Global Category j and quarter q; and $MSCOAM_{i,j,q}$ is the market share of the bank-affiliated asset manager of MFI i in the Morningstar Global Category j and quarter q. Therefore, the asset manager bias ratio indicates the degree of overweight of mutual investment funds of the bank-affiliated asset manager.

banking sector for all three Morningstar Global Categories. The total asset manager bias is relatively stable and steadily decreased from almost 58.7 % in Q4 2005 to 51.5 % in Q1 2014. Interestingly, the asset manager bias for the three banking sectors differ strongly with the cooperative banks possessing the highest asset manager bias with values ranging between 69.6 % and 63.2 % over the observation period. In contrast, private banks possess the lowest asset manager bias ranging from 45.4 % to 34.0 % in the same period. Savings banks have asset manager bias between 61.1 % and 54.2 %, respectively. As an asset manager bias greater than zero suggests the existence of an asset manager bias, the reported data strongly indicate a significant asset manager bias not only for the sum of all banks but also for each individual banking sector.

Table 5

Presence of Asset Manager Bias – T-Test

Banking Sector	*Bias Ratio = 0*	
	Mean	$\|t\|$
All MFIs	0.6294***	2,500
Cooperative banks	0.6581***	2,800
Savings banks	0.5595***	1,300
Private banks	0.3882***	62

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities and Holdings Statistics, May 2016, own calculations.

This table reports the results of a two-sample T-Test which tests whether the mean aggregated asset manager bias ratios for all monetary financial institutions as well as for each banking sector is significantly different from 0. ***,**, and * indicate statistical significance at the 1 %, 5 %, and 10 % level, respectively.

To analyze whether the asset manager bias reported above is also statistically significant, we conduct T-Tests whose results are reported in Table 5. Unsurprisingly, the T-Tests reject the null hypothesis that the asset manager bias ratios are zero at the 1 % level for each observation group. Thus, the T-Tests also prove the presence of large asset manager biases for all monetary financial institutions. Consequently, we can conclude that retail clients from banks that possess a bank-affiliated asset manager possess a clear asset manager bias of that asset manager, i. e. their portfolio share of mutual investment funds of the bank-affiliated asset manager significantly exceeds the overall market share of that asset manager.

2. Determinants of Asset Manager Bias

After proving the presence of an asset manager bias for monetary financial institutions having a bank-affiliated asset manager, we analyze factors potentially determining the degree of the observed asset manager bias. To empirically assess the impact of different variables on the asset manager bias, we use multivariate regression analyses whose results are reported in Table 6.

First, we analyze the impact of the banking sector on the asset management bias ratio. Therefore, the first column of Table 6 shows that the dummy variables of both, savings and cooperative banks, are significantly positive and thus indicate a larger asset management bias ratio compared to private banks. The estimation shown in the second column reports the effect of a set of additional control variables. The asset manager bias ratio increases, the higher the branch density, the larger the average portfolio size, and the larger the market share of the

Table 6

Determinants of Asset Manager Bias

	AMB Ratio	
	(1)	(2)
Savings Bank	0.294***	0.208***
	(0.036)	(0.038)
Cooperative Bank	0.460***	0.341***
	(0.036)	(0.039)
Branch Density		125.23***
		(34.325)
Bank Size		–0.010***
		(0.003)
Asset Allocation Aggressiveness		–0.163***
		(0.011)
log_Average Portfolio Size		0.014***
		(0.003)
l_Share of Provision based Earnings		–0.032
		(0.021)
l_Return on Equity		0.000*
		(0.000)
Market Share of bank-affiliated Asset Manager		0.586***
		(0.026)
Constant	0.416***	0.484***
	(0.036)	(0.066)
N	162,840	147,408
Overall GLS R^2	36.0 %	48.0 %
Chi^2	2,322	6,139

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics, Bank Statistics, Profit and Loss Account Statistics, Balance Sheet Statistics, May 2016, own calculations.

