Fee for advice: a remedy for biased product recommendations?

Jörg Schiller & Markus Weinert

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Jörg Schiller* Markus Weinert†

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Abstract

Consumers regularly seek professional advice when purchasing financial products. It is often argued that advisers should solely be compensated by consumers, as then, an adviser has no incentive to give biased advice. In our theoretical model, we show, that a fee-for-advice remuneration system does not prevent consumers from biased advice, if they have an initial biased belief, which product best suits their needs and advisers face transaction costs for persuading consumers.

Keywords: financial advice, fee for advice, information provision

JEL Codes: D82, D83, G20, L15

*University of Hohenheim, Chair for Insurance Economics and Social Security, 70593 Stuttgart, Germany.
†Corresponding author: phone: +49 711 459 23422; fax: +49 711 459 23953; email: m.weinert@uni-hohenheim.de
1 Introduction

Consumers often seek advice when purchasing complex products, especially in the financial sector. In general, financial advisers have superior knowledge about available products compared to consumers and thus can judge more accurately which product best suits consumers’ needs. It is a widespread practice among product providers to compensate financial advisers by disclosed or hidden commissions. However, this practice enables product providers to steer advisers recommendation, which consequently can be biased. It is often argued that advisers should exclusively be compensated by consumers via a fee for advice, as then, advisers seem to have no incentive to recommend a certain provider’s product and to give biased advice. In the spirit of this view, a ban on commissions related to retail investment advice was introduced in the United Kingdom at the end of 2012. Furthermore, in January 2013, the Netherlands banned commissions for complex financial products including life insurance products and mortgages.

If consumers and advisers are expected to be completely rational and there arises no advantage for the adviser from recommending a specific product but the adviser cares directly about the suitability of products for example due to reputational costs, such a regulatory measure seems reasonable. However, especially consumers possess a wide range of irrationalities. Since one important aspect of regulating financial advice is to protect consumers, regulation measures should also consider consumer behavior in order to effectively fulfill its purpose. In particular, it seems quite natural for consumers, to demand for reasons or explanations, when receiving a product recommendation. Consequently, the adviser may save time and therefore may reduce his costs, if he recommends a product, for which it is easier to explain reasons why this particular product is recommended. We consider such transaction costs from explaining reasons for a product recommendation as persuasion costs, which are not only a natural demand of consumers but are also incorporated in different regulatory schemes.

\[1\]For example, article 20 of the Insurance Distribution Directive of the European Union (EU) states: “Where advice is provided prior to the conclusion of any specific contract, the insurance distributor shall provide the customer with a personalised recommendation explaining why a particular product would best meet the customers demands and needs.”
This paper investigates from a normative standpoint, why advisers may have an incentive to give biased recommendations if they are exclusively compensated by consumers and focuses on the analysis of the economic forces resulting from persuasion costs in an advice process. The model consists of a simple market for financial advice, where consumers have different needs and advisers possess superior information about the best suiting product. Advisers face transaction costs from providing consumers with relevant information and explaining reasons for product recommendations. These transaction costs constitute an analogy to a costly persuasion process, where costs are proportional to the reduction in uncertainty (Gentzkow and Kamenica, 2014). Consumers have a prior belief about the best suiting financial product. They can either purchase a standard product based on their initial belief or consult an adviser. The consulted adviser charges a fee to the consumer and can either confirm the consumers initial belief or recommend the specialized product. Recommending the specialized product is more costly for the adviser, since he has to persuade the consumer of the specialized product contrary to his initial belief. However, the adviser might incur a disutility resulting from an unsuitable product recommendation, for instance reputational costs and fear of losing future business prospects. On the demand side, consumers vary in their understanding of the advisers incentives and a therefore potentially resulting conflict of interest. Wary consumers anticipate the adviser’s tradeoff between persuasion costs and reputational costs and consequently the quality of advice. Naive consumers assume that advice is unbiased. On the supply side, both, a monopolistic adviser and a competitive adviser market are considered.

The main result of the analysis is, that even in the absence of commissions in the market for financial advice, product recommendations might still be biased. Advisers may have an incentive to confirm a consumers incorrect beliefs if the following two conditions hold: First, a consumer has a strong initial belief that the standard product matches his characteristics best, but actually the specialized product is the best fit. Second, market discipline is low such that advisers do not have to fear sufficiently high reputational costs from giving biased product recommendations. Our results

Additionally, the Markets in Financial Instruments Directive (MiFID II), which is the framework of EU legislation for investment intermediaries that provide services to clients around financial instruments, like shares, bonds, units in collective investment schemes and derivatives, states in article 72:

“It is also appropriate to require investment firms to explain to their clients the reasons for the advice provided to them.”
indicate that regulation of financial advice should not only consider the advisers compensation but also the related advice process. Otherwise, regulation may backfire, if it imposes substantial transaction costs which may distort advisers in incentives. The paper highlights that regulatory actions should be evaluated under realistic circumstances. Consumers are usually not completely rational and a key aspect for biased advice are unsophisticated consumers that try to make rational choices but have limited knowledge or a lack of intellectual capacity (Campbell 2016).

Malmendier and Shanthikumar (2007) analyze biased stock recommendations for investors and find that some investors take recommendations literally, while other investors appear to correct their purchase decision for the bias. In our model, advice is not just cheap talk (Crawford and Sobel 1982), but may be biased due to persuasion costs. Wary consumers consider this possibility in their decision of requesting advice for a fee, whereas naive consumers do not anticipate that product recommendations might be biased. Consequently, wary consumers have a strictly lower willingness to pay for advice in comparison to naive consumers and ultimately have no willingness to pay for completely uninformative advice. If wary consumers’ willingness to pay for advice is sufficiently high, they always follow the adviser’s product recommendation in equilibrium. Otherwise, a market for financial advice may not exist. A similar equilibrium outcome arises for naive consumers. However, our model indicates that naive consumers are exploited by advisers both in a monopolistic and a competitive adviser market. This exploitation is reduced by two factors: A high proportion of wary consumers in the market and competition between advisers. In a competitive adviser market, advisers have to fear higher reputational costs in comparison to a monopolistic adviser market. Consequently, wary consumers’ willingness to pay for advice increases in the competitiveness of the adviser market. An increase in competition between advisers also forces them to decrease the fee, for which they can offer their advice services. Thus, consumers’ surplus is higher in a competitive adviser market in comparison to a monopolistic market.

Our model relates to literature that analyzes financial intermediaries’ conflicts of interest and incentives to give biased product recommendation in a market with horizontal differentiable products. Inderst and Ottaviani (2012a) show that product providers may try to influence advisers by com-
mission payments and that mandatory disclosure and caps on commissions may have unintended consequences. However, if consumers perfectly anticipate the quality of advice, in equilibrium, advisers are exclusively compensated by an upfront fee and give unbiased advice (Inderst and Ottaviani, 2012b). Therefore, unsophisticated or rational bounded consumers are a key source for biased advice and practices of commission payments and kickbacks from product providers.

