Ethics and Trust in the Market for Financial Advisors[*]

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Abstract

We construct an overlapping generations model of financial advisors, who have ethics, are hired competitively, interact with strategic investment funds, and are regulated. Misconduct is the outcome of the tension between the endogenous career concerns created by a competitive labor market rewarding good advisor behavior and the strategic investment fund which can frustrate clients' inference by paying commissions to alter advisor incentives. We characterize market conditions leading to high misconduct. We offer a prediction as to the pattern of commissions and misconduct as the proportion best served by high-fee funds declines. And we establish when, over the course of a career, financial advisors are most trustworthy.

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1. Introduction

The market for financial advice is important; in the US, almost all purchasers of mutual funds or equities have sought investment advice while in Germany 80% have (Chater, Huck, and Inderst, 2010, §3.2). Yet despite the market's prominence, misconduct amongst financial advisors is widespread. Between 2005 and 2015 in the US, over 12% of financial advisors acquired a misconduct record (Egan, Matvos, and Seru, 2019). It is also the case that 60% of financial advisory firms employing more than 1,000 advisors have a higher frequency of blemished financial advisors than one in 20, and in some firms approaching one in five of employed advisors have been guilty of misconduct; these include some of the best known banks in the United States.[1] The misconduct captured by these statistics is most frequently misrepresentation of investments and selection of unsuitable investments.[2] Further, the transgressions are large with average payouts to clients of around $500,000 (Dimmock, Gerken, and Graham, 2018; Egan, Matvos, and Seru, 2019).

It is perhaps surprising, given the ubiquity of financial advisor use, that financiers are some of the least trusted, and best paid, professionals in our economy. Sapienza and Zingales (2012) document that brokers in the US are less trusted than the government, than big corporations, and certainly less trusted than random members of society. And prominent research has identified evidence suggesting that bankers are prone to lying (Cohn, Fehr, and Maréchal, 2014). Nonetheless Philippon and Reshef (2012) document that overall financiers enjoy a pay premium of about 20% compared to that of other professionals with similar education and demographic background. The effect rises to a pay differential of two and half times for the most senior financiers who have an unblemished record (Oyer, 2008).

The coincidence of widespread misconduct, high pay, low trust and yet continued client business in such an important market raises some critical questions which we seek to address. Why do career concerns created by high wages for good financiers not discipline financial advisors? Why isn't regulatory enforcement with a public record of misconduct sufficient to deter misconduct? When, over the course of their career, are advisors most unethical, and when most ethical and so

[1] For example Morgan Stanley (13.1% of advisors with misconduct records) and UBS Financial Services (15.1% with a record) – Egan, Matvos, and Seru (2019), Table 6, misconduct as of May 2015.

[2] See Egan, Matvos, and Seru (2019) Table 3. Unsuitable investments (21.3% of misconduct disclosures), misrepresentation (17.7%), unauthorized activity (15.0%), omission of key facts (11.6%).

most trustworthy? How should we expect misconduct, wages and trust to evolve over a business cycle?

To address such questions we develop a theoretical model of the labor market for financial advice. We construct an overlapping generations model of financial advisors, some of whom have ethics, are hired competitively, interact with strategic investment funds, and are regulated. Our model is as parsimonious as possible given these elements. Some of our financial advisors are ethical in that they are motivated by appropriate ethical considerations seeking to best serve their clients in accordance with the information available. This reflects, for example, adherence to the required *suitability standard*.[3] The remainder of our advisors are opportunistic and prone to cheating if it is in their financial interest. In our model financial advisors assist clients in directing their wealth towards a standard product or a specialized fund. Which is best for the client is identified by the advisor, but is not visible to the client, permitting scope for misinvestment. We allow the specialized fund to be strategic, optimally offering commissions to (mis-)encourage advisors. This reflects the fact that commissions to brokers are significant; for example, in the US, they average above 2.3% of invested sums.[4] But regulators may catch wrongdoing and so too in our model. Clients in reality are made aware of past misconduct via mandatory disclosures and access to regulatory records. In our model too clients are aware of any misconduct record in the advisor's history, which then affects the trust clients have in such an advisor and so alters the amount clients are willing to pay for such an advisor.

At the heart of our model is a tension between two forces. The first force occurs in the labor market. Clients value trustworthy advisors, and so advisors with a clean record earn higher wages in the competitive labor market. This creates endogenous career concerns for the advisors whereby honest behavior is rewarded with increased future pay. The second force is that the strategic investment fund can incentivize mis-investment by offering high commissions to advisors who direct their client's wealth into the fund. These commissions frustrate clients' inferences by altering the informational content in a good record.

[3]See for example *FINRA Rule 2111*.

[4]See Christoffersen, Evans, and Musto, 2013 Table I who document this as the average front load paid by the funds in their sample to unaffiliated brokers; data is of US funds between 1993 and 2009. Egan (2019) (p1221) reports that J.P. Morgan offers brokers a higher commission than this (3.09%) in the fixed income case study that he considers from 2008.

We show that the strategic fund chooses to use commissions only when the regulator's ability to detect misconduct is sufficiently poor. And we show improvement in regulation, until a threshold, has no effect on the level of misconduct experienced by clients. With a weak regulator career concerns are small as many misconduct episodes escape public exposure. This allows mis-investment to be kept high with low commissions. Improvements in the regulator's skill causes clients to trust clean advisors more; as the misconduct detection technology has improved a clean record has more value. Clients are therefore willing to pay more to hire an advisor with a clean record to serve them. The expectation of such high future pay from a clean record would deter misconduct amongst junior advisors. To counter this effect commissions rise to maintain the level of mis-investment. And if the advisors' discount factor is not too high it is optimal for the fund to fully incentivize junior cheating. Therefore the strategic fund counters an improved regulator with increased commissions, and this is why the level of misconduct does not, initially, drop if the regulator improves.

If the regulator becomes very skilled then the commission required to offset regulation become too expensive for the fund, given that much of the commission expenditure goes to advisors who would recommend the fund in any case as it is appropriate for the client. So if the regulator's skill in identifying misconduct becomes good enough, then the strategic fund optimally reduces her use of commissions and so at this point less misconduct is committed by advisors.

The equilibrium of our model offers an answer as to why misconduct is widespread and yet clients still buy from blemished advisors. Some clients are served by advisors with a history of misconduct because of clearing in the labor market. All clients prefer unblemished advisors over blemished ones at the same price. But this fact causes clients to bid the wages of clean advisors up. Market clearing occurs when wages and prices of clean advisors are high enough that clients are indifferent between blemished and unblemished advisors. This process creates significant career incentives to maintain a clean record. Yet in our model, as in reality, misconduct is widespread despite the endogenously created career concerns. This is because investment funds are strategic and use commissions to counter the labor market effect and so maintain incentives for unethical advisors to mis-invest.

One might think that the incentive to mis-invest created by commissions could be corrected by the simple expedient of banning them. The UK has banned commissions, the EU (in many settings) and US not. It's argued this policy difference has led to 92% of new retail investments in the UK being channeled into passive funds, whereas in Luxembourg (part of the EU) 89% of retail investments have been placed in active funds.[5] Banning commissions has not been seen as the solution in the US nor the EU. In our model banning commissions would lower welfare as surplus would not be created for clients needing complex investment solutions, while fund fees unnecessarily incurred by standard clients are welfare neutral. Our model therefore captures the concern that banning commissions results in less use of appropriate investments (Tong, 2022, Thiel, 2022, Inderst and Ottaviani, 2009, 2012).

Commission levels, financial advisor pay, trust and misconduct are all endogenous and our model offers empirical predictions if features of the investment environment change. A pertinent example is if high-fee actively managed funds become less likely to be a good match for a typical client as compared to a low-fee technology-driven passive investment vehicle – a trend which some argue reflects current market realities. Our model makes the empirical prediction that in this case we should see commissions to brokers (e.g. front-loads) increasing, joined also by increasing advisor pay and increasing trust clients have in advisors with a clean record.

The benchmark version of our model has advisors living for two periods, in which case a non-monotonic pattern of misconduct over a career cannot be detected. We extend the model to allow advisors to live for three periods. Doing so we establish that misconduct always becomes more likely as advisors progress through their careers. We show that it is not possible for an unethical advisor to be willing to cheat at the start of her career, but then to stop cheating mid-career if she escapes detection so as to secure high pay at her career's end. If mid-career advisors with a clean record do not cheat then this is as a result of the promise of high pay for a financial advisor with a career-long clean record. But in this case mid-career advisors with a clean record are valuable to clients as they will be honest advisors. The competitive labor market then results in such mid-career advisors with a clean record being paid well. In turn this creates even stronger career incentives at the beginning of an advisor's career as advisors who keep a clean sheet can look forward to high pay in both the middle and the end of their careers. Hence we show that misconduct amongst

[5] See UK investors seize advantage and feast on bargain passive funds, *Financial Times*, October 17 2024.

advisors open to mis-investing is monotonic over a career; it is always more likely to be perpetrated by those with the most experience. We note strong empirical support for this prediction.

Misconduct amongst financial advisors is significant through time, but during the Global Financial crisis it was particularly high (Egan, Matvos, and Seru, 2019). The equilibrium values of trust, wages and commissions will therefore adjust during the business cycle to deliver such an outcome. We study how. We embed our OLG model in a dynamic setting in which returns are subject to booms and busts. In our model the probability of low returns from the specialized fund rises in a bust. Clients are more likely to complain, and advisors more likely to be investigated, after low returns. It follows that if a bust is realized then unethical advisors are more likely to be detected – consistent with the empirical evidence. Hence trust moves counter-cyclically. Seniors with a clean record who experienced a boom in their junior phase are not highly trusted – they were unlikely to be caught even if they cheated their client last period. We therefore establish that the clean-wage-premium over the outside option is itself counter-cyclical. The gap between the wage for good seniors following a bust versus following a boom is increasing in the size of the business cycle. This gap represents a risk for a junior advisor who cheats. Hence we show that economies with larger business cycles generate higher equilibrium commissions for their financial advisors.

2. Literature Review

We study misconduct in the market for financial advisors. That such misconduct exists and is significant is now widely established. We have already noted the work of Egan, Matvos, and Seru (2019) and Dimmock, Gerken, and Graham (2018). Their findings of misconduct are corroborated by Law and Zuo (2021), Kowaleski, Sutherland, and Vetter (2020), Yimfor and Tookes (2021), Honigsberg, Hu, and Jackson Jr. (2021), Hamdi, Kalda, and Pal (2023), and Parsons, Sulaeman, and Titman (2018). Systematic misconduct has been documented in the sale of bonds (Egan, 2019), and confirmed in field experiments (Mullainathan, Noeth, and Schoar, 2012).

We study misconduct in a career concerns model of financial advice in which ethical and unethical advisors coexist and carry potentially revealing histories. To date financiers' career concerns have predominantly been studied in the context of unobserved investor skill in market microstructure models. The main effect studied in this literature concerns the incentive for agents to herd and avoid taking risks which might mark them out from the crowd in a bad way (Scharfstein and Stein, 1990; Zwiebel, 1995; Dasgupta and Prat, 2008; Guerrieri and Kondor, 2012).[6] This effect is often referred to as a *sharing-the-blame* effect.[7] Our work differs to this literature in two key ways. The first is that we permit unethical agents to disguise their type by behaving honestly — in the prior literature less skilled types cannot behave as if they are more skilled. Secondly we additionally model a strategic investment fund which can create incentives (e.g. commissions) to inhibit the market's inferences from advisor behavior and so we endogenise the career incentives created in a new way. This allows us to study an important channel by which misconduct propagates.