This table reports the determinants of the asset manager bias ratio estimated with a random effects regression analysis. Column 1 shows the effect of the banking sector as dependent variable on the asset manager bias ratio. Column 2 documents the results of a multivariate regression analysis including different control variables. Table A in the appendix provides variable descriptions. Standard errors are reported below the coefficients. ***,**, and * indicate statistical significance at the 1 %, 5 %, and 10 % level, respectively.

company's own asset manager is. In contrast, the larger the bank and the more aggressive a client's portfolio, the lower is the asset manager bias ratio. The importance of provision based earnings on total earnings and the previous year's return on equity do not affect the asset manager bias ratio in a statistical significant matter at the 1 % and 5 % level, respectively.

3. Asset Manager Bias and Portfolio Costs

To examine if the presence of the asset manager bias harm investors with respect to portfolio costs, we compare the average Total Expense Ratios of monetary financial institutions with a bank-affiliated asset manager to the average Total Expense Ratios of monetary financial institutions without a bank-affiliated asset manager. In a second step, we additionally conduct T-Tests to the average Total Expense Ratios of both groups to analyze whether the differences in portfolio costs are significant or not. Table 7 shows both, the average Total Expense Ratios of both observation groups and the results of the T-Tests for all monetary financial institutions as well as for each banking sector.

The average Total Expense Ratios of monetary financial institutions with a bank-affiliated asset manager are 1.48 % p. a. and thereby, 0.19 percentage points lower than the average Total Expense Ratios of monetary financial institutions without a bank-affiliated asset manager. The T-Test also signals a very high statistical significance of the observed cost difference. Analyzing the different banking sectors, reveals that the Total Expense Ratio of cooperative banks with an average value of 1.44 % p. a. are the cheapest of all three banking sectors, followed by the savings banks. In contrast, average Total Expense Ratios of private banks owning a bank-affiliated asset manager are only slightly lower than the average Total Expense Ratios of the control group and therefore, statistically significantly at the 10 % quintile, only. To conclude, portfolio costs of retail investors who are advised from a monetary financial institution possessing a bank-af-

Table 7

Asset Manager Bias and Portfolio Costs – T-Test

TER	*Bank-affiliated asset manager[1]*		*Bank-affiliated asset manager[0]*		*Mean difference*	
	N	Mean	N	Mean	[1]–[0]	|t|
All MFIs	140,503	1.48***	6,031	1.67***	–0.19***	66.6
Cooperative banks	102,537	1.44***	6,031	1.67***	–0.23***	86.6
Savings banks	36,381	1.60***	6,031	1.67***	–0.07***	21.4
Private banks	1,585	1.65***	6,031	1.67***	–0.02*	1.8

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics, May 2016, own calculations.

This table reports the results of a two-sample T-Test that compares the portfolio costs, measured by the aggregated Total Expense Ratios (TERs), of monetary financials institutions that have a bank-affiliated asset manager with the TERs of those monetary financials institutions that do not have a bank-affiliated asset manager. The analysis is employed for all monetary financial institutions and for each banking sector, respectively. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % level, respectively.

filiated asset manager are significantly lower than the average portfolio costs of retail investors who are advised from a monetary financial institution that does not have a bank-affiliated asset manager.

4. Determinants of portfolio costs

After having documented statistically significant lower portfolio costs for monetary financial institutions possessing a bank-affiliated asset manager, we further investigate factors potentially determining the level of portfolio costs. Table 8 reports the results of this analysis.

Table 8

Determinants of Portfolio Costs

	TER	
	(1)	(2)
Bank-affiliated Asset Manager	–0.168***	–0.182***
	(0.018)	(0.018)
Branch Density		–58.494***
		(22.363)
Bank Size		0.020***
		(0.002)
Asset Allocation Aggressiveness		0.028**
		(0.011)
log_Average Portfolio Size		0.007*
		(0.004)
l_Share of Provision based Earnings		0.001
		(0.016)
l_Return on Equity		0.002***
		(0.000)
Constant	1.644***	1.154***
	(0.018)	(0.041)
N	146,534	134,108
Overall GLS R^2	2.9 %	42.5 %
Chi^2	83	71,111

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics, Bank Statistics, Profit and Loss Account Statistics, Balance Sheet Statistics, May 2016, own calculations.