Only a few papers analyze potential problems of fee-for-advise remuneration. Gravelle (1993, 1994) shows by a theoretical comparison of commission and fee-for-advice-based compensation systems, where advisers face search costs, and entry into the adviser market is endogenous, that too few consumers become informed about their best matching product under a fee regime. He therefore finds evidence that even though a fee-based compensation system may lead to a higher intermediation quality, it is not necessarily superior to a commission system once the number of advisers and overall purchases by consumers are taken into account. Focht et al. (2013) pick up the issue of different remuneration systems in the insurance context and find that under a fee-for-advice system, there might exist biased product recommendations, since product providers are able to steer advisers through monetary or non-monetary benefits in a side contract.

The suitability and therefore the benefit of financial products, like investments or long-term life insurance contracts, crucially depends on the match of product features and the individual characteristics of the consumer. Hence, an individual consumer may only get information about the suitability of a purchased financial product after quite some time. Therefore, financial products resemble experience goods (Nelson, 1970), or in extreme cases, credence goods (Darby and Karni, 1973), when consumers do not obtain any information about quality and suitability of the purchased products. The same is valid for corresponding financial advice. Consequently, it is straightforward that consumers’ trust in financial advice and the corresponding adviser, respectively, is a key driving factor for the demand (Gennaioli et al., 2015). Hence, the relationship between a consumer and an adviser is fundamentally based on the consumer’s personal beliefs and less on objective measurements. Gennaioli et al. (2015) shows that in such a situation advisers have substantial incentives to give biased product recommendations and advisers have an incentive to pander to their consumers’
beliefs. We consider the case of experience goods, since in our model, advisers suffer reputational costs, when recommending an unsuitable product.

In particular, our model is related to the real-world phenomenon observed by Mullainathan et al. (2012) and Anagol et al. (2017), that advisers, irrespectively of their compensation, tend to cater to consumers’ beliefs, even if these are incorrect. Mullainathan et al. (2012) send trained consumers to financial advisers to present their investment portfolios. Some of the presented portfolios were in line with the consumers’ expressed needs and some were contrary to them. Mullainathan et al. (2012) find that presented investment portfolios, which did not suit the corresponding consumers’ needs, were often recommended by financial advisers. Anagol et al. (2017) analyze adviser recommendations in the Indian life insurance market and find that advisers confirm incorrect consumer beliefs, even if recommending a suitable product leads to a higher compensation for the adviser.

Our model confirms that such a behavior may be rational from the advisers perspective. We consider transaction costs that the adviser incurs from persuading consumers that have an initial belief about the suitability of products. In the sense of Gentzkow and Kamenica (2014), it is costly for the adviser to provide evident information dependent on this initial belief to the consumer, which state that the recommended product suits the consumer’s needs. A key assumption of Gentzkow and Kamenica (2014) and also of the underlying model (Kamenica and Gentzkow, 2011) is perfect commitment power. Adapting this assumption to the financial advice context would imply, that advisers can perfectly commit to any advice strategy and consumers anticipate any quality of advice. However, Bhattacharya et al. (2012) find, that consumers often do not respond to unbiased advice.

Thus, in our model, the adviser is not endowed with commitment power and wary consumers may only anticipate the quality of advice by the advisers tradeoff between persuasion costs and reputational costs. Bertrand et al. (2010), DellaVigna and Gentzkow (2010), DeMarzo et al. (2003) and Mullainathan et al. (2008) analyze persuasive effects across a range of domains. Our model puts this phenomenon of persuading consumers of products into the context of recommending horizontal differentiable products in the absence of commission payments.
2 Basic Model

We consider a simple market for financial advice. Following Inderst and Ottaviani (2012a) and Focht et al. (2013), this market is represented by a mass of risk neutral consumers and a monopolistic risk neutral adviser. Consumers face the choice to buy one single unit of one of two product $n = A, B$. The characteristics of each consumer are reflected by an unobservable binary state variable $\Theta = A, B$. If product $n$ matches the consumer’s characteristics $\Theta$, he derives utility $v_h$, otherwise he derives utility $v_l$, with $v_h > v_l > 0$. These utilities capture all discounted future cash flows dependent on the suitability of product and consumer. We normalize the utility of not buying to zero. Similar to Inderst and Ottaviani (2012a), the two products can reflect different investment plans, where one of the two is more suitable than the other based on consumer’s characteristics like financial conditions, tax status, or life expectancy. However, this simple model of two products is applicable for various situations where products or treatments do not have necessarily be originated in a financial context, for instance situations in the health care context, where different treatments yield different probabilities for curing a specific disease.

In order to gain information about the suitability of the products, consumers have the possibility to request a product recommendation from the adviser. We assume the adviser to have in-depth knowledge of financial products and therefore the capability to judge which product best suits consumers’ characteristics. Although, the adviser cannot observe a consumer’s characteristics $\Theta = A, B$ directly, the adviser has private information about a consumer’s characteristics denoted by $q = Pr(\Theta = A)$. Hence, he possesses private information about the probability that product $A$ matches a consumer’s characteristics. Product $A$ corresponds to some sort of standard product, whereas product $B$ corresponds to a more specialized product. This implies that product $A$ is

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2 The simplification of a monopolistic adviser is helpful for analyzing the interaction between consumer and adviser and is also not too far from a realistic setting. The demand for advice for each single consumer depends on many economic, social and psychological factors. In a market with multiple advisers, the consumer faces considerable search costs for obtaining a second opinion by a different adviser, which provides each adviser with some market power. Moreover, Gennaioli et al. (2015) assume that consumers have a strong personal connection to their adviser based on trust. Therefore, consumers are not willing to request advice from a competitor that offers advice for a marginal unit less than the initial adviser. Thus, in our basic setup, we assume a completely nonelastic demand for advice. However, we introduce a competitive adviser market with elastic demand for advice in section 7 and find that our core results still hold in this setting.
more likely to match consumers’ characteristics than product B. In particular, we assume that
q is distributed over all consumers according to the distribution function G(q) with differentiable
density g(q) > 0 for all q ∈ [0, 1]. Without loss of generality, we assume that g(q) is an increasing
function of q with $\frac{\partial g(q)}{\partial q} > 0$ over q ∈ [0, 1], that is, g(q) is skewed to the left. This distribution G(q)
is common knowledge. Consequently, consumers have an initial information about the suitability
of the products. However, this information is less accurate than the adviser’s private information.
We specify consumers’ product valuation with and without the adviser’s product recommendation
in detail in section 4 and 5.