A significant literature studies reputational dynamics of infinitely long-lived firms to determine the conditions under which investment into quality can be sustained (see, for example, Mailath and Samuelson, 2001; Board and Meyer-ter-Vehn, 2013; Jullien and Park, 2014; and Liu, 2011). This reputation literature builds upon the seminal work of Sobel (1985), and also Kreps and Wilson (1982). In these models, as in our work, unethical agents (or enemies as Sobel, 1985 describes them) seek to convince an agent that they are friends before duping them. Our analysis develops this body of work by introducing a third strategic agent, the investment fund, which seeks to alter the inferences that clients can make from the past actions of the advisors by using commissions.

In settings which abstract from career concerns, and sometimes also from competition between firms, a number of misconduct models have been proposed: Gennaioli, Shleifer, and Vishny (2015), Thanassoulis (2023), Inderst and Ottaviani (2009), Carlin and Gervais (2009), Zhou, Keppo, and Jokivuolle (2020), Gui, Huang, and Zhao (2024) and Alger and Renault (2006). Our model of misconduct allows for an advisor to invest her client's wealth, similar to Inderst and Ottaviani (2009). The construction of the competitive labor market is similar to Thanassoulis (2012) whilst the development of the OLG framework and the inclusion of a strategic fund are original to this work. Unlike Gennaioli, Shleifer, and Vishny (2015) trust in our model can be earned – and lost – as it reflects history and measures the probability an advisor is ethical.

There are also principal-agent models of settings similar to the market for financial advice,

[6] A related effect studies the incentive for agents to increase the variance of their performance so as to disguise their ability – Brown and Davies, 2017.

[7] This effect has been identified empirically amongst fund managers (Chevalier and Ellison, 1999) and also amongst equity analysts (Hong, Kubik, and Solomon, 2000).

in which agents have the opportunity to misbehave. However these models do not include a competitive labor market for financial advisors, nor strategic investment funds. Examples in this vein include Bénabou and Tirole (2006, 2011), Kartik (2009), Axelson and Bond (2015) and Dupont and Karpoff (2025).

Our work studies the market-wide equilibrium effect of policy changes (such as better detection) designed to combat misconduct. That regulatory approaches matter for misconduct has been established empirically by Charoenwong, Kwan, and Umar (2019), while Easley and O'Hara (2023) study how regulatory interventions can alter the way unethical behavior propagates across a network. That enhanced financial regulation may fail to improve outcomes for clients has been proposed by Berk and Van Binsbergen (2022). In a model of adverse selection Berk and Van Binsbergen, 2022 show that improvements in information can lead to less entry resulting in higher prices and potentially lower consumer surplus. We also find enhanced regulation can fail to reduce wrong-doing though via a different mechanism; in our model the investment fund responds to enhanced regulation by optimally increasing commissions so as to maintain the equilibrium levels of misconduct.

That there is a substantial and increasing lack of trust by the public in financial advisors has been documented by Sapienza and Zingales (2012) and a lack of trust generally by Limbach, Rau, and Schürmann (2023). This may affect the willingness of the public to invest (Gurun, Stoffman, and Yonker, 2018; Guiso, Sapienza, and Zingales, 2008; Gelman and Shoham, 2022). Some argue that this lack of trust arises as financiers are more likely to be bad people (Cohn, Fehr, and Maréchal, 2014; Adams, 2020), or that lower income agents are less trusting of wealthy counterparties such as financial advisors (Salgado, Núñez, and Mackenna, 2021). Our work connects trust in financial advisors with the career concerns they face.

We consider the pattern of pay, trust and misconduct over the business cycle. Our analysis is related to the research on whether credit rating agencies will vary their accuracy over the business cycle: Bar-Isaac and Shapiro (2013), Opp, Opp, and Harris (2013), Mathis, McAndrews, and Rochet (2009). Our analysis differs in that the commission paid to financial advisors is set strategically by the investment fund, rather than being exogenous or set by the advisor him/herself.

Our work models the commissions that financial advisors receive explicitly. There is a large empirical literature establishing the wide cross-sectional dispersion of broker commissions across financial products as well as the tendency for brokers to more often recommend those products that come with high commissions.[8] Inderst and Ottaviani (2012) and Egan (2019) make a similar assumption in their models of intermediaries and brokers. Our work also models some financial advisors as being willing to lie by proposing sub-optimal investments to their clients in the hope of greater commissions. That humans sometimes lie when it is in their interests is consistent with the empirical evidence in the work of Gneezy, Kajackaite, and Sobel (2018), Abeler, Nosenzo, and Raymond (2019), Janezic (2020), and Fischbacher and Föllmi-Heusi (2013).

3. Model

We present an overlapping generations model of financial advisors, with ethics, hired by clients in a competitive market, regulated, and incentivized by a strategic fund to sell a particular product.

3.1. Clients and financial products

We model an economy with an infinite time horizon in discrete time, $t = 1, 2, 3, ...$ In each period there is a measure 1 of clients who live for one period. All clients have the same wealth $x > 0$.

Clients acting on their own can secure an outside option utility normalised to zero. However, clients can improve on their outside option utility by hiring a financial advisor to identify and access special financial products which are more appropriate for them. The market for financial advisors will be presented below. Clients cannot access the special financial products/funds themselves without their advisor. We share this assumption with Gennaioli, Shleifer, and Vishny (2015) arguing that it parsimoniously captures settings in which some expertise is required to construct a diversified portfolio.

Each client is best off with either a tailored product $\mathbb{t}$ or with a standard product $\mathbb{s}$. We capture this as the client's type $\tilde{\tau}_i \in \{\mathbb{t}, \mathbb{s}\}$. The standard product ($\mathbb{s}$) might be a target-date fund,[9] a set of index funds or a portfolio of stocks and treasury bonds. The tailored product can be thought

[8] For example, see Edelen, Evans, and Kadlec (2008), Bergstresser, Chalmers, and Tufano (2009), Woodward and Hall (2012), and Christoffersen, Evans, and Musto (2013).

[9] Target-date funds were introduced via the 2006 Pensions Protection Act in the US. They are designed to be a standard savings product which is widely accessible via Americans' 401(k)s (Brown and Davies, 2023).

of as an actively managed fund or a hedge fund whose characteristics (e.g. risk profile) match those required by the client.

Clients do not know their own type.[10] If clients knew their type then they could avoid advisor misconduct in investment selection by requiring the advisor to invest in the best vehicle for them. In our model, even though clients can choose between advisors based on their history, as explained below, advisors know more than clients do as to their best investment vehicle. It follows that clients are potentially vulnerable to misconduct.

If hired by the client, the role of a financial advisor will be to identify which product the client should invest in. The client type $\tilde{\tau}_i \in \{\mathbb{s}, \mathbb{t}\}$ is chosen by nature according to the distribution:

$$\tilde{\tau}_i = \begin{cases} \mathbb{t} & \text{prob. } \varphi \\ \mathbb{s} & \text{prob. } 1-\varphi, \end{cases} \quad [\mathbf{1}]$$

where $\varphi \in (0,1)$. If hired the financial advisor's choice on behalf of client i is denoted $\tilde{\rho}_i \in \{\mathbb{t}, \mathbb{s}\}$.

The payoff/utility that clients get from using the standard product (selection $\tilde{\rho} = \mathbb{s}$) is normalized to one per dollar invested. The payoff/utility per dollar invested that clients get from using the tailored product (selection $\tilde{\rho} = \mathbb{t}$) depends on their type. Specifically, the tailored product is a better match for type $\mathbb{t}$ clients and the quality $q \in (0,1]$ of the product determines the quality of the match. Denoting $\tilde{u}_i$ as the realization of client payoff:

$$\mathbb{t} \text{ is a match for the client:} \qquad \left[\tilde{u} \mid \tilde{\rho}_i = \mathbb{t}, \tilde{\tau}_i = \mathbb{t}\right] = \begin{cases} 2 & \text{w. prob.} \frac{1+q}{2} \\ 0 & \text{otherwise} \end{cases} \quad [\mathbf{2}]$$

$$\mathbb{t} \text{ is not a match for the client:} \qquad \left[\tilde{u}_i \mid \tilde{\rho}_i = \mathbb{t}, \tilde{\tau}_i = \mathbb{s}\right] = \begin{cases} 2 & \text{w. prob.} \frac{1}{2} \\ 0 & \text{otherwise} \end{cases} \quad [\mathbf{3}]$$

That is, while the expected utility that a standard client gets from a tailored product is exactly the same as that from a standard product (one), the expected utility that a client who is best matched

[10]For example a client might have some non-tradeable wealth – an ownership stake in a company or a high-paying job – which may or may not form an appropriately diversified portfolio when paired with the standard product available. If not appropriately diversified then a tailored investment vehicle would be more suitable for the client.

with a tailored product gets from such a product is $1 + q > 1$.

We set the client fee for the standard product to be zero, while the tailored product costs clients $f \in (0, 1)$ per unit of capital invested in it, specified exogenously. We assume $f < q$, so type $\mathbb{t}$ clients always prefer the tailored to the standard product, net of the financial advisor costs.

3.2. Financial Advisors and their ethics

The role of financial advisors is to identify which of the two financial products is best for the client who hires them, and then to make this choice for their client. We model financial advisors using an overlapping generations technology and we assume that advisors live for two periods with a measure $\frac{1}{2}$ of advisors entering each period. Each period therefore half the available financial advisors are in the first period of their careers, referred to as juniors, and these overlap with the other half in the second period of their careers who we refer to as seniors. A financial advisor can serve just one client at a time, and is rematched with a new client each period in a competitive market described below.

Investing in the standard product for their client does not generate any commission for the advisor. But investing the client's funds in the tailored product results in a commission of b to the advisor. This is in addition to the wage paid by the client to the advisor. The commission denoted b (e.g. for bonus) will be derived endogenously; the producer of the tailored product, referred to as the tailored fund, will choose the commission to maximize expected profits (explained below, §3.4).

We assume that each advisor is ethical with probability $\Pr\{\tilde{\imath} = 1\} = \theta_0 \in (0, 1)$ and unethical (or strategic) with probability $\Pr\{\tilde{\imath} = 0\} = 1 - \theta_0$. While advisors know their own ethical type, their type is unobservable to anyone else. Ethical advisors always recommend what is best for their client. That is, they recommend the standard product if their client's type is standard. They recommend the tailored fund if their client's type is $\mathbb{t}$.

A proportion $1 - \varepsilon$ (with $\varepsilon \approx 0$) of unethical advisors are strategic. They make all their recommendations with the objective of maximizing their life-long expected utility. This implies the following. Firstly, given that they no longer have any reputation to protect/enhance in the second period of their lives, they always recommend the tailored product ($\mathbb{t}$) to their client at that point so as to secure the bonus. Secondly, in the first period of their lives, unethical advisors always recommend the tailored product to clients of type $\tilde{\tau}_i = \mathbb{t}$ (this is the right thing to do, plus it comes with a commission of b), but they recommend it only with probability $\sigma \in [0,1]$ (to be endogenously derived in equilibrium) to clients with $\tilde{\tau}_i = \mathbb{s}$.

Finally proportion ε (≈ 0) of unethical advisors always recommend the tailored fund. This assumption simply ensures that the measure of cheating financial advisors in the population in any period is not exactly equal to 0.

We allow financial advisors to discount the future with discount factor $\lambda \geq 0$. We interpret $\lambda \in (0,1]$ in the standard manner of the second period being some time in the future with the advisor discounting future payments due to, for example, impatience. We permit $\lambda > 1$ which we can interpret as second period compensation being of increased importance, for example due to its correlation with subsequent earnings – a setting we explore below. To ensure a meaningful tradeoff between the value of future reputation and present payoffs we restrict the discount factor to the range:

$$0 \leq \lambda < \frac{2}{\theta_0(1-\varphi)}\mathcal{R}. \tag{4}$$

where $\mathcal{R} < 1$ and is given in [5].

$$\mathcal{R} = \frac{\left(1 - \frac{1}{2}(1-\varphi)(1-\theta_0)\right)^2}{1 + \varphi + \frac{1}{2}(1-\theta_0)(1-\varphi)} \tag{5}$$

We note that condition [4] is not onerous. E.g., if there are few ethicals in the population – most advisors are strategic ($\theta_0 \to 0$) – then there is no finite upper bound to the discount factor λ.