This table reports the determinants of portfolio costs, measured via aggregated Total Expense Ratios (TERs), estimated with a random effects regression analysis. Column 1 shows the effect of the presence of a bank-affiliated asset manager as dependent variable on the aggregated portfolio costs. Column 2 documents the results of a multivariate regression analysis including different control variables. Table A in the appendix provides variable descriptions. Standard errors are reported below the coefficients. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % level, respectively.

The first column shows the univariate analysis of the impact of the bank-affiliated asset manager on portfolio costs, again measured with the average Total Expense Ratios, and confirms the results of the previous analysis by showing a statistically significant lower average Total Expense Ratio if the dummy variable bank-affiliated asset manager equals 1, meaning that the monetary financial institution possesses a bank-affiliated asset manager. The second column contains additional control variables that may impact average Total Expense Ratios. The results indicate that the average Total Expense Ratios increase the higher the bank's profitability (measured via return on equity), the larger the percentage share of equity funds in the total asset allocation (investment style), and the larger the bank (balance sheet total) is. In contrast, a higher branch density reduces the average Total Expense Ratios. The importance of provision based earnings on total earnings and the average portfolio size do not influence the average Total Expense Ratios.

5. Impact of Asset Manager Bias on Portfolio Costs

In a last analysis, we investigate whether the magnitude of the existing asset manager bias affects average portfolio costs. Therefore, in contrast to the analysis above, we now focus on monetary financial institutions with a bank-affiliated asset manager, only. The results of this analysis are reported in Table 9.

The first column shows the univariate analysis of the impact of the asset manager bias ratio on average portfolio costs, measured as average Total Expense Ratios. Interestingly, a higher asset manager bias ratio significantly reduces average portfolio costs. This result is confirmed in the second analysis shown in the second column where we control for other factors by additionally applying several control variables. The impact of the control variables on average Total Expense Ratios is similar as in the previous analysis.

VI. Robustness Checks

1. Alternative Measure for the Asset Manager Bias

To analyze the stability of the results obtained in the previous section, we apply an alternative measure for the asset manager bias. Therefore, instead of using the asset manager bias ratio introduced in section 4, we now use the absolute asset manager bias to test the existence of an asset manager bias and its determinants. The absolute asset manager bias is defined as follows:

$$AMBabsolute_{i,j,q} = \frac{CSOAM_{i,j,q}}{MSCOAM_{i,j,q}}$$

Table 9

Impact of Asset Manager Bias on Portfolio Costs

	TER	
	(1)	(2)
Asset Manager Bias Ratio	–0.607***	–0.199***
	(0.023)	(0.027)
Branch Density		–38.437**
		(19.419)
Bank Size		0.010***
		(0.001)
Asset Allocation Aggressiveness		0.002
		(0.008)
log_Average Portfolio Size		0.008***
		(0.003)
l_Share of Provision based Earnings		–0.037
		(0.026)
l_Return on Equity		0.002***
		(0.000)
Market Share of bank-affiliated Asset Manager		–0.605***
		(0.045)
Constant	1.981***	1.417***
	(0.020)	(0.036)
N	140,503	130,255
Overall GLS R^2	11.9 %	47.2 %
Chi^2	673	109,900

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics, Bank Statistics, Profit and Loss Account Statistics, Balance Sheet Statistics, May 2016, own calculations.

This table reports the impact of the asset manager bias on portfolio costs, measured via aggregated Total Expense Ratios (TERs), estimated with a random effects regression analysis. Column 1 shows the effect of the aggregated asset manager bias ratio as the dependent variable on the aggregated portfolio costs. Column 2 documents the results of a multivariate regression analysis including different control variables. Table A in the appendix provides variable descriptions. Standard errors are reported below the coefficients. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % level, respectively.