The adviser is offering his product recommendation for an upfront fee f. This fee is the only
compensation for the adviser and that the adviser cannot discriminate individual consumers by
charging individual fees. In contrast to Inderst and Ottaviani (2012a) and Focht et al. (2013), we
exclude the possibility, that the adviser can receive any form of (hidden) commissions. The adviser
can use his private information q and recommend a product by sending a message $m = A, B$ to the
consumer. However, recommending a product is costly for the adviser, since he has to persuade the
consumer of his product recommendation. In line with Gentzkow and Kamenica (2014), we assume
that these costs are proportional to the expected reduction in consumers’ uncertainty relative to
their initial belief. In particular, the adviser’s persuading costs for product A depends on the
consumer’s ex ante belief according to the common information G(q) that product B matches his
characteristics and vice versa. In particular, $q \in \left[0, \frac{1}{2}\right)$ and $q \in \left[\frac{1}{2}, 1\right]$ reflect probabilities, where
product B and A, respectively, matches the consumer’s characteristics with higher probability than
the other product. The corresponding probability masses are given by $\int_0^{\frac{1}{2}} g(q)dq$ and $\int_{\frac{1}{2}}^{1} g(q)dq$.
Hence, the adviser incurs persuading costs of

$$c_A = \left(\int_0^{\frac{1}{2}} g(q)dq\right) k = G\left(\frac{1}{2}\right) k$$  \hspace{1cm} (1)
for recommending product $A$ and

$$c_B = \left( \int_{\frac{1}{2}}^{1} g(q) \, dq \right) k = \left( 1 - G\left( \frac{1}{2} \right) \right) k$$

(2)

for recommending product $B$, where $k > 0$ denotes the marginal persuading costs for the adviser. Since $g(q)$ is skewed to the left it follows immediately that $\int_{0}^{\frac{1}{2}} g(q) \, dq < \int_{\frac{1}{2}}^{1} g(q) \, dq$ and therefore $c_A < c_B$ holds. This implies, that it is less costly for the adviser to persuade a consumer of the standard product $A$ that is suitable for the majority of consumers than to persuade a consumer of the specialized product $B$, that only matches the characteristics of the minority. However, the adviser incurs reputational costs $d > 0$ when the recommended product does not match the consumer’s characteristics.\footnote{Following Inderst and Ottaviani (2012a) sources of disutility for a mismatching product recommendation can also be potential penalties imposed by a regulator or professional concerns for the consumer’s well-being.}

We relate this reputational costs to a learning effect of consumers about the suitability of purchased products, but abstract in our analysis from specific time horizons, where this learning effect takes place. In our basic model, the adviser’s marginal persuading costs $k$, his potential reputational costs for a wrong product recommendation $d$, the distribution of the adviser’s private information $G(q)$ and the derived utility levels $v_h$ and $v_l$ for the consumer are exogenously given. However, we endogenize reputational costs for advisers in section \[\text{7}\] by introducing a competitive adviser market and link reputational costs to the degree of competition between advisers.

We differentiate in our analysis between two types of consumers. Wary consumers are able to anticipate the fact, that the adviser’s product recommendation is driven by persuading costs and reputational concerns. Thus, wary consumers anticipate $d$ and $k$ and consequently $c_A$ and $c_B$ correctly. In contrast, we assume naive consumers to be completely unaware of any adviser’s tradeoffs that might affect his product recommendations.

We model the interaction between consumers and adviser by the following game: At stage 1, the adviser makes a take-it-or-leave-it offer $f$ for his advice. At stage 2, consumers decide whether to accept or to decline this offer. If the offering is accepted, at stage 3, the adviser obtains private
information represented by $q$ and sends a message $m = A, B$ to the consumer based on this information. At stage 4 consumers make their final purchase decision. All players try to maximize their utilities. Payoffs are not discounted.

### 3 Advice

Given that a consumer has accepted the adviser’s offer for a fee $f$, the adviser maximizes his utility by minimizing his expected costs for giving a product recommendation. That is, the adviser’s dominant strategy is to recommends product $A$ whenever the expected costs resulting from this product recommendation do not exceed those for recommending product $B$ and vice versa. In particular, the adviser recommends product $A$ if $(1 - q)d + c_A \leq qd + c_B$ holds and product $B$ otherwise. By solving this inequality for $q$, we derive a threshold $q^*$ for which the adviser is better off, by recommending product $A$ if for his private information $q \geq q^*$ holds and product $B$ otherwise, where

\[
q^* := \begin{cases} 
\frac{1}{2} - \frac{k(1-2G(\frac{1}{2}))}{2d} & \text{for } \frac{1}{2} - \frac{k(1-2G(\frac{1}{2}))}{2d} > 0 \\
0 & \text{for } \frac{1}{2} - \frac{k(1-2G(\frac{1}{2}))}{2d} \leq 0.
\end{cases}
\] (3)

Expected costs for giving a product recommendation, dependent on $q$, are given by

\[
c(q) = \min \{(1 - q)d + c_A; qd + c_B\}.
\] (4)

Since $g(q)$ is skewed to the left, it holds $G\left(\frac{1}{2}\right) < \frac{1}{2}$. This implies $\frac{k(1-2G(\frac{1}{2}))}{2d} > 0$ and therefore

\[
q^* < \frac{1}{2}.
\] (5)

\footnote{For sake of simplicity, we assume that the adviser recommends product $A$ in the case that expected costs for both recommendations are equal.}
Consequently, the adviser considers two sources of potential costs, when recommending a product. First, costs for persuading the consumer of a certain product. Second, potential reputational costs, that he might incur, if the recommended product does not suit the consumer’s characteristics. By minimizing these two sources of costs, dependent on $q$, equation (5) states, that there is a nonempty interval for $q$ for which the adviser’s dominant strategy is to recommends product $A$, even though, according to the adviser’s private information, product $B$ is more likely to match the consumer’s characteristics. In this case the adviser is willing to incur the higher expected reputational costs resulting from a wrong product recommendation, since he is able to compensate this by lower persuading costs for recommending the standard product $A$ instead of the specialized product $B$. This implies that consumers for which the private information is $q \in [q^*; \frac{1}{2})$ receive a wrong product recommendation on purpose by the adviser. It follows immediately that advice is only informative for $q^* > 0$.