3.3. Competitive labor market for Financial Advisors

Each period (denoted by time $t \in \mathbb{N}$) the client selects an advisor to hire. Formally our labor market model is an assignment model (see for example Gabaix and Landier, 2008, Terviö, 2008, Thanassoulis, 2013). Each client can offer a given advisor a targeted remuneration package w. The offers are advisor specific – financial advisors with a more desirable history can be offered more generous wages.[11] The matching and equilibrium compensation is decided as the outcome of a

[11] Evidence that advisory firms target financial advisors with specific wage offers conditioned on their prior misconduct history is offered by Gelman and Shoham (2024).

simultaneous ascending auction for the advisors. Because each advisor is a substitute for another, such auctions deliver the competitive equilibrium assignment (Milgrom, 2000).[12]

We assume that commissions and investment returns are not verifiable to third parties. Therefore the employment contract consists of an ex ante payment from the client to the advisor in return for the financial advisor services described above. We assume that financial advisors cannot be paid negative wages and so have limited liability. We set the advisors' outside option to be 0. This assumption permits expositional simplicity, but it is not critical to any of the results which follow.

Our model establishes equilibrium pay rates for advisors conditional on the observable financial advisor history at the beginning of each period. The set of possible histories is given by $\hbar \in \{\varnothing, \mathrm{B}, \mathrm{G}\}$. $\hbar = \varnothing$ denotes an empty history and signifies a junior advisor. Senior advisors who are in the second period of their careers may have received a blemished record from the regulator in response to misconduct the prior period. (This occurs in a manner we will discuss below.) If a blemish exists then the history is denoted $\hbar = \mathrm{B}$. A senior advisor without a blemish has history $\hbar = \mathrm{G}$. There are therefore three equilibrium wages in the competitive labor market:

$$w_\varnothing, w_\mathrm{B}, w_\mathrm{G}.$$

Clients choose to hire the advisor which will allow them to maximize their expected utility net of the wage paid to the advisor.

3.4. Tailored fund

The tailored fund ($\mathbb{t}$) selects the commission $b > 0$ it wishes to offer financial advisors so as to incentivize sales and so maximize its profits.[13] The commission b is paid to financial advisors in

[12] Milgrom (2000) requires straightforward (that is nonstrategic) bidding for the simultaneous ascending auction (SAA) to deliver the competitive outcome. Here, as advisors are substitutable, the competitive equilibrium would always be the outcome (in the absence of collusion between the clients) if we implement the SAA as a standard clock auction (Ausubel and Cramton, 2004). Clock auctions have the bids rising continuously until there is no excess demand for any advisor. Such an auction is "a practical implementation of the fictitious 'Walrasian auctioneer' " (Ausubel, Cramton, and Milgrom, 2006 §2.)

[13] A monopoly fund is assumed to highlight the strategic forces on commissions which are felt either by funds which have significant market power (an important case (Brown et al., 2023)), or at the sector level creating incentives for tacit collusion between funds.

addition to the wages paid by their client. We require $b > 0$ to avoid tie-breaks amongst unethical senior advisors exactly indifferent between cheating and not.

3.5. Regulation and reputation

As we will see the financial impact of a junior advisor choosing the tailored product when her client type is $\tilde{\tau} = \mathbb{s}$ is not limited to just the commission b; it also includes the effect that this choice is expected to have on her compensation in the second period of her life. These considerations are affected by the information that gets publicly revealed in the first period of an advisor's career. In particular, we assume that clients' bad experiences are imperfectly revealed to the public, and that this helps potential clients assess the ethics of senior advisors.

Outcomes of $\tilde{u}_i = 0$ for a client potentially result in a blemished record for the advisor. This modelling captures at least two channels by which financial advisors can receive a blemished record. Firstly financial advisors are regulated, and the regulator investigates misconduct and maintains a public record of any adverse findings. For example, in the United States this regulatory task is performed by both the *Financial Industry Regulatory Authority* (FINRA) and the *Securities and Exchange Commission* (SEC). Secondly clients dissatisfied with the performance of their advisor often complain to courts or the regulator. Once again adverse findings are placed on the advisor's record.

In our model the probability that utility consistent with misconduct results in a blemished record ($\hbar_j = \text{B}$) for the advisor is β if their client is $\tilde{\tau}_i = \mathbb{s}$, and not otherwise. An advisor whose record is not blemished is said to have a good record ($\hbar_j = \text{G}$). It follows that $1 - \beta$ is the probability of a type-II error as it measures the probability that the regulator fails to correctly identify an unethical advisor. In the reported version of the model we do not include type I errors for simplicity – doing so adds complication without altering the results we will present.[14]

The information structure is illustrated in Figure 1. As we will see, while a blemished record indicates an unethical advisor, it does not render this advisor useless in the second period of her career. An advisor with such a blemished record still provides access to a tailored product which

[14] A type-I error would imply that there is some probability that an advisor who correctly (and so ethically) matched a $\mathbb{t}$ client with a $\mathbb{t}$ product, but which then realized a low payoff, receives a blemish. Including such a probability complicates the exposition. The economic results we establish are robust to this.

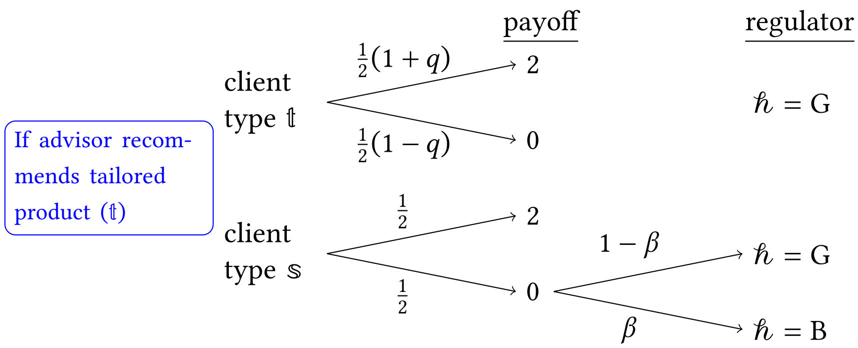


Figure 1: Client Outcomes and Public Information

Notes: The client's utility is presented in equations [2] and [3].

may be a good fit for the client, and in our model this possibility dominates the utility available from no advisor at all. Recall that we normalize this outside option utility with no advisor to zero.

The timeline of the model is described in Figure 2.

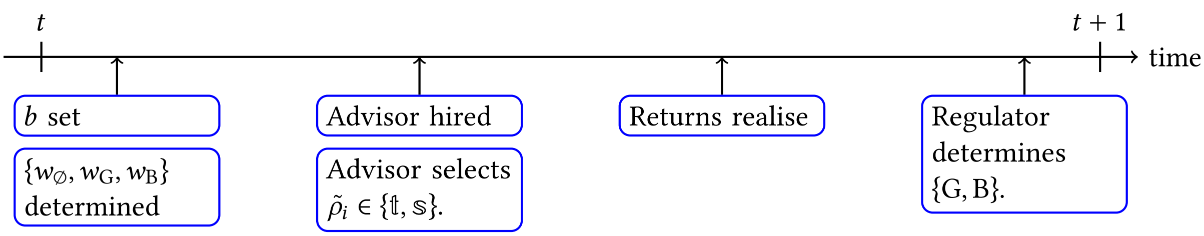


Figure 2: Model timeline

4. Market equilibrium

We begin our analysis by evaluating the trust that clients place in a good advisor record, $\hbar = G$. Recall that junior strategic unethical advisors make biased recommendations to standard clients with probability labelled $\sigma \in [0, 1]$. The probability that an ethical advisor acquires a blemished record at the end of the first period is

$$\Pr\left\{\hbar_j = B \,|\, \tilde{\imath}_j = 1\right\} = 0, \qquad [6]$$

while the probability that an unethical advisor ends up with a blemished record is

$$\Pr\left\{\hbar_j = \mathrm{B} \mid \tilde{\imath}_j = 0\right\} = (1-\varphi)\frac{1}{2}\beta(\varepsilon + (1-\varepsilon)\sigma) \equiv \ell_0. \tag{7}$$

Equation [7] captures that inappropriate investment into the tailored fund can only occur if the client is not suited to it, probability $1-\varphi$. In this case, with probability $1-\varepsilon$, the unethical advisor is strategic and so cheats with probability σ; crazy unethicals (probability ε) always cheat. Once in the tailored fund, the client has a bad experience with probability $\frac{1}{2}$. In this case the regulator is alerted and an investigation results in a blemish for the advisor with probability β. Clients of type $\tilde{\tau}_i = \mathbb{t}$ were not the victims of misconduct and so the advisor will not receive a blemish in such cases, whatever the client's realized utility.

Clients will seek to figure out the probability that any given advisor is ethical as this will affect the amount they are willing to pay to hire that advisor. Since the only observable characteristic of a senior advisor is whether or not she has a blemished record, clients will update the probability that an advisor is ethical based on the history $\hbar_j = \mathrm{B}$ or $\hbar_j = \mathrm{G}$:

$$\theta_{\mathrm{B}} := \Pr\left\{\tilde{\imath}_j = 1 \mid \hbar_j = \mathrm{B}\right\} = 0, \tag{8}$$

$$\theta_{\mathrm{G}} := \Pr\left\{\tilde{\imath}_j = 1 \mid \hbar_j = \mathrm{G}\right\} = \frac{\theta_0}{1-(1-\theta_0)\ell_0} > \theta_0. \tag{9}$$

We refer to θ_{G} as the trust clients have in an unblemished senior advisor.

Let us define $v(x,\theta,\sigma)$ to be the value that a client with wealth x assigns to an advisor who has a probability θ of being ethical and who, if not ethical, is expected to recommend $\tilde{\rho}_i = \mathbb{t}$ with probability $\sigma(1-\varepsilon)+\varepsilon$ if she learns that $\tilde{\tau}_i = \mathbb{s}$. We have,

$$\begin{aligned} v(x,\theta,\sigma) &= x\left[\begin{array}{l} \theta\big[\varphi(1+q-f)+(1-\varphi)\big] \\ +(1-\theta)\Big\{\varphi(1+q-f)+(1-\varphi)\big[(1-\sigma(1-\varepsilon)-\varepsilon)+(\sigma(1-\varepsilon)+\varepsilon)(1-f)\big]\Big\} \end{array}\right] \\ &= x\left[1+\varphi(q-f)-(1-\theta)(1-\varphi)f(\varepsilon+\sigma(1-\varepsilon))\right]. \end{aligned} \tag{10}$$

With the standard product advisors improve the utility of clients by one unit per dollar. Because tailored type clients always end up receiving the tailored product, these customers get an extra

$q - f$ in utility. However, when standard type clients are advised by an unethical advisor, they may end up paying f for a tailored product that does not improve their payoff. Nonetheless there always exists a price clients are willing to pay to employ a financial advisor.[15]

We present our first main result:

Proposition 1. *The market equilibrium takes one of two forms:*

(i) ***Misconduct equilibrium:*** *if*

$$\lambda\theta_0 < \frac{\frac{1}{\beta} - \frac{1}{2}(1-\varphi)(1-\theta_0)}{\frac{\varphi}{1-\theta_0} + 1 - \varphi} \qquad [11]$$

then the optimal commission is set at

$$b^* = \lambda x f \frac{\theta_0}{\frac{2}{\beta(1-\varphi)} - (1-\theta_0)},$$

and both unethical juniors and senior advisors cheat their clients with certainty: $\sigma(b^*) = 1$.