Where $AMBabsolute_{i,j,q}$ is the absolute asset manager bias for monetary financial institution i, Morningstar Global Category j and quarter q; $CSOAM_{i,j,q}$ is the percentage share of mutual investment funds of the bank-affiliated asset manager for monetary financial institution i, Morningstar Global Category j and quarter q; and $MSCOAM_{i,j,q}$ is the market share of the bank-affiliated asset manager of monetary financial institution i in the Morningstar Global Category j and quarter q.

Table 10

Absolute Asset Manager Bias

Panel A: Presence of Absolute Asset Manager Bias – T-Test				
Banking Sector		*Bias Ratio = 0*		
		Mean		*N*
All MFIs		0.63***		162,840
Cooperative banks		0.66***		118,686
Savings banks		0.56***		42,333
Private banks		0.39***		1,821

Panel B: Determinants of Absolute Asset Manager Bias

	Absolute Asset Manager Bias	
	(1)	(2)
Savings Bank	0.185 ***	0.241 ***
	(0.031)	(0.037)
Cooperative Bank	0.284 ***	0.352 ***
	(0.031)	(0.038)
Branch Density		93.581 ***
		(24.708)
Bank Size		–0.007 ***
		(0.002)
Asset Allocation Aggressiveness		–0.126 ***
		(0.008)
log_Average Portfolio Size		0.010 ***
		(0.002)
l_Share of Provision based Earnings		–0.033 *
		(0.018)
l_Return on Equity		0.000 *
		(0.000)
Market Share of bank-affiliated Asset Manager		–0.404 ***
		(0.020)
Constant	0.377 ***	0.479 ***
	(0.031)	(0.057)
N	162,840	147,408
Overall GLS R^2	25.2 %	31.1 %
Chi^2	1,800	8,500

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics, Bank Statistics, Profit and Loss Account Statistics, Balance Sheet Statistics, May 2016, own calculations.

This table reports the results of the absolute asset manager bias as dependent variable to measure the overweight of mutual investment funds of the bank-affiliated asset manager instead of the asset manager bias ratio. Panel A shows the results of a two-sample T-Test which tests whether the mean aggregated absolute asset manager bias for all monetary financial institutions as well as for each banking sector is significantly different from 0. Panel B documents the determinants of absolute asset manager bias estimated with a random effects regression analysis. Column 1 shows the effect of the banking sector as the dependent variable on the absolute asset manager bias. Column 2 documents the results of a multivariate regression analysis including different control variables. Table A in the appendix provides variable descriptions. Standard errors are reported below the coefficients. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % level, respectively.

The results of the analysis are shown in Table 10. Panel A reports the results of the T-Test analysis for the absolute asset manager bias for all monetary financial institutions and for each banking sector. The resulting mean values are very similar to the ones obtained in the previous analysis and are significant at the 1 % quintile as well, indicating an existing asset manager bias for all banking sectors. Furthermore, the first column of Panel B documents the impact of the banking sector on the asset manager bias. As the dummy variables of both savings and cooperative banks are significantly positive, thereby indicating a larger asset manager bias compared to private banks, the analysis confirms the results of the previous section. Additionally, analyzing the impact of the control variables leads to the following results documented in the second column: The higher the branch density, and the larger the average portfolio size, the higher the asset manager bias is. In contrast, the larger the bank, the more aggressive a client's portfolio, and the larger the market share of the bank-affiliated asset manager, the lower the asset manager bias is. Thus, we can conclude that the additional analysis strongly confirms the existence of an asset manager bias. Furthermore, the determinants influencing the magnitude of the asset manager bias are broadly confirmed as well.