4 Wary consumers

Wary consumers are capable to anticipate correctly the adviser’s tradeoff between potential reputational costs and persuading costs for a certain product, when giving a product recommendation. We solve the interaction game between consumer and adviser, described in section 2, under the assumption, that consumers know that the adviser’s product recommendation is biased according to $q^*$ derived in equation (3). The consumer’s expected utility for product $A$ and $B$, dependent on $q$, is given by

$$v_A(q) = q \cdot v_h + (1 - q) \cdot v_l$$

and

$$v_B(q) = (1 - q) \cdot v_h + q \cdot v_l,$$

where
respectively. As a consequence, the consumer’s ex ante valuation (without any advice) for the two products is given by

\[ E[v_A(q)] = \int_0^1 v_A(q)g(q)\,dq > \int_0^1 v_B(q)g(q)\,dq = E[v_B(q)] > 0. \]  

(8)

Using backward induction, we start solving the game at stage 4. There, we have to consider two different histories of the game: Either the consumer has accepted the offer for advice at stage 2 or he has declined it. The purchase decision for the case without advice is straightforward. From (8) it follows immediately that the consumer purchases the standard product \( A \). If the consumer has accepted the offer for advice at stage 2, he received a message \( m = A, B \) at stage 3. First, we consider the case, which corresponds to receiving message \( m = A \). Since a wary consumer correctly anticipates \( q^* \), he also anticipates that this message is equivalent to the information that \( q \geq q^* \) holds. Consequently, the consumer’s ex post valuation for the two products according to the received message and the anticipated \( q^* \geq 0 \) is given by

\[ E[v_A(q) \mid q \geq q^*] = \int_{q^*}^1 v_A(q) \frac{g(q)}{1 - G(q^*)}\,dq > \int_{q^*}^1 v_B(q) \frac{g(q)}{1 - G(q^*)}\,dq = E[v_B(q) \mid q \geq q^*] > 0, \]  

(9)

where the strict inequality follows immediately by the skewness of \( g(q) \). The second case corresponds to receiving message \( m = B \). Analogous to the first case, the consumer anticipates \( q < q^* \). His ex post valuation for the two products is then given by

\[ E[v_B(q) \mid q < q^*] = \int_0^{q^*} v_B(q) \frac{g(q)}{G(q^*)}\,dq > \int_0^{q^*} v_A(q) \frac{g(q)}{G(q^*)}\,dq = E[v_A(q) \mid q < q^*] > 0. \]  

(10)

Thus, in both cases, the consumer follows the adviser’s product recommendation.

At stage 3 the adviser gives his product recommendation according to section 3, that is, his dominant strategy is to recommends product \( A \) if \( q \geq q^* \) holds, and product \( B \) otherwise.

At stage 2 the consumer can either accept the advice offer for the fee \( f \) or remain without advice.
The expected payoff for remaining without advice is given by (8) with $E[v_A(q)]$. The expected payoff considering the information from advice (gross of fee $f$) is given by

$$G(q^*)E[v_B(q) \mid q < q^*] + (1 - G(q^*)) E[v_A(q) \mid q \geq q^*].$$

(11)

Thus, the consumer will request advice if

$$f \leq G(q^*)E[v_B(q) \mid q < q^*] + (1 - G(q^*)) E[v_A(q) \mid q \geq q^*] - E[v_A(q)]$$

(12)

or equivalently

$$f \leq f^{wr} = (v_h - v_l) \int_0^{q^*} (1 - 2q) g(q) dq$$

(13)

holds, where $f^{wr}$ denotes the wary consumer’s willingness to pay for advice, that is, the utility difference between the payoffs with and without advice.

At stage 1 the adviser sets his fee $f$ taking into account the consumers willingness to pay $f^{wr}$ from stage 2 which constitutes an upper bound for $f$ and his expected costs for his advice service $E[c(q)] = \int_0^1 c(q) g(q) dq$ from stage 3 which constitute a lower bound.

**Proposition 1** There exists a unique equilibrium which depends on the consumer’s willingness to pay for advice. If $f^{wr} \geq E[c(q)]$ holds, the adviser offers his product recommendation for $f = f^{wr}$, the consumer accepts this offer and follows the adviser’s product recommendation. In this case advice is biased, but informative ($0 < q^* < \frac{1}{2}$). Otherwise, the consumer declines the adviser’s offer and purchases the standard product $A$ without advice.

Proposition 1 states that in equilibrium either wary consumers request advice and consequently follow this advice, even though advice is biased in equilibrium, or remain without advice. In the first case, the adviser creates an additional value for consumers by providing information about the suitability of the two products and the consumer is willing to pay exactly what this information is worth for him. However, we consider in this setup a monopolistic adviser, which allows him to
extract the whole value created for the consumer, by charging exactly this amount to the consumer in exchange for his information. In the second case, the information gained from the advice is not worth paying the fee \( f \) for consumers, or in other words, the adviser’s additional value that he creates for consumers is not covering his expected costs for creating this value and thus the adviser is not able to extract a positive rent from consumers. This might lead to situations, where consumers have a strictly positive willingness to pay for advice, but the adviser’s offer is too expensive, even if the adviser offers his product recommendation for \( f = E[c(q)] \).

Wary consumers correctly anticipate the adviser’s dominant strategy given by (3) and thus can judge whether their ex ante information about the suitability of products is sufficiently accurate so that advice is not worth paying at all for it.

**Corollary 1** There is a threshold \( G^* \left( \frac{1}{2} \right) := \frac{k-d}{2k} \) for the distribution of the adviser’s private information \( q \) and if \( G \left( \frac{1}{2} \right) < G^* \left( \frac{1}{2} \right) \) holds, the consumer has no willingness to pay for advice and purchases the standard product \( A \). If there is a strictly positive willingness to pay for advice, then this advice is informative, that is, \( q^* > 0 \).

Corollary 1 states that it is not beneficial for consumers to request advice, if the specialized product \( B \) is ex ante very unlikely to match the consumer’s characteristics, that is, \( G \left( \frac{1}{2} \right) \) is sufficiently small. In particular, it follows immediately from Corollary 1 that the consumer has a positive willingness to pay for advice if \( d > k \) holds, that is, the adviser’s potential disutility from recommending an unsuitable product is higher than the adviser’s marginal persuading costs. If this condition is fulfilled, the consumer anticipates, that this potential disutility \( d \) represents a sufficiently large incentive for the adviser to give a product recommendation, which is worth for the consumer paying for. Nevertheless, the adviser’s costs for giving a product recommendation might be higher than the consumer’s willingness to pay for advise. Besides \( d \), the marginal persuading costs \( k \) are a driving factor for the threshold \( G^* \left( \frac{1}{2} \right) \). This threshold is strictly increasing with \( k \) and \( \lim_{k \to \infty} G^* \left( \frac{1}{2} \right) = \frac{1}{2} \) holds. Consequently, it also holds \( G \left( \frac{1}{2} \right) < \lim_{k \to \infty} G^* \left( \frac{1}{2} \right) \) for any left-skewed density \( g(q) \) which implies that if the marginal persuading costs \( k \) are sufficiently high, the consumer
has no willingness to pay for advise. In this case, $k$ is the dominant driving factor for the adviser’s costs for giving a product recommendation $c(q)$. Then the adviser will always try to minimize his incurred persuading costs by always recommending product $A$. Thus, this result is equivalent to $q^* = 0$, that is, uninformative advise. However, the exact amount, that a consumer is willing to pay for advice is driven by various factors.

**Proposition 2** Wary consumers’ willingness to pay for informative advice is increasing with

(i) an increase of the difference of utility levels $v_h - v_l$, derived by purchasing a suitable and an unsuitable product, respectively.

(ii) an increase of the potential reputational costs $d$ for recommending an unsuitable product.

(iii) an decrease of the adviser’s marginal persuading costs $k$.