(ii) ***No junior misconduct equilibrium:*** *if* [11] *does not hold then the optimal commission is set approaching zero,* $b \searrow 0$. *Junior unethical advisors do not cheat their clients; senior unethical advisors cheat their clients.*

Proof of Proposition 1. The proof proceeds through the following series of intermediate steps to establish the result; each one is proved in the Appendix.

(i) We establish the equilibrium remuneration paid by clients to hire financial advisors as a function of the junior unethical cheating probability, σ. (Lemma 2)

(ii) We establish the equilibrium relationship between commissions and the equilibrium junior unethical cheating probability. That is we establish σ as a concave function of b. (Lemma 3)

(iii) We establish critical bonus thresholds $\{b_*, b^*\}$ such that

$$\begin{cases} b \leq b_* \Rightarrow \sigma(b) = 0 & \text{Unethical juniors do not cheat} \\ b \geq b^* \Rightarrow \sigma(b) = 1 & \text{Unethical juniors always cheat} \end{cases}$$

[15] Note that $v(x, \theta, \sigma) > 1 + \varphi(q - f) - f > 1 - f > 0$. The inequalities follow by model assumption on the range of f.

(Lemma 4)

(iv) We establish that the profit function of the tailored fund has exactly two local maxima. One at $b = 0$ and the second at $b = b^*$. (Lemma 5)

(v) We establish that the commission $b = b^*$ is the global maximum of the fund's profit function if and only if [11] holds. (Lemma 6)

Collectively these prove the result. □

Proposition 1 can be explained as a consequence of the equilibrium relationship between commissions, trust and pay. The wage of senior unblemished advisors (w_G) depends on the trust that clients have that an advisor with such a history is ethical, θ_G. In turn the trust clients have in a history G depends on the probability that when the advisor was a junior she cheated her client and succeeded in avoiding detection.

These insights imply two things. Firstly the wages earned by seniors with a clean record will be higher than the wages earned by seniors with a blemished record: $w_G > w_B$. This follows as senior unblemished advisors are more likely to be ethical than blemished advisors, so they are trusted more by clients, and so clients will be willing to pay more for their services. Secondly, unethical juniors trade off the gains from cheating and earning a commission immediately against the possible loss of future wages which would result if their cheating is discovered and leads to a blemish. It follows that the probability that a junior unethical advisor would cheat her client despite the possible loss of future wages depends on the size of the commission which the fund offers the advisor.

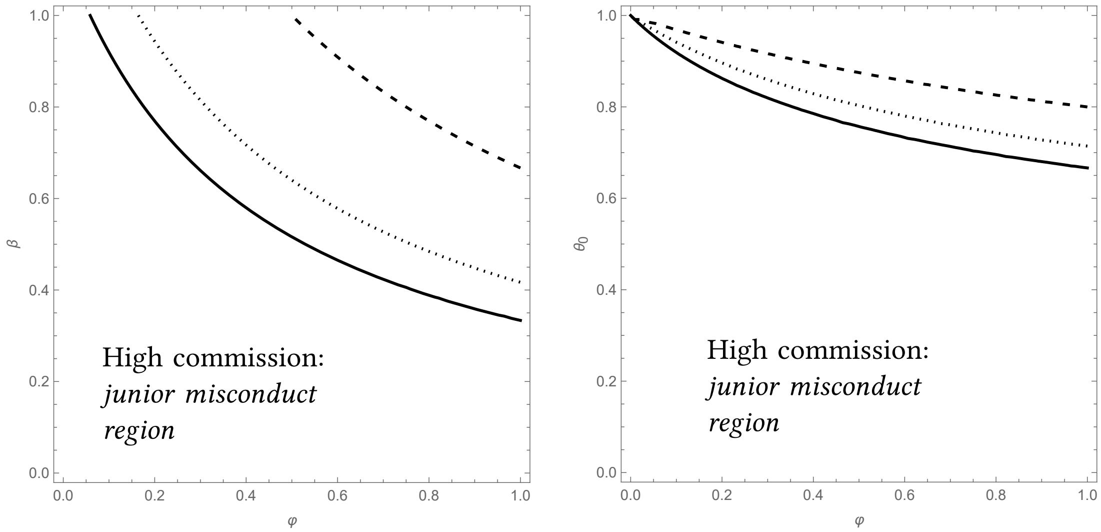
We can now establish that some commissions are dominated and cannot be an optimal strategy for the tailored fund. If the tailored fund offers a low commission level it is insufficient for unethical juniors to risk a blemish and so risk lower career wages. The proof of Proposition 1 at Lemma 4 establishes that this holds for $b < b_*$. Such commissions contribute to the fund's costs without generating any increase in money invested in the fund. (Unethical seniors are willing to cheat for any non-zero commission). It follows that no-misconduct is most profitably generated by a zero commission. While if the fund wishes to generate some misconduct then commissions must jump to strictly above b_*.

Analogous reasoning yields an upper bound to the optimal level of commissions. If the commission is so high that it is in excess of any expected shortfall in wages from the risk of being caught cheating, then juniors would cheat with certainty. The proof of Proposition 1 at Lemma 4 establishes that this holds for $b > b^*$.

If the commission is in the region (b_*, b^*) then junior unethical advisors have a mixed strategy equilibrium. The bonus is generous enough to generate some misconduct, but not enough to make cheating a dominant strategy for an unethical junior. The probability of cheating $\sigma(b)$ is then determined as a concave function of the bonus to bring trust, wages, and cheating incentive into balance.

As the commission offered rises from b_* to b^* we see from [24] that cheating becomes more likely ($\sigma(b) \uparrow$). This increases the funds going into the tailored fund, but it increases the fund's costs also. The concavity of the advisors' mixed strategy with respect to the bonus offered ($\sigma(b)$) is inherited by the tailored fund's profit function. Lemma 5 confirms that the profit function of the fund is strictly increasing over the range of commissions which induce mixing amongst junior unethical financial advisors ($b \in (b_*, b^*)$). This result follows in our benchmark model as the discount factor applied to the second period (λ) is not too high. If the discount factor is low enough then the advisor values pay in the early stage of his career sufficiently that bonuses are cost effective for the fund. Under the conditions of our model therefore fund profits are increasing in commissions, and so conditional on wanting some misconduct, the fund profits most from encouraging juniors to cheat all the time, achieved by setting commissions to b^*.

It follows then that the tailored fund prefers to generate a pure strategy in unethical juniors. The fund may maximize her profit by setting commissions just high enough to corrupt unethical junior advisors completely. In this case $b = b^*$ and unethical juniors will always recommend the tailored fund, as will unethical seniors. The only possible alternative optimal course is for the fund to avoid distorting junior advisor decision making and lower commissions to the lowest level at which unethical senior advisors still remain willing to cheat: $b \approx 0$. In this case these (low) commissions deliver ethical behavior from all the juniors. Figure 3 plots the equilibrium regions Proposition 1 establishes.



Panel a: regulatory skill v. Pr tailored fund match

Panel b: Pr ethical juniors v. Pr tailored fund match

Figure 3: Misconduct regions

Notes: **Panel a** plots [11] with φ on the horizontal and β on the vertical axes, with $\theta_0 = 0.75$. **Panel b** plots [11] with φ on the horizontal and θ_0 on the vertical axes, with $\beta = 0.5$. In both cases the contours set $\lambda = 1$ (Solid black line), = 0.8 (Dotted line), = 0.5 (Dashed line). The misconduct equilibrium applies below the relevant λ line, while the no-junior-misconduct equilibrium applies above the line.

4.1. Comparative statics in regulatory skill and in population ethics

It is apparent from Figure 3 that the tailored fund prefers the high commission–high misconduct equilibrium when regulatory skill is low ($\beta \to 0$) or when there are few ethical advisors in the population ($\theta_0 \to 0$). To allow us to understand this we now establish how optimal advisor commissions, trust in advisors and pay of advisors depend upon the fundamentals of our modelled industry: the detection technology (β) and the latent level of ethics (θ_0).

Proposition 2. *Suppose that:*

(i) regulatory skill β increases from 0 to 1 (i.e. perfect) then

- *Commission b, trust in clean seniors (θ_G) and the unblemished wage premium ($w_G - w_B$) increase in an accelerating manner until regulatory skill β reaches a critical threshold. They then drop discontinuously and remain flat thereafter.*
- *Unethical juniors practice misconduct with certainty until regulatory skill β reaches a critical*

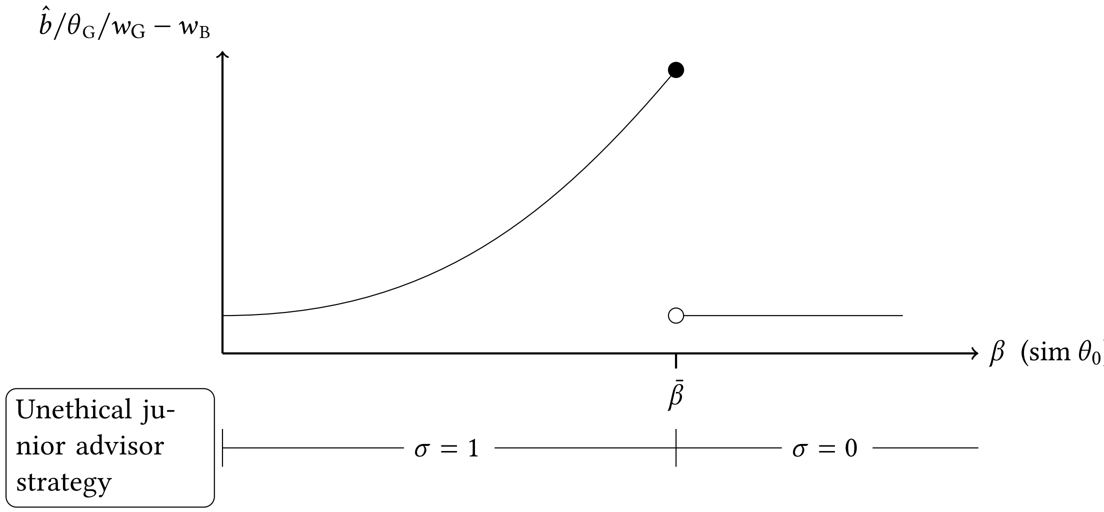


Figure 4: Relationship between equilibrium fund commission (denoted $\hat{b}$), trust in G advisors (θ_G) and the pay premium for unblemished over blemished senior advisors ($w_G - w_B$) with respect to the regulatory detection technology (β), with a similar figure applying when substituting β with population ethics θ_0. Results follow from Proposition 2. The misconduct strategy of junior unethical financial advisors (σ) is shown below the graph.

threshold, and are honest thereafter.

(ii) latent ethics θ_0 increases from 0 to 1 (i.e. perfect) then

- *Commission b increases in an accelerating manner until latent ethics θ_0 reaches a critical threshold. It then drops discontinuously and remains flat thereafter.*
- *Trust in clean seniors (θ_G) and the senior unblemished wage premium ($w_G - w_B$) increase on either side of the threshold, but drop discontinuously at the critical threshold in latent ethics.*
- *Unethical juniors practice misconduct with certainty until latent ethics θ_0 reaches a critical threshold, and are honest thereafter.*

This model reveals and resolves the tension between market forces which favor advisors with a clean record and encourage good financial advisor behavior, versus the investment fund which can, at a price, use commissions to frustrate the market's inferences and so its effectiveness. To understand Proposition 2, and its illustration in Figure 4, consider first the extreme setting in which the regulator (e.g. FINRA) is entirely ineffective: $\beta = 0$. In this case a minimally positive commission ($b \approx 0$) encourages all unethical juniors to cheat ($\sigma = 1$) as unethical advisors will not be caught. So the fund receives the maximum volume of business. Suppose now that the regulator were to improve and β rises above zero. In this case junior advisors who cheat might get caught. Therefore having no blemish G in the second period carries some information – clients would place a higher probability on such advisors being ethical. That is θ_G, i.e. trust, would rise. This is of value to clients and therefore clients would bid the wage premium for a clean record $w_G - w_B$ up. The hope of securing this higher wage later in their careers is the reason unethical juniors would become reluctant to cheat. This is the effect of market forces encouraging good behavior.