2. Alternative Measure for Portfolio Costs

As already mentioned, overall portfolio costs for retail investors consist of various cost components such as regular management fees, transaction costs, portfolio fees, and upfront fees. Knowing that the Total Expense Ratio is just one of these cost components, we want to analyze whether our results are stable when using a different cost component. As all other cost components are unobservable, we use the official upfront fees documented in Morningstar Direct instead of the Total Expense Ratios to proxy portfolio costs. At the same time, we are aware that the official upfront fees may not serve as an appropriate proxy for portfolio costs due to the following reasons. First, actual upfront fees may significantly differ from the official upfront fees as the actual amount paid by investors is – at least partly – negotiable between the investor and the selling bank

and therefore, could be clearly lower than the official amount, especially if the invested volume is high. Additionally, upfront fees are one-off costs that are independently of the holding duration of the investment. As holding periods strongly differ from investor to investor, the actual impact of upfront fees on overall portfolio costs is not measurable without knowing the realized ex-post holding period of the underlying fund. Despite these restrictions, we use official upfront fees to proxy portfolio costs, as they are an important component of bank's financial advice related earnings. Therefore, we re-run all analyses above by using the average upfront fees instead of the average Total Expense Ratios, and summarize the results in Table 11.

Panel A shows that average upfront fees paid by investors of banks with a bank-affiliated asset manager are with the exception of private banks significantly lower than the upfront fees paid by investors of banks without a bank-affiliated asset manager as indicated by the results of the T-Test. Therefore, the results of the Total Expense Ratio analysis are mainly confirmed. Panel B documents the results of the analysis of the determinants of portfolio costs. As indicated in the previous analysis, the existence of a bank-affiliated asset manager leads to lower average upfront fees for the investor. The influence of the additional control variables are in the majority of cases similar to the results of the Total Expense Ratio analysis. Finally, Panel C reports the impact of the asset manager bias on portfolio costs. By indicating that a higher asset manager bias reduce upfront fees, it also confirms the previous results, even though the impact of the additional control variables is not identical for all variables compared to the analysis based on Total Expense Ratios. To conclude, the results obtained by using upfront fees instead of Total Expense Ratios as proxy for portfolio costs predominately confirm the results obtained in the main analysis, thereby increasing the validity of the presented results.

3. Alternative Estimation Method

Additionally, we also test the stability of our results by applying another econometric estimation method to analyze the determinants of the asset manager bias, the determinants of the portfolio costs, and the impact of asset manager bias on portfolio costs. Therefore, we re-estimate the above analyzes by using the *Fama/MacBeth* (1973) procedure instead of the random effects estimation method. The *Fama/MacBeth* (FMB) procedure is a two-step regression initially developed to test the explanatory power of risk factors for asset returns. In the first step, time-series regressions are run for each monetary financial institution to estimate the regression slopes. In the second step, those estimated regressions slopes for each monetary financial institution are used in cross-sectional regressions as independent variables using the average value for each monetary finan-

Table 11

Upfront Fees as Proxy for Portfolio Costs

Panel A: Asset Manager Bias and Upfront Fees – T-test

Load	*Bank-affiliated asset manager[1]*		*Bank-affiliated asset manager[0]*		*Mean difference*	
	N	Mean	N	Mean	[1]–[0]	|t|
All MFIs	140,503	4.66	6,031	4.82	–0.16***	29.20
Cooperative banks	102,537	4.67	6,031	4.82	–0.15***	46.12
Savings banks	36,381	4.62	6,031	4.82	–0.2***	20.50
Private banks	1,585	4.84	6,031	4.82	0.02	–1.19

Panel B: Determinants of Upfront Fees

	Upfront Fees	
	(1)	(2)
Bank-affiliated Asset Manager	–0.126***	–0.209***
	(0.042)	(0.037)
Branch Density		–39.391***
		(10.389)
Bank Size		0.030***
		(0.007)
Asset Allocation Aggressiveness		0.055***
		(0.014)
log_Average Portfolio Size		–0.018***
		(0.004)
l_Share of Provision based Earnings		–0.014**
		(0.006)
l_Return on Equity		–0.000**
		(0.000)
Constant	4.783***	4.622***
	(0.042)	(0.095)
N	146,534	134,108
Overall GLS R^2	5.8 %	2.5 %
Chi^2	9	3,400

(continue next page)

(Table 11 continued)