(iv) an increase of the ex ante suitability of the specialized product $B$ in the sense that $q$ is distributed according to a differentiable density function $h(q)$ with $h(q) > g(q)$ for $q \in (0; \frac{1}{2})$ and advice is informative for $h(q)$.

Proposition 2 yields insights with regard to the driving factors for wary consumers’ willingness to pay for advice. If the utility difference between purchasing a suitable product and purchasing an unsuitable product is increasing, informative advice becomes more attractive. This is due to the fact, that the information gained from advice is then getting more valuable for consumers. If the utility difference is very small, consumers do not forgo much extra utility when purchasing an unsuitable product. The second and third result reflect the consumers’ awareness. Since consumers anticipate the bias in the adviser’s product recommendation, given by $q^*$, they anticipate that advice gets more informative with an increase in $d$. In this case, the adviser has to fear higher reputational costs for recommending unsuitable products which implies that advice gets less biased. Consequently, the information gained from advice becomes more valuable for consumers. Analogous, the third result indicates, that with a decrease in the adviser’s marginal persuading costs, the effect of compensating
high reputational costs with low persuading costs is decreasing, and therefore, advice becomes also less biased. The fourth result states that the ex ante suitability of product B is a driving factor for the consumers’ willingness to pay for advice. If we focus on an increase of \( g(q) \) in an interval \((\tilde{q} - \epsilon; \tilde{q} + \epsilon) \subset (0; \frac{1}{2})\) with \( \tilde{q} \in (0; \frac{1}{2}) \) and a fixed \( \epsilon > 0 \) then the increase in the willingness to pay gets higher with bringing \( \tilde{q} \) closer to 0. This is due to the fact, that in the consumers’ valuation \( g(q) \) is weighted with the factor \( 1 - 2q \). Without advice, consumers purchase the standard product A. Thus, an information \( q \) which would change their purchasing decision to purchasing the specialized product B are of high value for consumers. In other words, an information \( q \) near the value of zero yields a higher expected utility \( v_B(q) \) and is thus more valuable for consumers than a \( q \) near the value of one half.

Even though wary consumers are able to adjust their willingness to pay to exactly to that amount what advice is worth, the equilibrium characterized in Proposition \( 1 \) is not welfare maximizing if the adviser’s offer is actually accepted.

**Proposition 3** If there exists a market for financial advice with wary consumers \((f^{wr} \geq E[c(q)])\), a total welfare loss arises in equilibrium.

The intuition behind Proposition \( 3 \) is as follows. Since a market for financial advice exists, consumers gain a sufficiently high utility from purchasing a suitable product in comparison to an unsuitable product. As a consequence, less biased advice results in a higher consumers’ willingness to pay, which exceeds additional costs for the adviser for giving a less biased product recommendation. Thus, also the adviser would be better off by a less biased product recommendation, if he could extract this additional created utility. However, consumers are aware of the fact, that the adviser has an incentive to minimize his costs after receiving his upfront payment \( f \) by choosing his dominant strategy, that is, to recommend products according to \( q^* \). Since the adviser is not able to credible commit to any other strategy, the equilibrium characterized in Proposition \( 1 \) results in a total welfare loss.
5 Naive consumers

We now consider that consumers are naive about the adviser’s incentives, that is, they are not aware of the adviser’s considerations to minimize his costs which are driven by persuading costs for a product and a potential disutility resulting from giving a wrong product recommendation, respectively. Thus, naive consumers assume that the adviser’s product recommendation is unbiased. The game sequence for naive consumers remains the same as for wary consumers, whereas the equilibrium outcome of the game is slightly different. Now, naive consumers do not anticipate the true threshold \( q^* \) and therefore naively anticipate that the adviser recommends product \( A \) if \( q \geq \frac{1}{2} \) holds and product \( B \) otherwise. Keeping wary consumers’ willingness to pay for advice, characterized by (13), in mind, naive consumers will request advice if

\[
f \leq f^{nv} = (v_h - v_l) \int_0^{\frac{1}{2}} (1 - 2q) g(q) dq
\]

(14)

holds, where \( f^{nv} \) denotes the naive consumer’s willingness to pay for advice. From \( q^* < \frac{1}{2} \) it follows immediately that \( f^{nv} > f^{wr} \) holds.

It is straightforward, that \( f^{nv} > 0 \) holds and naive consumers’ willingness to pay for advice is not affected by the adviser’s threshold \( q^* \), in particular if \( q^* = 0 \) holds, this has no effect on \( f^{nv} \). Thus, naive consumers have a strictly positive willingness to pay for uninformative advice, since \( v_h > v_l \) and \( g(q) > 0 \) for all \( q \in [0; \frac{1}{2}] \) holds. The driving factors for naive consumers’ willingness to pay are the same as for wary consumers in Proposition 2 except for persuading costs and reputational costs for the adviser which are not anticipated by naive consumers. This result is in line with the assumption, that naive consumers do not anticipate that the adviser’s product recommendation is biased and thus expect always a positive utility surplus from the adviser’s information.

**Proposition 4** There exists a unique equilibrium which depends on the naive consumer’s willingness to pay for advice. If \( f^{nv} \geq E[c(q)] \) holds, the adviser offers his product recommendation for \( f = f^{nv} \), the naive consumer accepts this offer and follows the adviser’s product recommendation.
In this case, advice is biased and not necessarily informative, that is, \(0 \leq q^* < \frac{1}{2}\). Otherwise, the naive consumer declines the adviser’s offer and purchases the standard product \(A\) without advice.

Analogous to Proposition 1 which relates to wary consumers, Proposition 4 states that in equilibrium either the naive consumer requests advice and consequently follows this advice or remains without advice. In the latter case, the information gained from advice is not worth paying the fee \(f\) from the consumer’s perspective, even though this information is valued erroneously too high due to the naive expectation, that advice is unbiased. Furthermore, there might also be constellations for naive consumers, where the consumer has a strictly positive willingness to pay for advice, but the adviser’s offer is too expensive, even if the adviser offers his product recommendation for \(f = E[c(q)]\). In comparison to the scenario with wary consumers, the adviser extracts a strictly higher rent from naive consumers, in particular

\[
f^{nv} - f^{wr} = (v_h - v_l) \int_{q^*}^{\frac{1}{2}} (1 - 2q) g(q) dq > 0. \tag{15}
\]

A total welfare loss arises in equilibrium, if naive consumers accept the adviser’s offer. If the adviser’s expected costs for giving a product recommendation exceeds consumer’s additional utility through advice, a total welfare loss is obvious. In the other case, a total welfare loss is constituted by Proposition 3. Then, the naive consumers’ higher willingness to pay for advice in comparison to wary consumers’ willingness to pay for advice constitutes a shift of wealth from consumers to the advisers, but does not affect total welfare.