If the fund did not respond then the amount of misconduct would fall and the level of funds invested in the tailored fund would decline. The fund counteracts this effect by raising the commission she offers financial advisors as this will induce more business from unethical juniors. As the regulator's skill increases this same cycle of logic repeats: the trust clients have in unblemished advisors rises, the wage premium enjoyed by unblemished seniors over blemished seniors rises, and the commission agents receive for recommending the tailored fund rises to counter the career incentive created.

The total amount of misconduct remains unchanged (at its maximal value). This is because financial advisors do not attach sufficiently higher weight to their future pay than to their current pay (due to discounting λ). And so if it is profitable for the tailored fund to encourage junior unethical advisors to sometimes cheat their clients (i.e. $\sigma < 1$), then it is more profitable to encourage them to always do so ($\sigma = 1$). Hence the tailored fund raises commissions just high enough to incentivise junior unethical financial advisors to always recommend the fund. A regulator hoping to see a reduction in the level of misconduct as she increased the resources devoted to catching misconduct would therefore, at this point, be disappointed. However, as the regulator continues to improve it becomes increasingly expensive for the fund to fight the market due to the high (and so expensive) commissions offered. It is also the case that financial advisors would recommend the tailored fund when it is the right investment anyway, even without a commission. At some point therefore the cost of commissions needed to maintain investment in the fund at the maximum level becomes too great and the fund stops fighting the financial advisor labor market. At this point the optimal commission drops and so does misconduct. It follows that the trust in G advisors and their market wage also fall discontinuously.

An implication of this discussion is that if the regulator's objective is to minimize misconduct, then doing so requires detection skill to be over a critical threshold. If the regulator's ability is below this level then the tailored fund adjusts commissions to counteract the regulator's deterrence effect.

An analogous analysis and intuition holds if one replaces regulatory skill (β) with market-wide ethical levels (θ_0). The fund fights the market outcome, that is the career concerns created by wages reflecting the greater trust clients have in G advisors, using commissions until the cost of doing so becomes prohibitive at which point commissions, trust and the pay differential for a clean record all drop. Further improvements in population ethics (θ_0) linearly affect the market wage premium $w_G - w_B$ and the trust in senior advisors θ_G, however these are mechanical effects which are independent of the fund's commission choice.

4.2. Empirical predictions from the rise of low-fee passive funds

Recent changes in the equity fund investment landscape suggest that high-fee actively managed funds have become less likely to dominate low-fee passive funds for a typical client.[16] Suppose therefore that the probability a randomly chosen client is well-served by a high-fee active fund (φ in our model) declines. Our model solution offers predictions for how such a development should alter financial advisor commission levels, wage profiles, trust and the equilibrium level of misconduct successfully caught in the industry.

Proposition 3. *In the junior misconduct equilibrium* ($b = b^*$ & $\sigma = 1$) *a reduction in the suitability of the tailored fund* ($\varphi \downarrow$) *causes:*

(i) The tailored fund will respond by driving up broker commissions offered to investment advisors to recommend their funds.

(ii) The pay premium for unblemished over blemished advisors ($w_G - w_B$) *increases.*

(iii) The trust that clients have in financial advisors with a clean record θ_G *increases.*

(iv) The total amount of misconduct caught increases.

[16] See Armour and Evens (2023) who argue that passive fund recent dominance has led to a movement of over $1 trillion from high-client-fee active funds to low-client-fee passive funds since 2017. See also Mutual Fund Fees Drop Again as 'Fee War' Continues, *National Association of Plan Advisors*, May 1, 2019.

To understand the intuition to Proposition 3 suppose that the tailored fund is a poor choice for clients in that ethical advisors would almost never choose it ($\varphi \approx 0$). In this case the fund will receive no business from any ethical advisors and so profits will be low if she does not offer commissions high enough to incentivise unethical juniors to cheat. Now suppose that the fund becomes more suited to clients (so that φ increases). In this case unethical junior advisors are caught by the regulator less often as investing in the fund is more likely to have been in the client's interests. It follows that clients trust unblemished (G) advisors a little less – the technology for catching unethical juniors has become less effective. Therefore the wage premium senior unblemished advisors command declines. This lowers the career incentive and so allows the fund to lower the commission she offers in turn. This process repeats as the suitability to the clients of the fund's product improves ($\varphi \uparrow$).

Proposition 3 is in principle empirically testable. Broker commission data is captured in N-SAR filings.[17] Advisor compensation data has been captured by Egan, Matvos, and Seru (2019) who use an industry survey. Trust data usually come from surveys as demonstrated, for example, by Sapienza and Zingales (2012). Finally misconduct records, as noted in the motivation described in the introduction are available from FINRA and the SEC.

5. Long Lived Financial Advisors

In this section we study the implications of financial advisor longevity on equilibrium commissions and on the pattern of misconduct over a career.

5.1. Equilibrium commissions with long lived financial advisors

In the benchmark model advisors live for two periods. To study longevity these two periods can be interpreted as a first period junior reputation building phase, a second period reputation establishment phase, and then the advisor continues with her career whose earnings are assumed proportional to second period earnings. The larger is the parameter λ the longer the subsequent career is as compared to the initial two career phases. Proposition 1 part (i) implies that in a misconduct equilibrium bonuses are increasing in the parameter λ. The intuition underlying this

[17] See Christoffersen, Evans, and Musto (2013).

observation is that if the career phase is long, and so carries greater weight in each advisor's utility function, then financial advisors will be reluctant to cheat at the start of their careers. Cheating early on and getting a blemished record will result in low pay for the entire career phase. To encourage unethical advisors to cheat early therefore requires a larger inducement in the form of a larger commission.

We also see from Proposition 1 part (ii) that the larger is λ the more likely the tailored fund is to prefer the no-misconduct equilibrium which entails setting commissions to zero. The intuition for this observation is that high commissions are expensive to the fund, and as bonuses rise in λ this cost increases.

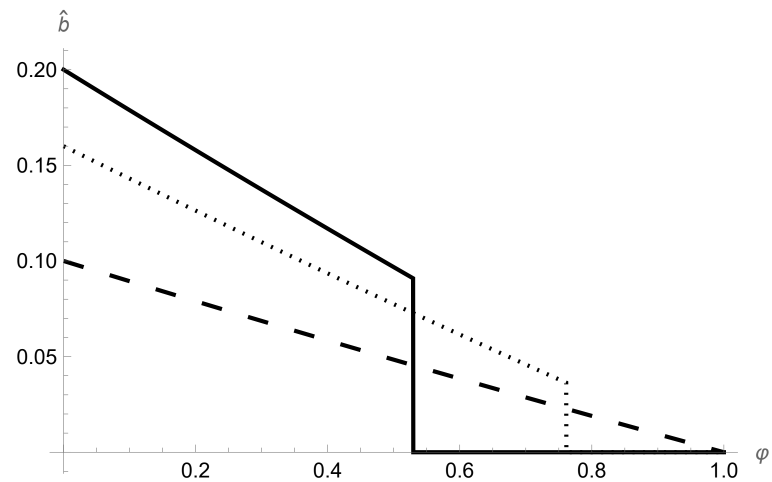


Figure 5: Equilibrium bonuses with advisor longevity

Notes: The figure plots the equilibrium bonus (denoted $\hat{b}$) on the vertical axis against φ on the horizontal axis with $\beta = 0.5$, and $\theta_0 = 0.75$. The lines capture advisor longevity with $\lambda = 1$ (Solid black line), = 0.8 (Dotted line, medium length career), = 0.5 (Dashed line, short career). The downward slope of the optimal commissions in the misconduct region is established in Proposition 3.

These insights are depicted in Figure 5 which sets the optimal commissions against the probability that the (high-fee) fund is optimal for a randomly chosen client (φ). The discontinuity in the optimal bonus as the fund moves from the junior misconduct to no-junior-misconduct equilibrium is apparent. The downward sloping nature of the optimal bonus as a function of the fund's appropriateness parameter φ has been established in Proposition 3.

5.2. Misconduct patterns over a career

We have established that if an advisor is unethical they are less likely to cheat clients at the beginning of their career than at the end; career concerns make juniors reluctant to cheat, an effect profit maximizing funds sometimes find too expensive to counteract (Proposition 1). Our parsimonious model leaves open the question of whether over a longer career misconduct is monotonically increasing. Or is it possible for misconduct to be non-monotonic with mid-career advisors loathe to spoil a good record if they escape detection after misconduct early in their careers?

To study the time-path of misconduct over advisors' careers, in this section we extend our model to allow advisors to live for three periods and hold the discount factor at $\lambda = 1$. In each period advisors are employed, advise their clients, and may subsequently receive a blemish or not. The set of histories clients and firms can see is therefore:

$$\hbar \in \{\emptyset, \mathrm{B}, \mathrm{G}, \mathrm{BB}, \mathrm{BG}, \mathrm{GB}, \mathrm{GG}\}$$

Studying our model with advisors living for three periods is the most parsimonious way to allow the level of misconduct to deviate from monotonicity, and identify if this is possible in market equilibrium. Denoting $\sigma_\hbar$ as the probability an unethical advisor with history $\hbar$ cheats their client given the opportunity, we can present our main result that misconduct is monotonic increasing: unethical early career advisors are the least likely to cheat their clients. Or put another way, integrity after early transgression is not possible.

Proposition 4. *If unethical juniors might cheat, then they will cheat with certainty mid-career:*

$$\sigma_\emptyset > 0 \Rightarrow \sigma_\mathrm{G} = 1,$$

or equivalently

$$\sigma_\mathrm{G} < 1 \Rightarrow \sigma_\emptyset = 0. \quad [12]$$

Proposition 4 implies that unethical mid-career advisors with a clean record (i.e. those with history $\hbar = \mathrm{G}$) are always weakly more likely to engage in misconduct than early-career advisors (i.e. $\hbar = \emptyset$). If an early career advisor is willing to mix over cheating and not, then mid-career the advisor will definitely cheat.

Proposition 4 is proved by analyzing the second formulation of the result given in [12]. As, by assumption, an unethical mid-career advisor with a clean record weakly prefers not to cheat ($\sigma_{\mathrm{G}} < 1$) it follows that we have an upper bound on the commission b being offered. Suppose though, for a contradiction, that unethical juniors weakly prefer to cheat their clients: $\sigma_{\emptyset} > 0$. This establishes a lower bound on the commission b which must be high enough to incentivize cheating. The strategy of the proof is to show that these bounds are incompatible.

We can offer some intuition explaining why it can never be the case that an unethical advisor would choose to cheat at the beginning of her career, and yet not cheat later in her career. If an unethical advisor finds it optimal not to cheat later in her career, then it must be the case that the wage differential between having a career-long clean sheet ($\hbar = \mathrm{GG}$) and picking up a blemish mid-career is very high. But if this is the case mid-career advisors with a clean record will not cheat and so clients value them highly too. It follows that the wage premium for mid-career advisors without a blemish must also be high. And so early career advisors risk two lots of high wages by cheating. So if an advisor can find it optimal not to cheat later in her career, she will strictly prefer not to cheat at the beginning of her career. It follows that unethical advisors are at their most trustworthy at the start of their careers. Their propensity to cheat their clients rises as their time in the industry grows.