Panel C: Impact of Asset Manager Bias on Upfront Fees	
	Upfront Fees (1)
Asset Manager Bias Ratio	–0.241***
	(0.027)
Branch Density	–11.586
	(10.560)
Bank Size	0.025***
	(0.005)
Asset Allocation Aggressiveness	–0.006
	(0.007)
log_Average Portfolio Size	–0.006**
	(0.003)
l_Share of Provision based Earnings	–0.092***
	(0.034)
l_Return on Equity	0.000
	(0.000)
Market Share of bank-affiliated Asset Manager	1.942***
	(0.034)
Constant	4.184***
	(0.064)
N	130,255
Overall GLS R^2	13.84 %
Chi^2	12,000

Source: Morningstar Direct and Research Data and Service Center (RDSC) of the Deutsche Bundesbank, Securities Holdings Statistics, Bank Statistics, Profit and Loss Account Statistics, Balance Sheet Statistics, May 2016, own calculations.

This table reports the results of different analyses using upfront fees instead of Total Expense Ratios (TERs) to measure portfolio costs. Panel A shows the results of a two-sample T-Test that compares the portfolio costs, measured by the aggregated upfront fees, of monetary financial institutions that have a bank-affiliated asset manager with the upfront fees of those monetary financial institutions that do not have a bank-affiliated asset manager. The analysis is employed for all monetary financial institutions and for each banking sector, respectively. Panel B documents the determinants of portfolio costs, measured via aggregated upfront fees, estimated with a random effects regression analysis. Column 1 shows the effect of the presence of a bank-affiliated asset manager as the dependent variable on the aggregated portfolio costs. Column 2 documents the results of a multivariate regression analysis including different control variables. Panel C reports the impact of the asset manager bias ratio on portfolio costs, measured via aggregated upfront fees, estimated with a random effects regression analysis. Column 1 shows the effect of the aggregated asset manager bias ratio and different control variables as dependent variables on the aggregated portfolio costs. Table A in the appendix provides variable descriptions. Standard errors are reported below the coefficients. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % level, respectively.

cial institution to estimate the factor for each explanatory variable, i. e. branch density etc.

Applying the FMB procedure to estimate the determinants of asset manager bias, our unreported results confirm the results of the previous analysis indicating a comparatively stronger asset manager biases for cooperative and to a lesser extend savings banks compared to private banks. Furthermore, most of the control variables possess the same impact on the level of the asset manager bias as in the random effects estimation[5]. Similar to the first estimation, the estimation results of the determinants of portfolio costs are very similar to the random effects analysis as well as they also show a cost reducing effect of the existence of a bank-affiliated asset manager. Finally, we also analyze the impact of the asset manager bias on portfolio costs by using the FMB procedure obtaining very similar results, i. e. the higher the asset manager bias ratio, the lower the portfolio costs. However, some of the control variables, i. e. branch density, return on equity, and market share, are not statistically significant in this analysis.

To conclude, the application of another econometric estimation method clearly confirms the results obtained from the random effects analysis by replicating almost exactly the previous result indicating a great stability of overall results.

4. Analyses of Different Sub-Samples

To further validate the results obtained in the main analysis, we also analyze different sub-samples of our data set to test if the results are sensitive to the choice of the observed banking sector, and Morningstar Global Category. Therefore, we re-run most of the previous analyses and compare the estimation outcomes with the previous results[6].

First, we analyze the sensitivity of the results to the underlying Morningstar Global Category. That is, we estimate each of the previous analysis for each of the three Morningstar Global Categories, i. e. Equity Germany, Equity Europe, and Equity Global, separately. By analyzing the determinants of the asset manager bias, we find that the amount to which the different banking sector influences the asset manager bias does vary between the different Morningstar Global Categories, however, it always indicates a statistically significant negative impact of cooperative and savings banks compared to private banks. Additionally, the analysis of the determinants of portfolio costs also confirm the results of the main analysis, even if the exact cost reducing impact of the presence of a

[5] Due to capacity constraints, we do not report the exact estimation results for the three different analyses; however, they are available upon request.