6 Heterogeneous consumers

The analysis in the two previous sections is limited to the case, where the adviser directly observes, whether he faces a market with only wary consumers or a market with naive consumers. We now consider a market with a fraction \(\Phi \in (0, 1)\) of wary consumers and a fraction of \(1 - \Phi\) of naive consumers. In this case, the adviser does not observe the consumer’s behavioral type and
therefore cannot directly price discriminate the two types. We assume that participation constraints $f_{wr} \geq E[c(q)]$ and $f_{nv} \geq E[c(q)]$ for both consumer types are satisfied. The equilibrium is then characterized as follows.

**Proposition 5** There exists a threshold $\Phi^* = 1 - \frac{f_{wr}}{f_{nv}} > 0$. If $\Phi \geq \Phi^*$ holds, the adviser offers his product recommendation for $f = f_{wr}$. In this case both consumer types request advice and follow the adviser’s product recommendation. Otherwise, the adviser sets his fee $f = f_{nv}$. Then only naive consumers will request advice and consequently follow the adviser’s product recommendation whereas wary consumers will remain without advice and purchase the standard product A. In both cases there arises a total welfare loss in equilibrium, whereby this loss is strictly higher in the latter case.

As a result, a sufficiently large fraction of wary consumers protect naive consumers from exploitation. In this case, the adviser is better off by always offering his advise for $f = f_{wr}$. However, if the fraction of wary consumers is sufficiently small, the adviser will set his fee at $f = f_{nv}$ and consequently none of the wary consumers will accept this offer. Naive consumers are exploited, since wary consumers cannot protect them from paying the higher fee $f = f_{nv}$ to the adviser. Furthermore, there arises a strictly higher total welfare loss if only naive consumers request advice, since $f_{wr} - E[c(q)] > 0$ holds. Nevertheless, in equilibrium, wary consumers remain without advice due to a lower willingness to pay in comparison to naive consumers.\footnote{If $f_{wr}$ and $f_{nv}$ are below the adviser’s expected costs $E[c(q)]$ for recommending a product, then both types remain without advice and purchase the standard product A. If $f_{nv} > E[c(q)] > f_{wr}$ holds, the adviser offers his product recommendation for $f = f_{nv}$ which implies that only naive consumers will request advice and consequently will follow the adviser’s product recommendation whereas wary consumers will remain without advice.}

\footnote{Our model does not account for different levels of wealth for consumers and a possibly resulting difference in the willingness to pay for advice. However, these differences may lead to a clustering within consumers, where some of them are provided with advise in equilibrium and others do not request advice. See [Gravelle (1994)] for an analysis of such advice gaps.}
7 Competition

In this section we extend our model of section 4 and 5 by introducing an elastic demand function which allows us to capture different degrees of competition. In the previous sections, the advisers potential disutility is determined exogenously. However, introducing an elastic demand function also allows us to endogenize the adviser’s potential reputational costs. Similar to Inderst and Ottaviani (2012b) we abstract from institutional details of particular financial markets and consider a simple model, where two advisers \( i = 1, 2 \) compete for one type of consumers. Both advisers have individual marginal persuading costs \( k_i \) which depend on adviser \( i \)’s characteristics and might also incur different potential reputational costs \( d_i \) because of different professional concerns or different fear of losing future business prospects. For convenience, we assume that none of the two has a substantial advantage in \( d_i \) and \( k_i \) in the sense that none of the two adviser is able to push his competitor out of the market, that is, there are nonempty sets \( Q_i \subset [0,1] \) for which adviser \( i = 1, 2 \) is weakly more cost efficient for giving a product recommendation than his competitor. According to (4), the corresponding adviser \( i \)’s expected minimized costs for giving a product recommendation, dependent on \( q \), is given by

\[
c_i(q) = \min \left\{ (1 - q)d_i + G \left( \frac{1}{2} \right) k_i; qd_i + \left( 1 - G \left( \frac{1}{2} \right) \right) k_i \right\}.
\]

Both advisers offer a certain utility gained from the respective advise

\[
\hat{u}_i = (v_h - v_l) \int_0^{q_i^*} (1 - 2q) g(q) dq - f_i,
\]

where \( q_i^* \) is defined according to (3) with \( d_i \) and \( k_i \), respectively, and \( f_i \) denotes the fee charged by adviser \( i \) for his product recommendation. Equation (17) applies for both, wary and naive consumers. Wary consumers anticipate \( q_i^* \) correctly, whereas naive consumers anticipate \( q_i^* = \frac{1}{2} \).

For sake of simplicity, we assume a representative consumer for every \( q \in [0,1] \) for which the advisers compete. Each representative consumer represents a sufficiently large group of homogenous
consumers. Consequently, the representative consumer can split up his consumption of advice, since within a group, each single consumer can decide from whom he will take advice and therefore, some can take advice from adviser 1 and some can take advice from adviser 2. In line with Inderst and Ottaviani (2012b), we assume a symmetric and continuously differentiable demand function \( x_i = x(\hat{u}_i, \hat{u}_j) \) with \( i \neq j \) and \( \frac{\partial x}{\partial \hat{u}_i} > 0 \) and \( \frac{\partial x}{\partial \hat{u}_j} < 0 \) for \( x(\cdot) > 0 \). Thus, demand for adviser \( i \)'s service increases with an increase in \( \hat{u}_i \) and decreases with an increase in \( \hat{u}_j \), for \( i \neq j \).

The corresponding profit for adviser \( i \), dependent on \( q \), is then given by

\[
\Pi^\theta(\hat{u}_i, q) x(\hat{u}_i, \hat{u}_j) = (f_i^\theta - c_i(q)) x(\hat{u}_i, \hat{u}_j)
\] (18)

where \( \theta = \{ wr, nv \} \).

Each adviser \( i = 1, 2 \) chooses his promised utility \( \hat{u}_i \) in order to maximize (18). Thus, best response functions are given by the first order condition

\[
\frac{\partial \Pi^\theta(\hat{u}_i, q)}{\partial \hat{u}_i} x(\hat{u}_i, \hat{u}_j) + \Pi^\theta(\hat{u}_i, q) \frac{\partial x(\hat{u}_i, \hat{u}_j)}{\partial \hat{u}_i} = 0.
\] (19)

For convenience we assume that best response function intersect once and hence yield a unique equilibrium.