There is strong empirical evidence that an agent who committed misconduct in the past is increasingly likely to commit misconduct in the future. Dimmock, Gerken, and Graham (2018), Table III shows that advisor misconduct in a previous period raises the odds ratio for the individual to commit misconduct in the next period by a factor of approximately 4, controlling for coworkers and other confounders.[18] Egan, Matvos, and Seru (2019) show a similarly strong and significant relationship in their Table 5. These authors interpret their results as showing that "*financial advisers with prior misconduct are five times as likely to engage in new misconduct as the average financial adviser*".[19] These results support the pattern of career misconduct our model predicts in Proposition 4.

[18] See columns (1) and (5) of Table III, Dimmock, Gerken, and Graham (2018).

[19] See Egan, Matvos, and Seru (2019) p254.

6. Misconduct and trust through the business cycle

Business cycles will affect the evolution of commissions, pay, trust and misconduct. For example, Egan, Matvos, and Seru (2019, Figure 3) establish that over the course of the Global Financial Crisis (2008/09), the incidence of detected misconduct amongst financial advisors spiked up, almost doubling in its frequency. In this section we will study the impact of business cycles on misconduct, commissions and trust.

We augment our benchmark model by assuming that in each period t after contracting, but before investment results are realised, investment returns from the tailored fund experience either an upturn or a downturn. Success from the tailored fund is more likely in booms and less likely in busts. The returns from the tailored fund therefore become:

$$\mathbb{t} \text{ is a match for the client:} \quad \left[\tilde{u} \mid \tilde{\rho}_i = \mathbb{t}, \tilde{\tau}_i = \mathbb{t}\right] = \begin{cases} 2 & \text{w. prob.} \frac{1}{2}(1 + q + z_t) \\ 0 & \text{otherwise} \end{cases} \qquad [2']$$

$$\mathbb{t} \text{ is not a match for the client:} \quad \left[\tilde{u}_i \mid \tilde{\rho}_i = \mathbb{t}, \tilde{\tau}_i = \mathbb{s}\right] = \begin{cases} 2 & \text{w. prob.} \frac{1}{2}(1 + z_t) \\ 0 & \text{otherwise} \end{cases} \qquad [3']$$

The state at time t is captured by the business cycle variable[20]

$$z_t = \begin{cases} +r & \text{w. prob } \frac{1}{2} \\ -r & \text{otherwise} \end{cases}$$

Therefore a downturn corresponds to $z_t = -r$, and in this case the probability a client receives 0 from the tailored fund increases relative to the boom state.

As the state is revealed after contracting in each period, when clients invest they do not know whether there will be a boom or a bust over the lifetime of their investment. This extension has the advantage that the contacting environment between incoming junior advisors and the tailored fund is stationary.

[20] To ensure the returns probabilities lie between 0 and 1 we require $r < 1 - q$.

Trust and senior pay will be a function of the previous period's state as this will have affected the probability of being caught and so alters the value of the G label. The trust that clients have in senior advisors is given by:

$$\theta_{G,t}(z_{t-1}) = \frac{\theta_0}{1-(1-\theta_0)(1-\varphi)\sigma\frac{1}{2}(1-z_{t-1})\beta} \qquad [13]$$

Equation [13] captures that if there has been a boom last period ($z_{t-1} = +r$) then there is less chance that unethical agents were identified. It follows that the probability that a G agent is indeed ethical declines.

We simplify by considering low discount rates for the advisors:

Proposition 5. *Suppose that the discount factor $\lambda \searrow 0$ then the tailored fund optimally sets commissions to ensure junior unethicals always cheat, $\sigma(b^*) = 1$, where:*

$$b^* = \frac{1}{2}\lambda\beta x f(1-\varphi)\theta_0\mathscr{C}(r) \qquad [14]$$

with $\mathscr{C}(r)$ a constant.

Proposition 5 extends Proposition 1 from the core model to allow for business cycles. The high-commission-high-misconduct equilibrium is selected as the financial advisors' discount factor is not too high. This ensures it is profitable for the fund to overcome the expected future costs of present misconduct with commissions. In equilibrium the tailored fund ensures that the commissions she offers are just large enough to ensure that unethical juniors are always willing to mis-invest clients and invest their funds in the tailored product.

It follows that the proportion of financial advisors caught for misconduct rises in a downturn. This is because though the frequency of wrongdoing remains constant — unethical juniors are offered high enough commissions to always cheat — the investment performance is bad more often, and it is in this case that complaints are made, so more advisors are investigated, and so the amount of misconduct detected goes up. As noted this has been empirically confirmed in Egan, Matvos, and Seru (2019).

We can now present the effect of business cycles on the trust and wages commanded by advisors with a clean record, G. At time t the trust in good seniors, $\theta_{G,t}$, and the wages clients pay them $w_{G,t}$, are functions of the state the previous period, z_{t-1}:

Proposition 6. *In the business cycle equilibrium:*

(i) Clean record wage premia ($w_{G,t} - w_{B,t}$) and trust $\theta_{G,t}$ following a bust are larger than wages and trust following a boom:

$$\theta_{G,t}(-r) > \theta_{G,t}(+r) \qquad \textit{and} \qquad w_{G,t}(-r) - w_{B,t} > w_{G,t}(+r) - w_{B,t}$$

(ii) The larger the business cycles (larger r) the larger is the gap between wages following a bust versus following a boom.

Proof. The trust clients have in a G label at time t is given in [13]. In equilibrium the tailored fund sets commissions such that $\sigma = 1$ (Proposition 5). The result now follows by setting $z_{t-1} = r$ in [13] for the case following a boom, and comparing it to $z_{t-1} = -r$ for the case following a bust. Good record wage premia ($w_G - w_B$) are proportional to trust, the same results therefore hold. □

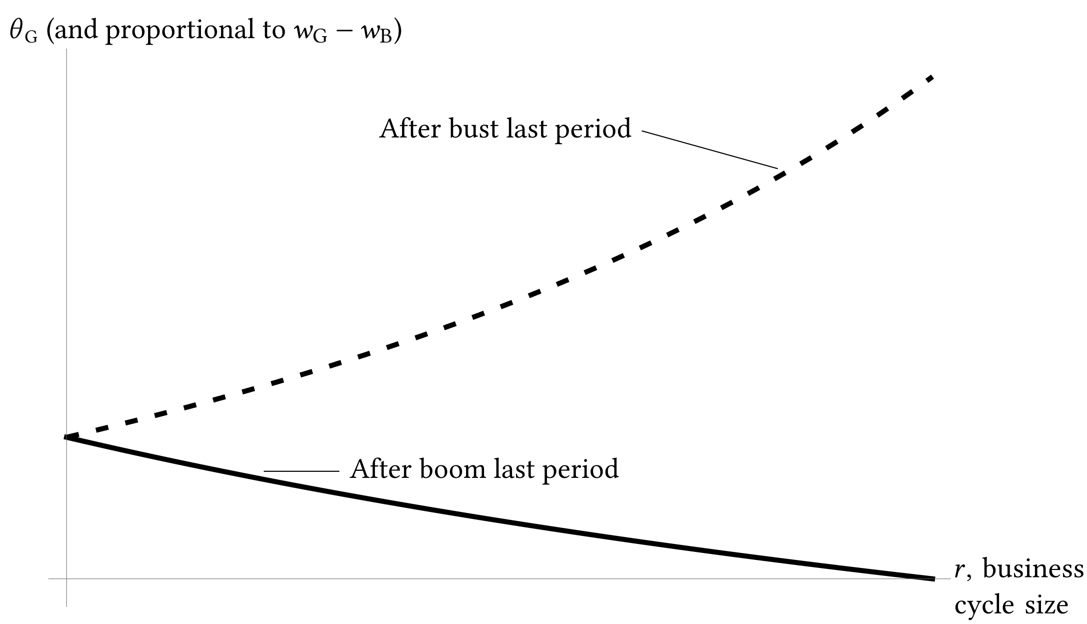


Figure 6: Trust and wages for senior advisors with business cycles

Notes: Trust, θ_G is given in [13]. When the junior decides on her action she does not know if the period will be one of boom or bust. The future remuneration which will result from a clean record is therefore uncertain. In the plot the parameters used are $\theta_0 = 0.1 = \varphi, \beta = 0.75$ and $r \in (0, 1)$.

The intuition for Proposition 6 is as follows. If a senior faced boom times during her junior phase then there was little chance of tailored investments delivering the bad return of zero to her then client. As a result such juniors would have rarely been investigated and so a G label is not very informative. Hence trust in such senior advisors is low and hence the wage premium compared to the outside option they can command is low. Analogously, if a senior client faced a bust in her junior phase then tailored investments would often return a bad outcome for her then client and so she would more likely have been investigated. If despite this the senior is unblemished then it is now more likely that the senior is indeed ethical. Hence such a senior will command clients' trust. When clients trust advisors more, they value their services more highly and this is reflected in their bidding for those advisors in the labor market.

We capture the difference between the wages for G seniors after a bust and after a boom in a numerical simulation presented as Figure 6.

We conclude this section by noting that the counter-cyclicality in financial advisor remuneration predicted here – higher pay following a bust as trust in a G label rises – has not been explored empirically to the best of our knowledge. Though some empirical evidence does exist of counter-cyclicality in real estate brokerage remuneration (Sirmans and Turnbull, 1997).

7. Discussion

In this section we explore the predictions our model makes for the propensity of unethical advisors to be fired from the industry; the welfare implications of banning bonuses; and the impact on equilibrium bonuses and pay from the use by the regulator of fines.

7.1. Industry discipline: fired for misconduct

Let us augment the benchmark model so that each period a measure $\gamma > \frac{1}{2}$ of advisors enter the financial advisory industry. As the measure of clients is 1 it follows that some advisors do not find clients in every period. Proposition 1 does not apply directly as some advisors will be fired from the industry. These advisors loose the opportunity to earn bonuses in the future period, and so their willingness to cheat as juniors will be reduced.

Suppose therefore that the tailored fund targets a cheating strategy of σ. Denoting by Γ_G the measure of unblemished seniors in the industry we have

$$\Gamma_G(\sigma) = \gamma \left[1 - \frac{1}{2}\beta(1-\theta_0)(1-\varphi)\sigma\right] \quad [15]$$

The literature has established that there are a significant number of blemished advisors active in the US market for financial advice. And further, Egan, Matvos, and Seru, 2019 establish that approximately 17% of advisors guilty of misconduct are fired from the industry, with the remaining 83% of blemished advisors continuing to work in the industry.[21] Therefore we restrict attention to parameters such that both B and G advisors are active in the industry. This is delivered by assuming that the measure of new advisors is not too large so that the market cannot be served by new advisors and good advisors (G) alone. Hence for empirical relevance we focus on the case in which $\gamma + \Gamma_G(\sigma) < 1$.

Given that all three types of financial advisor are present in the market, clients' preference ranking over advisors and therefore the wages advisors command are unchanged from Lemma 2. When deciding whether to cheat a client, a junior advisor will reflect on the probability of remaining employed in the industry conditional on getting a blemish. This is

$$\Pr(\text{employed}|\text{B}) = \frac{1-\gamma-\Gamma_G}{\gamma-\Gamma_G} = \frac{\text{measure of B's employed}}{\text{measure of B's created}}$$

If a junior financial advisor is willing to mix between cheating and not with probability σ, then the advisor must be indifferent between both. For a junior advisor facing a type $\mathbb{S}$ client this requires:

$$\lambda[w_G + b] = b + \lambda\left[(1-\frac{1}{2}\beta)(w_G+b) + \frac{1}{2}\beta\cdot\left(\frac{1-\gamma-\Gamma_G}{\gamma-\Gamma_G}\right)\cdot(w_B+b)\right] \quad [16]$$

which is the analogue of [25]. Equation [16] establishes the relationship between the probability of misconduct (σ) targeted by the fund, and the commission (b) offered as a function of σ: $b(\sigma)$.