[6] Due to capacity constraints, we do not report the exact estimation results for the three different analyses; however, they are available upon request.

bank-affiliated asset manager does slightly vary between the different Morningstar Global Categories. The same is true when analyzing the impact of the asset manager bias on portfolio costs where the cost reducing impact of the asset manager bias is existent for all of the three Morningstar Global Categories. Therefore, the analyses of the different Morningstar Global Categories strongly confirm the results obtained in the previous analyses.

Second, we analyze the sensitivity of the results to changes in the underlying banking sector. That is, we estimate each of the previous analysis for each of the three banking sectors, i. e. savings, cooperative, and private banks, separately. By estimating the impact of different determinants of the asset manager bias, we find that the results for the control variables are very similar for all three banking sectors with the exception of the branch density where the results strongly vary between the different banking sectors as this variable is not statistically significant for savings and private banks, but for cooperative banks, only. By analyzing the determinants of portfolio costs, we find a cost reducing effect of the presence of a bank-affiliated asset manager for savings and cooperative banks, thereby confirming the main results. However, this effect is not existent for private banks. Additionally, there are some more variations in the effects of other control variables on portfolio costs between the different banking sectors as well, e. g. branch density, average portfolio size, and asset allocation aggressiveness. Finally, we find a cost reducing effect of the asset manager bias for all three banking sectors, thereby confirming the results of the main analyses again. At the same time, there are some changes in the effect of some of the additional control variables such as return on equity and bank size. To conclude, the analyzes of the different banking sectors confirm the main results.

VII. Conclusion

We analyze equity mutual fund holdings of German retail clients who received financial advice between 2005 and 2014 to investigate whether these investors overweight the bank's bank-affiliated asset manager and if so, whether this asset manager bias leads to higher portfolio costs.

By combining different data sets of obtained from the Deutsche Bundesbank and Morningstar Direct, we obtain a unique data set that allows us to analyze the impact of the institutional set up on the supply side effects of financial advice. The data enables us to use the mutual investment fund holdings of all German retail clients who base their investment decisions on financial advice. As we account for the special structure of the institutional set up of the German mutual investment fund market, we document that German retail investors are suffering from biased advice as they are prone to a bank-affiliated asset manager bias, i. e. they heavily overweight mutual investment funds that are issued by the

bank-affiliated asset manager of their advising bank. The severity of the asset manager bias varies between the different banking sectors with clients of cooperative and savings banks being prone to a larger asset manager bias than clients of private banks. Additionally, we also find that the asset manager bias increases, the higher the branch density, the larger the average portfolio size, and the larger the market share of the bank-affiliated asset manager is. In contrast, the larger the bank and the more aggressive a client's investment style, the lower is the asset manager bias ratio. Interestingly, this asset manager bias does not harm investors as the average portfolio costs, measured via Total Expense Ratios, of retail clients over-weighting products of the bank-affiliated asset manager are significantly lower than average portfolio costs of retail clients who do not overweight the mutual investment funds of the bank-affiliated asset manager. Average portfolio costs increase the higher the bank's profitability, the more aggressive a client's investment style, and the larger the bank is. In contrast, the existence of a bank-affiliated asset manager as well as a higher branch density reduce average portfolio costs. These findings are stable to changes in the proxy to measure both the existent asset manager bias and portfolio costs as well as to changes in the underlying econometric estimation method.