As mentioned in section 2 consumers might face considerable search costs for obtaining a second opinion or have a strong personal connection to a certain adviser based on trust. However, this assertion does not hold for every consumer within the group. Thus, we assume the representative consumer’s demand function \( x_i \) as non perfectly elastic and capture the degree of competition by the elasticity

\[
\eta(\hat{u}_i) = \frac{\partial x(\hat{u}_i, \hat{u}_j)}{\partial \hat{u}_i} \cdot \frac{\hat{u}_i}{x(\hat{u}_i, \hat{u}_j)} > 0.
\] (20)

An increase in competition is then captured by an increase in elasticity everywhere. The first order
condition (19) is then given by
\[
\Pi^\theta(\hat{u}_i, q) = -\frac{\partial \Pi^\theta(\hat{u}_i, q)}{\partial \hat{u}_i} \hat{u}_i \eta(\hat{u}_i) .
\]

If competition between advisers increases, that is, the demand function \(x_i\) gets more elastic, also the fear of losing future business prospects increases, since in this case it is more likely that consumers will request advise from the competitor. Thus, we assume that \(d_i(\eta(\hat{u}_i))\) is a bounded function which is strictly increasing with \(\eta(\hat{u}_i)\). Consequently, competition yields to a higher quality of advice, in the sense, that the threshold \(q_i^*\) increases with an increase in competition. Furthermore, higher quality of advice goes in hand with higher costs for recommending a product. Thus, competition can be seen as a sort of disciplining measure, since advisers are forced to give a more elaborated product recommendation. By assumption, none of the competitors can be pushed out of the market. Hence, the upper bound of \(d_i(\eta(\hat{u}_i))\) satisfies
\[
f_i^\theta \geq E[c_i(q)] = E\left[\min\left\{(1 - q)d_i(\eta(\hat{u}_i)) + G\left(\frac{1}{2}\right) k_i; qd_i(\eta(\hat{u}_i)) + \left(1 - G\left(\frac{1}{2}\right)\right) k_i\right\}\right].
\]

This assumption guarantees, that the pressure resulting from competition on the maximum chargeable fee for the advisers does not result in not providing advice for consumers at all.

**Proposition 6** Wary consumers’ willingness to pay for advice is increasing with an increase in competition, whereas the potential exploitation of naive consumers is decreasing. An increase in competition also yields a higher consumer surplus for both types of consumers.

Proposition 6 shows that from the consumers’ perspective there are two advantages that are derived from competition between advisers. First, the quality of a product recommendation is strictly higher in this scenario in comparison to the case without competition. Wary consumers anticipate the higher quality and adapt their willingness to pay for advice. Naive consumers do not anticipate the higher quality, but are exploited less, since real quality of advice and erroneous belief of the adviser’s quality converge. Second, advisers are forced to offer their product recommendation for a
strictly lower fee in the presence of competition, which yields a higher consumer surplus if advice is requested.

8 Conclusions

This article provides a theoretical analysis of incentives for financial advisers to give biased product recommendations in the absence of any form of commission payments. To this end, we show that in some situations advisers have an incentive to recommend unsuitable products to their consumers due to the existence of persuasion costs. This is the case, when consumers have got some initial belief, which product suits best their needs and advisers do not have to fear high reputational costs. We consider wary consumers, who are able to anticipate biased product recommendations and naive consumers who expect unbiased advice, if advisers are only compensated by an upfront fee. Our model shows, that advisers have an incentive to exploit naive consumers. Nevertheless, in both scenarios there arises a total welfare loss in equilibrium. The presence of wary consumers may prevent naive consumers from exploitation. Furthermore, an increase in competition between advisers results in less biased product recommendations and consequently in a higher consumer surplus. Our results suggest that financial regulators should be careful, when enacting a ban on commissions for financial advice. Fee for advice is not a remedy for biased product recommendations.
References


Appendix A. Proofs

Proof of Proposition 1 In the first case, it holds $f^{wr} \geq f \geq E[c(q)]$. From (13) it follows, that the consumer will request advice. Consequently, at stage 4, the consumer will follow the adviser’s product recommendation, according to (9) and (10). At stage 3, according to (8) the adviser is recommending product A if $q \geq q^*$ and product B otherwise. As mentioned, at stage 2 the consumer will request advice and at stage 1 the adviser maximizes his utility by offering his advice for $f = f^{wr}$. From (5) it follows that advice is biased. From $f^{wr} \geq E[c(q)] > 0$ it follows that there is a strictly positive willingness to pay for advice. Since $v_h - v_l > 0$ holds, this is equivalent to $\int_0^q (1 - 2q) g(q) dq > 0$. By assumption, it holds $g(q) > 0$ over $q \in [0, 1]$ and by (5) it holds $q^* < \frac{1}{2}$. This implies $(1 - 2q) g(q) > 0$ for all $q \in [0; q^*]$. Thus, $\int_0^q (1 - 2q) g(q) dq > 0$ holds if and only if $q^* > 0$. The second case, $f^{wr} < E[c(q)]$ implies that no advice is requested at stage 2. Thus, at stage 4, the consumer purchases product A according to (8). Stage 3 is skipped, since at stage 1 the adviser can only offer his product recommendation for $f = E[c(q)] > f^{wr}$. □

Proof of Corollary 1 Analogous to the proof of Proposition 1 no willingness to pay for advice is equivalent to $\int_0^q (1 - 2q) g(q) dq \leq 0$ which holds if and only if $q^* = 0$. From (3) it follows that this is equivalent to $\frac{1}{2} - \frac{k(1 - 2G(\frac{1}{2}))}{2d} \leq 0$ or $G(\frac{1}{2}) \leq \frac{k - d}{2d}$. The purchase decision is given by (8). A strictly positive willingness to pay is equivalent to $\int_0^q (1 - 2q) g(q) dq > 0$. In line with the previous considerations this holds if and only if $q^* > 0$. □

Proof of Proposition 2 Since advice is informative, it holds $0 < q^* < \frac{1}{2}$.

(i) From (13) it follows $\frac{\partial f^{wr}}{\partial (v_h - v_l)} = \int_0^q (1 - 2q) g(q) dq > 0$.

(ii) From (13) it follows $\frac{\partial f^{wr}}{\partial d} = (v_h - v_l) \frac{k(1 - 2G(\frac{1}{2}))}{2d} (1 - 2q^*) g(q^*) > 0$.

(iii) From (13) it follows $\frac{\partial f^{wr}}{\partial k} = (v_h - v_l) \left( - \frac{(1 - 2G(\frac{1}{2}))}{2d} (1 - 2q^*) g(q^*) \right) < 0$.

(iv) Let $q^*_h = \frac{1}{2} - \frac{k(1 - 2H(\frac{1}{2}))}{2d}$. Since advice is informative for $h(q)$, it holds $q^*_h > 0$. From $h(q) > g(q)$ for $q \in (0; \frac{1}{2})$ it follows $(1 - 2q) h(q) > (1 - 2q) g(q)$ for $q \in (0; \frac{1}{2})$ and $H(\frac{1}{2}) > G(\frac{1}{2})$.
Therefore, it holds \((v_h - v_l) \int_0^{q^*} (1 - 2q) h(q) dq > (v_h - v_l) \int_0^{q^*} (1 - 2q) g(q) dq\).

\[\]}

**Proof of Proposition 3.** If a market for financial advice exists, Proposition 1 states, that advice is informative, that is, \(0 < q^* < \frac{1}{2}\) holds. Let \(\epsilon \in (0; \frac{1}{2} - q^*)\) and we assume the adviser to give a less biased product recommendation in the sense, that the interval \(q \in [q^*; \frac{1}{2}]\) for which the adviser gives a wrong product recommendation on purpose is shrunk to \(q \in [q^* + \epsilon; \frac{1}{2}]\). Consumer surplus resulting from this is given by

\[
CS(\epsilon) = (v_h - v_l) \int_{q^* + \epsilon}^{q^* + \epsilon} (1 - 2q) g(q) dq.
\] (23)