As not all B advisors remain in the industry in their senior period, the fund loses the guaranteed investment such unethical seniors would have provided. The profit of the fund can be

[21] See Egan, Matvos, and Seru, 2019 Table 8: Following misconduct the probability of being separated from one's firm is increased by 29.3%(= 48 − 18.7). Then 56.2% of those separated with misconduct leave the industry. So the percentage of advisors who receive a blemish and consequently leave the industry is 29.3% × 56.2% = 16.5%.

calculated allowing for this:

Lemma 1. *Suppose that the measure of juniors entering* (γ) *lies in the range* [47] *and we restrict the fund to consider only cheating probabilities* σ *satisfying* [46] *ensuring that some* B*'s remain in the industry* ($\gamma + \Gamma_G(\sigma) < 1$)*. In this case the tailored fund profit is:*

$$\Pi(\sigma) = (xf - b(\sigma)) \Big(1 - \gamma(1-\phi) \left(1 + \theta_0 - \sigma(1-\theta_0)\right) \Big) \qquad [17]$$

Lemma 1 restricts the measure of juniors γ and the strategies σ targeted so that there exist some B advisors active in equilibrium as this is the empirically relevant case. Outside of these restrictions only G and junior advisors will be present in the market altering the wages as one of these will be less preferred by clients and so be pushed down to the outside option.

Building on Lemma 1 it can now be established numerically that $\Pi'(\sigma) > 0$. The prior work establishes the result when $\gamma = 1/2$, and so by continuity the result holds for γ not too large. Simulations confirm that the result holds generally. It follows that, analogous to Proposition 1, the fund optimally sets bonuses to deliver juniors cheating with certainty: $\sigma = 1$.

Therefore the measure of unblemished seniors in the market is $\Gamma_G(1)$ calculated from [15]. And the probability of having to leave the industry after receiving a blemish is:

$$\Pr(\text{leave industry}|\text{B}) = 1 - \Pr(\text{employed}|\text{B}) = \frac{2\gamma - 1}{\gamma - \Gamma_G}. \qquad [18]$$

We can therefore establish the following result:

Proposition 7. *The probability of being fired from the industry conditional on receiving a blemish:*

(i) Declines if the quality of regulation improves:

$$\frac{\partial}{\partial \beta} \Pr(\textit{leave industry}|\text{B}) < 0.$$

(ii) Increases if the probability that the tailored fund is a match for a client rises:

$$\frac{\partial}{\partial \phi} \Pr(\textit{leave industry}|\text{B}) > 0.$$

These may seem counterintuitive. But the results follow simply by differentiating [18] using the expression for $\Gamma_G(1)$. Here we provide some intuition for Proposition 7. If the regulator improves then the proportion of the senior advisors who are unblemished (i.e. G types) declines. This is an equilibrium outcome which we have described above; the better regulator acts to deter cheating and so the tailored fund raises the commission offered to maintain the level of misconduct. As there are fewer G types, the measure of blemished advisors in the industry must rise so that all the clients can be served. It therefore follows that the probability of being fired from the industry, conditional on receiving a blemish, declines.

The intuition for the results concerning the match quality of the tailored fund can be explained in the setting of the match quality declining ($\varphi \searrow$) which was used to develop empirical predictions for the fall of active management in Proposition 3. If the match quality of the tailored fund falls then there will be fewer unblemished advisors as commissions are kept high enough to maintain investment into the tailored fund, and more of these investments are inappropriate. Market clearing then ensures that the proportion of blemished advisors in the industry goes up. It follows that the probability of being fired conditional on receiving a blemish declines. Proposition 7 therefore predicts that as passive funds rise in appropriateness and displace high fee funds, then we predict more blemished advisors in the population of advisors and a decline in market discipline provided by being fired from the industry.

7.2. Welfare implications of bonuses

We wish to compare the market when bonuses are permitted, as studied here, with a world in which bonuses are banned. Without bonuses unethical advisors are indifferent between investing clients who are best served by the tailored fund ($\tilde{\tau}_i = \mathbb{t}$) in either the standard or the tailored fund. (There is no risk of blemish, but no reward from the tailored fund either). We make the assumption that there is at least an epsilon greater effort cost in organising the tailored investment and so we assume that with zero inducement unethical advisors will save themselves any hassle and just invest in the standard product.

It follows that a bonus ban damages overall welfare. For standard type clients there are no welfare differences between being invested in the tailored or the standard fund. In both cases the expected utility generated is 1 (see equation [3]), while fees paid to the fund and wage costs for the advisor are transfers and so welfare neutral. The tailored type clients however see welfare destroyed when they are invested in the standard rather than the tailored fund by unethical advisors; comparing [2] to [3] we see that welfare is reduced by the match parameter q.

To explore the robustness of the observation that bonuses are welfare enhancing, suppose that being *mis*-invested into the tailored fund reduces the value created, excluding the effect of any fees, as compared to being appropriately matched into the standard fund. It follows that unethical advisors incentivised to mis-invest into the tailored fund would be welfare destructive when serving standard clients. On the other hand, as described above, in a world with no bonuses unethical advisors would destroy value when serving type $\mathbb{t}$ clients as they would fail to invest them in the tailored fund. The overall welfare effect of bonuses would then depend on how much welfare was created by a match for type $\mathbb{t}$ clients scaled by the size of this population versus how much welfare is destroyed when a type $\mathbb{s}$ client is invested in the tailored fund scaled by the size of the standard client population.

7.3. Fines and misconduct

In addition to detection and naming of misconduct offenders, authorities can implement fines to deter misconduct. In this section we explain why their impact on the equilibrium is similar to those of increasing regulatory skill β.

Consider first a fine on the fund if an advisor who received a commission from the fund is found to have misinvested her client. This fine causes the expected profit of the fund to decline by an amount equal to the fine times the measure of advisors expected to conduct misconduct and be subsequently caught. The proof steps of Proposition 1 can be repeated in this setting. This delivers that if the fine is not too large the fund will not alter the amount of misconduct as the fund will prefer to swallow the extra cost and keep bonuses at b^* so as to remain in the high-misconduct equilibrium. However increasing fines further makes the high-misconduct-equilibrium less profitable and so encourages the fund to jump to the low-misconduct-equilibrium in which commissions are zero, juniors do not cheat their client, and fines are minimised.[22]

[22] Unethical seniors will cheat their client for a non zero bonus.

The economics of a fine on advisors creates a similar effect. The tailored fund uses commissions to induce advisors to invest. A potential fine on advisors found to have committed misconduct creates a wedge between the value offered by the fund and that collected by the advisor. To maintain the level of inducement on the advisor the fund would need to increase her commissions. A fine on the advisor can therefore be thought of as a fine on the fund to deliver a given level of inducement to the advisor. The insights above therefore apply.

8. Conclusion

Our study has addressed the facts that pay amongst financiers is high, while trust in them is low, the record of those committing misconduct is public, and yet misconduct is widespread. We have studied this market by constructing an OLG model of financial advisors, who have ethics, are hired in a competitive labor market, interact with a strategic investment fund and are monitored by a regulator.

There are two main forces in our model. The first is that clients have a preference for ethical advisors which creates endogenous high pay for good behavior via the competitive labor market. This in turn creates endogenous career incentives towards good conduct. The second force is that the strategic fund may find it optimal to fight this market mechanism by using commissions to incentivize mis-investment amongst unethical advisors open to such inducements.

We have used our model to study when funds would optimally seek to distort the labor market mechanism and drive unethical investing. We characterize that this occurs when the industry is poorly regulated or advisors are widely unethical (and so open to misconduct if incentivized). And we have characterized that these forces generate counter-cyclical remuneration premia for clean over blemished advisors.

Our model solves for the equilibrium outcome of a number of interrelated features of the market for financial advice: advisor commission levels and career wage profiles, which together determine financial advisor career incentives; the levels of trust clients have in their financial advisors; and the overall amount of misconduct due to mis-investing in the industry. Our model therefore offers empirical predictions as to how these endogenous market outcomes would adapt to changes in the financial opportunities available to clients, such as if the probability declines that a tailored fund is better for a randomly chosen client than a standard ETF or index fund. We develop these empirical predictions and note the availability, in principle, of relevant data, though many of our predictions are yet to be tested.

In this analysis advisor commissions and realized returns are not verifiable to third parties. The only contract is therefore the ex ante remuneration studied. This captures a number of real-world frictions which prevent contracting on realized returns and commissions received: e.g. the risk of either party absconding and so not honoring the agreement; and the difficulty in monitoring investments made and payments received. Even if these problems could be overcome then ex post contracting which perfectly matched clients with funds would still not be possible if the cost to the client of being mis-invested was less than the commission earned by the advisor. The incentives a fund would face in deciding whether to raise commissions to ensure misconduct are the same forces studied in this paper.

Our model allows us to study how the reputation of financial advisors determines, and is determined by, equilibrium commissions and the distribution of wages. We have not modelled firms and firm culture. Egan, Matvos, and Seru, 2019 find that the mechanism by which blemished advisors receive lower wages is by being re-hired by less prestigious firms which manage fewer assets and hire more blemished advisors. How best to enrich our model to include such firm cultures is an open question.

Our analysis models unethical advisors as being driven by pecuniary incentives, and ethical advisors as rules-based (or deontological) and so precluding any misconduct. This is not unusual in the literature on misconduct (e.g. Carlin and Gervais (2009)), however a richer model of the incentives in misconduct would allow for guilt costs which permitted both consequentialist preferences and the possibility of overcoming deontological ones (see Thanassoulis (2023) and the references therein). This opens up the research question of what the relationship is between the distribution of guilt costs amongst financial advisors and equilibrium misconduct. We leave a full analysis of this aspect of the market to future research.

A. Omitted proofs

Lemma 2. *In the limit of all unethicals being strategic ($\varepsilon \to 0$) the equilibrium wages paid by clients to hire financial advisors satisfy:*

$$w_G = xf(1-\varphi)\theta_G, \quad [19]$$

$$w_\varnothing = xf(1-\varphi)[1-(1-\theta_0)\sigma] \quad [20]$$

$$w_B = 0$$

where θ_G is given in [9] and is a function of the misconduct strategy σ.

Proof of Lemma 2. Market clearing requires that a client with wealth x is indifferent between all three types of financial advisor. Using the client's valuation function [10] we therefore establish:

$$v(x, \theta_G, 1) - w_G = v(x, \theta_B, 1) - w_B$$

$$\Rightarrow w_G = x(1-\varphi)f\theta_G + w_B. \quad [21]$$

Proceeding analogously we establish that for indifference between hiring juniors and senior blemished advisors we have

$$w_\varnothing = x(1-\varphi)f[1-(1-\theta_0)(\sigma(1-\varepsilon)+\varepsilon)] + w_B \quad [22]$$

$$\to x(1-\varphi)f[1-(1-\theta_0)\sigma] + w_B \qquad \text{as } \varepsilon \to 0 \quad [23]$$

We now establish that blemished advisors are the least desirable. Note that from [21] and [23] we have $w_G > w_B$ and $w_\varnothing > w_B$. The senior blemished advisors therefore earn the least. Wage offers are reduced in the competitive labor market until the lowest wage matches the advisors' outside option. That advisors cannot be paid negative wages yields the result. □

Lemma 3. *In the limit $\varepsilon \to 0$ (i.e. all unethicals strategic), the junior advisor misconduct probability* *is a concave function of the commission b given by*

$$\sigma(b) = a_0 - \frac{\lambda x f}{b} a_1 \text{ with } a_0 = \frac{2}{\beta(1-\theta_0)(1-\varphi)},\ a_1 = \frac{\theta_0}{1-\theta_0}, \tag{24}$$

economically valid when $\sigma(b) \in [0,1]$.