Admittedly, our approach to analyze the impact of the institutional set up of the supply side effects in financial advice is subject to some shortcomings. First, the study analyses the impact of bank-affiliated asset manager bias on client's portfolio costs, only. Therefore, we are not able to empirically investigate whether the existing fee differences also lead to significant differences in ex-post realized risk-adjusted portfolio returns. However, prior studies conclude that the majority of active mutual investment funds are not able to systematically outperform comparable passive market proxies on a net of fee basis, not the least because of the existing comparatively high fees, expenses and other cost components associated with an investment in an active mutual fund (*Fama/French* 1993; *Carhart* 1997; *Fama/French* 2010; *Barras* et al. 2010; *Busse* et al. 2010). Consequently, the literature suggest the allocation of low-cost passive market proxies for efficient portfolio allocation (*Wermers* 2000; *Otten/Bams* 2002; *Cuthberson* et al. 2010). Furthermore, as neither the absolute nor the relative performance of a mutual investment fund is known ex-ante, it is a rational strategy for the investor to allocate investment funds that minimize the inevitable administrative fees. Against this background, the approach of the study to focus on portfolio costs seems to be reasonable. Second, as already mentioned above, we focus on Total Expense Ratios as one component of overall portfolio costs, only. This is because the other cost components, e. g. upfront fees, transaction costs, are not observable directly. Third, we have no exact information on the individual advisory process of each bank but rather use the outcome of this process, i. e. the existing portfolios. Therefore, we are not able to exactly identify the entire product universe offered by advisors to their clients. Furthermore, due to the

structure of the underlying data, we rely on aggregated portfolios for each bank, only, thereby ignoring potentially existing distributional differences in the characteristics of individual portfolios. Finally, as the data set restricts our analysis on the institutional set up that influences the supply side of financial advice, we are not able to incorporate demand side effects such as financial literacy or socioeconomic factors of retail clients in our study.

Our results are of high relevance for the current regulatory efforts of politicians and financial regulators as they contradict the need of a clear-cut separation of the institutional set up of product issuance on the one hand, and the provision of financial advice on the other hand. In this sense, additional regulatory efforts to separate the institutional set up of the provision of financial advice on the one hand, and product issuance on the other hand, should be done very carefully. Therefore, we hope that the results of our study could help to improve the efficiency of future regulatory standards.

Finally, we would like to stress that the analysis of the impact of the institutional set up in which financial advice is provided on portfolio allocation of retail investors can be extended to other important questions dealing with the value added of financial advice. Therefore, one promising extension could focus on the consequences of asset manager bias on risk-adjusted portfolio returns. In this sense, we hope to stimulate further research on the institutional set up of the supply side effects influencing the process and outcomes of financial advice for retail clients to enable financial regulators to employ effective measures for consumer protection.

Appendix

Table A

Variable Description

Name	*Description*
Savings Banks	Dummy variable that equals one, if the monetary financial institution belongs to the banking sector savings banks, and zero otherwise.
Cooperative Banks	Dummy variable that equals one, if the monetary financial institution belongs to the banking sector cooperative banks, and zero otherwise.
Private Banks	Dummy variable that equals one, if the monetary financial institution belongs to the banking sector private banks, and zero otherwise.

Name	*Description*
Bank-affiliated Asset Manager	Dummy variable that equals one if the monetary financial institution have a bank-affiliated asset manager, and zero otherwise.
Branch Density	Numeric variable measured as number of branches of the monetary financial institution in Germany divided by the reported assets under management in mutual investment funds for each quarter and each Morningstar Category.
Bank Size	Numeric variable measured by the balance sheet total of the monetary financial institution for each quarter.
Asset Allocation Aggressiveness	Numeric variable that measures the investment style as the share of equity funds on total funds invested in a client's aggregated security account for each monetary financial institution for each quarter.
Average Portfolio Value	Numeric variable that measures the size of the average security account per retail client calculated as total portfolio size including all financial assets and instruments of the monetary financial institution divided by the number of existing portfolios for each monetary financial institution and quarter.
Share of Provision based Earnings	Numeric variable measured as the share of the provision based earnings on total earnings for each monetary financial institution and quarter.
Return on Equity	Numeric variable indicating last year's return on equity for each monetary financial institution and year.
Market Share of bank-affiliated Asset Manager	Numeric variable that indicates the market share of the bank-affiliated asset manager for each Morningstar Global Category and quarter.
Asset Manager Bias Ratio	Numeric variable that measures the level of the asset manager bias indicating the level of overweight of mutual investment funds of the bank-affiliated asset manager for each monetary financial institution, Morningstar Global Category, and quarter.

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