However, the adviser incurs additional persuading costs for recommending the suitable product, that is, the specialized product \(B\) instead of the standard product \(A\), and lowers his potential reputational costs for recommending an unsuitable product, given by

\[
AC(\epsilon) = \int_{q^* + \epsilon}^{q^* + \epsilon} (qd + c_B - (1 - q)d - c_A) g(q) dq
\] (24)

\[
= d \int_{q^* + \epsilon}^{q^* + \epsilon} (2q - 1) g(q) dq + \int_{q^* + \epsilon}^{q^* + \epsilon} (c_B - c_A) g(q) dq
\] (25)

\[
= -d \int_{q^* + \epsilon}^{q^* + \epsilon} (1 - 2q) g(q) dq + [G(q^* + \epsilon) + G(q^*)] \left(1 - 2G\frac{1}{2}\right) k,
\] (26)

where \(AC(\epsilon) > 0\) holds, since for \(q > q^*\) the adviser’s costs are strictly lower for recommending product \(A\) due to 3. The change in total welfare is given by

\[
\omega(\epsilon) = CS(\epsilon) - AC(\epsilon)
\] (27)

\[
= [(v_h - v_l) + d] \int_{q^* + \epsilon}^{q^* + \epsilon} (1 - 2q) g(q) dq - [G(q^* + \epsilon) + G(q^*)] \left(1 - 2G\frac{1}{2}\right) k.
\] (28)
Taking the partial derivative with respect to $\epsilon$ yields

$$\frac{\partial \omega(\epsilon)}{\partial \epsilon} = [(v_h - v_l) + d] (1 - 2(q^* + \epsilon)) g(q^* + \epsilon) - g(q^* + \epsilon) \left(1 - 2G_2 \right) k. \quad (29)$$

If $\frac{\partial \omega(\epsilon)}{\partial \epsilon} > 0$ holds, total welfare increases with $\epsilon$, which implies that the equilibrium characterized in Proposition 1 is not welfare maximizing. Using (3), it holds

$$\frac{\partial \omega(\epsilon)}{\partial \epsilon} > 0 \quad (30)$$

$$\iff [(v_h - v_l) + d] (1 - 2(q^* + \epsilon)) - \left(1 - 2G_2 \right) k > 0 \quad (31)$$

$$\iff -2q^* > -(1 - 2\epsilon) + \frac{1 - 2G_\frac{1}{2} k}{(v_h - v_l) + d} \quad (32)$$

$$\iff q^* < \frac{1 - 2\epsilon}{2} - \frac{1 - 2G_\frac{1}{2} k}{2(v_h - v_l) + 2d} \quad (33)$$

$$\iff \frac{1}{2} - \frac{1 - 2G_\frac{1}{2} k}{2d} < \frac{1 - 2\epsilon}{2} - \frac{1 - 2G_\frac{1}{2} k}{2(v_h - v_l) + 2d} \quad (34)$$

Since $v_h - v_l > 0$ holds, it follows

$$\frac{1 - 2G_\frac{1}{2} k}{2d} > \frac{1 - 2G_\frac{1}{2} k}{2(v_h - v_l) + 2d}. \quad (35)$$

Consequently, there always exists a sufficiently small $\epsilon > 0$ such that (35) holds. ■

Proof of Proposition 4. In the first case, it holds $f^{nu} \geq f \geq E[c(q)]$. From (14) it follows, that the consumer will request advice. Consequently, at stage 4, the consumer will follow the adviser’s product recommendation, analogous to wary consumers. At stage 3, according (3) the adviser is recommending product $A$ if $q \geq q^*$ and product $B$ otherwise. As mentioned, at stage 2 the consumer will request advice and at stage 1 the adviser maximizes his utility by offering his advice for $f = f^{nu}$. Since $f \geq E[c(q)] > 0$ there is a strictly positive willingness to pay for advice. From (5) and (14) it follows $0 \leq q^* < \frac{1}{2}$. The second case, $f^{nu} < E[c(q)]$ implies that no
advice is requested at stage 2. Thus, at stage 4, the consumer purchases product \( A \) according to (8). Stage 3 is skipped, since at stage 1 the adviser can only offer his product recommendation for \( f = E[c(q)] > f^{nv} \). ■

**Proof of Proposition 5.** Since \( f^{nv} > f^{wr} \) holds, both consumer types will request advice for \( f = f^{wr} \). Thus, the expected payoff for the adviser is then \( \Phi f^{wr} + (1 - \Phi) f^{wr} = f^{wr} \). Wary consumers are not willing to pay \( f^{nv} \) for advice. Consequently, the expected payoff for the adviser, when setting \( f = f^{nv} \) is \( (1 - \Phi) f^{nv} \). From this considerations, it follows, that the adviser will set \( f = f^{wr} \) if \( f^{wr} \geq (1 - \Phi) f^{nv} \) or \( \Phi \geq 1 - \frac{f^{wr}}{f^{nv}} > 0 \). If both consumer types request advice, a total welfare loss follows immediately from Proposition 3. If \( \Phi < \Phi^* \) holds, only naive consumers request advice. Thus, the total welfare loss increases by \( \Phi (f^{wr} - E[c(q)]) > 0 \). ■

**Proof of Proposition 6.** By assumption, it holds that \( d_i(\eta(\hat{u}_i)) \) is a strictly increasing function of \( \eta(\hat{u}_i) \). Consequently, \( q^*_i = \frac{1}{2} - \frac{k(1 - 2G(\frac{1}{2}))}{2d_i(\eta(\hat{u}_i))} \) is also strictly increasing with \( \eta(\hat{u}_i) \). Thus, the first assertion follows from Proposition 2. With an increase of \( q^*_i \), the difference between the naive belief and the true threshold \( \frac{1}{2} - q^*_i \) is shrinking. Therefore, the difference between the naive consumers’ willingness to pay for advice and the wary consumer’s willingness to pay for advice \( f^{nv} - f^{rt} = \int_{q^*_i}^{\frac{1}{2}} (1 - 2q) g(q) dq \) is also shrinking with an increase of \( q^*_i \). Thus, the second assertion holds. Obviously, it holds \( \frac{\partial \Pi^\theta(\hat{u}_i, q)}{\partial \eta} < 0 \), since from (17) it follows, that for a given threshold \( q^*_i \) this can only be done by lowering the fee, that is charged to consumers. Therefore, equation (21) yields, that \( \Pi^\theta(\hat{u}_i, q) \) is decreasing with an increase in \( \eta(\hat{u}_i) \) which leads consequently to a higher consumer surplus. ■