Proof of Lemma 3. If the commission b is at a level which induces mixing then juniors must be indifferent between cheating a client and not:

$$\lambda[w_G + b] = b + \lambda\left[\frac{1}{2}\beta w_B + \left(1 - \frac{1}{2}\beta\right) w_G + b\right]$$
$$\Rightarrow \lambda(w_G - w_B) = \frac{2b}{\beta}, \tag{25}$$

as an unethical advisor will earn the bonus next period for sure, and will earn the bonus this period also if she cheats. However cheating this period will result in a blemish and so a reduced wage of w_B next period with probability $\frac{1}{2}\beta$, that is if the outcome is poor for the client and the regulator succeeds in spotting the infringement. Allowing for discounting therefore yields [25].

Now use the wages established in Lemma 2 and substitute for trust θ_G from [9] and [7]. Taking the limit of non-strategic unethicals vanishing ($\varepsilon \to 0$) yields

$$\frac{2b}{\beta} = \lambda x f(1-\varphi)\frac{\theta_0}{1-(1-\theta_0)(1-\varphi)\frac{1}{2}\beta\sigma}. \tag{26}$$

Rearranging to solve for σ yields the required expression for $\sigma(b)$.

□

Lemma 4. *Define*

$$b_* = \frac{1}{2}\beta\lambda x f(1-\varphi)\theta_0 \quad \text{and} \quad b^* = \lambda x f \frac{\frac{1}{2}\beta(1-\varphi)\theta_0}{1-\frac{1}{2}\beta(1-\varphi)(1-\theta_0)}. \tag{27}$$

If $b \leq b_*$ *then in the limit of all unethicals being strategic* ($\varepsilon \searrow 0$) *unethical juniors do not cheat; if* $b \geq b^*$ *then unethical juniors cheat with certainty.*

Proof of Lemma 4. Define b_* implicitly using [24] by $\sigma(b_*) = 0$, and define b^* implicitly using [24] by $\sigma(b^*) = 1$. Simplification then yields the expressions [27].

Now claim that $b < b_* \Rightarrow \sigma(b) \equiv 0$. We prove this by contradiction. Suppose on the contrary that $b < b_*$ and yet $\sigma(b) > 0$. It follows from [9] and [7] that $\sigma(b) > 0 \Rightarrow \theta_G > \theta_0$. From [19] it follows that $w_G > xf(1-\varphi)\theta_0 + w_B$. But now note that as $\sigma(b) > 0$ it follows that unethicals weakly prefer to cheat their clients:

$$\lambda[w_G + b] \leq b + \lambda\left[\frac{1}{2}\beta w_B + \left(1 - \frac{1}{2}\beta\right) w_G + b\right] \Rightarrow b \geq \lambda\left[\frac{1}{2}\beta(w_G - w_B)\right] > \frac{1}{2}\beta\lambda x f(1-\varphi)\theta_0 = b_*,$$

which yields a contradiction.

One can show that $b > b^* \Rightarrow \sigma(b) \equiv 1$ analogously. □

Lemma 5. *The profit of the tailored fund in the limit $\varepsilon \to 0$ (i.e. all unethicals strategic) is continuous in the commission b and under assumption [4] has gradient $\Pi'(b)$ characterized by:*

$$\lim_{\varepsilon\to 0} \Pi'(b) \begin{cases} < 0 & b < b_* \\ > 0 & b \in (b_*, b^*) \\ < 0 & b \in (b^*, \infty) \end{cases}$$

yielding two local maxima at $b \in \{0, b^*\}$.

Proof of Lemma 5. We build up the profit function for different commission values, b. Suppose first that $b \geq b^*$. From Lemma 4, $\sigma(b) = 1$ so that all junior unethical advisors cheat. It follows that the profit available to the fund is

$$\Pi(b) = (xf - b)\left(\varphi + (1-\theta_0)(1-\varphi)\right) \quad \text{for } b \geq b^*. \qquad [28]$$

This profit function captures that transfers into the tailored fund ($\mathbb{t}$) arrive from all ethical agents when it is in the client's best interests (φ), and when it is not in the client's best interests then is delivered in any case by all unethical agents, juniors and seniors. Note that the profit function [28] is continuous and decreasing in the commission b.

Next suppose that $b \in (0, b_*]$; Lemma 4 yields that $\sigma(b) = 0$ so that juniors do not cheat. The profit earned by the tailored fund in this case is:

$$\Pi(b) = (xf - b)\left(\varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}\right) \quad \text{for } b \in (0, b_*]. \tag{29}$$

This follows as junior unethical agents do not misinvest their client's funds, only seniors do, and overall θ_0 of each cohort of advisors are ethical. This profit function is continuous and decreasing in b.

It remains to study the model equilibrium when $b \in (b_*, b^*)$ so that unethical junior financial advisors have the mixed strategy $\sigma(b)$ determined in Lemma 3. The profit of the fund is

$$\Pi(b) = (xf - b)\left(\varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}(1+\sigma(b))\right) \quad \text{for } b \in (b_*, b^*). \tag{30}$$

This follows as clients matched with the tailored fund are directed to it by all advisors. Senior unethical advisors also direct all other clients to the tailored fund, and unethical juniors do so according to the mixed strategy equilibrium. The continuity of the mixing function yields the continuity of the profit function. We see from Lemma 3 that $\sigma'(b) > 0$ and $\sigma''(b) < 0$. These expressions only have economic meaning for $b \in (b_*, b^*)$, but the algebraic functional forms are valid on the real line. Evaluating the functional form of $\Pi(b)$ in [30] over the real line it follows that $\Pi(b)$ is concave for $b < xf$. We can therefore find the (unconstrained) maximum of the function $\Pi(b)$ in [30] through its first derivative.

We can express the profit function $\Pi(b)$ given in [30] as

$$\Pi(b) = (xf - b)\left[A_0 - A_1 \frac{\lambda x f}{b}\right],$$

with the constants A_0 and A_1 derived by using the explicit expression for $\sigma(b)$ given in Lemma 3 in [30]. Differentiation and simplification then establishes that $\Pi'(b) = -A_0 + A_1 \cdot \lambda \left(\frac{xf}{b}\right)^2$. As the profit function is concave it follows that $\Pi'(b) < 0$ for all $b < \bar{b}$, where $\bar{b}$ is defined implicitly by $\Pi'(\bar{b}) = 0$. Algebraic manipulation then establishes that

$$\bar{b} = xf\sqrt{\lambda \frac{A_1}{A_0}}$$

$$= xf\left[\lambda\cdot\frac{\frac{1}{2}(1-\varphi)\theta_0}{\varphi+\frac{1}{\beta}+\frac{1}{2}(1-\theta_0)(1-\varphi)}\right]^{\frac{1}{2}} \quad [31]$$

The profit function of the fund $\Pi(b)$ in [30] is increasing in the range $b \in (b_*, b^*)$ iff

$$b^* \leq \bar{b}. \quad [32]$$

Establishing [32] in combination with the results on the shape of the profit function for $b \leq b_*$ and $b \geq b^*$ implies that there are two local maxima of the profit function: at $b = b^*$ and $b = 0$. Establishing [32] therefore completes the proof. The remainder of the proof establishes [32].

Proof steps to establish [32]. After a little rearrangement we have

$$\bar{b} \geq b^* \Leftrightarrow \left(\frac{1}{\beta}-\frac{1}{2}(1-\varphi)(1-\theta_0)\right)^2 \geq \lambda\frac{1}{2}(1-\varphi)\theta_0\left(\varphi+\frac{1}{\beta}+\frac{1}{2}(1-\theta_0)(1-\varphi)\right) \quad [33]$$

To establish that [33] holds for all permitted parameter values we define

$$A(\beta,\varphi,\theta_0) := \left(\frac{1}{\beta}-\frac{1}{2}(1-\varphi)(1-\theta_0)\right)^2 - \lambda\frac{1}{2}(1-\varphi)\theta_0\left(\varphi+\frac{1}{\beta}+\frac{1}{2}(1-\theta_0)(1-\varphi)\right)$$

And $\bar{b} \geq b^* \Leftrightarrow A(\beta,\varphi,\theta_0) \geq 0$. The first step is to observe that

$$\frac{\partial A}{\partial \beta} = -\frac{1}{\beta^2}\left(\frac{2}{\beta}-(1-\varphi)(1-\theta_0)-\lambda\frac{1}{2}(1-\varphi)\theta_0\right) \leq -\frac{1}{\beta^2}\left(\underbrace{\frac{2}{\beta}}_{\geq 2}-\underbrace{(1-\varphi)(1-\theta_0)}_{\leq 1}-\underbrace{\mathcal{R}}_{<1}\right) < 0.$$

Where we have used the condition on the discount factor, [4], to generate the bound. Therefore

$$A(\beta,\varphi,\theta_0) > A(1,\varphi,\theta_0)\ \forall \beta \in [0,1).$$

Next observe that the discount factor, [4] implies

$$A(1,\varphi,\theta_0) \geq \left(1-\frac{1}{2}(1-\varphi)(1-\theta_0)\right)^2 - \mathcal{R}\left(1+\varphi+\frac{1}{2}(1-\theta_0)(1-\varphi)\right) = 0$$

As $A(1,\varphi,\theta_0) \geq 0$ we have $\overline{b} > b^* \; \forall\{\beta,\varphi,\theta_0\}$ completing the proof. □

Lemma 6. *The tailored fund will choose bonus $b = b^*$ over $\lim b \to 0$ if and only if* [11] *holds.*

Proof of Lemma 6. The fund will prefer all unethical juniors to misinvest ($b = b^* \Rightarrow \sigma = 1$) rather than juniors to be honest ($b \searrow 0 \Rightarrow \sigma = 0$) if it makes more profits. Using [29] and [28] we have:

$$\Pi(b^*) > \lim_{b \searrow 0} \Pi(b) \;\Leftrightarrow$$
$$(xf - b^*)\big(\varphi + (1-\theta_0)(1-\varphi)\big) > xf\left(\varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}\right)$$

This simplifies to

$$b^* < \frac{xf}{2}\frac{(1-\theta_0)(1-\varphi)}{\varphi + (1-\theta_0)(1-\varphi)} \qquad [34]$$

Using Lemma 4 this writes as [11]. □

Proof of Proposition 2. We first establish the existence of a unique threshold $\bar{\beta}$ at which the equilibrium jumps from junior misconduct to no junior misconduct. Note that the right hand side of [34] is independent of β while from [27]: $\partial b^*/\partial\beta > 0$. Therefore [34] only holds if β is sufficiently low. A similar argument establishes $\bar{\theta}_0$ at which the equilibrium jumps.

The equilibrium commissions, trust and wages have been found previously and are given in Table 1. The required results then follow by inspection. Note that comparing the entries in the left column evaluated at the critical threshold $\{\bar{\beta},\bar{\theta}_0\}$ yields the discontinuity results. □

	$\beta < \bar{\beta}$ $\theta_0 < \bar{\theta}_0$	$\beta > \bar{\beta}$ $\theta_0 > \bar{\theta}_0$
Equilibrium commission b	$\lambda xf \frac{\frac{1}{2}\beta(1-\varphi)\theta_0}{1-\frac{1}{2}\beta(1-\varphi)(1-\theta_0)}$	0
θ_G	$\frac{\theta_0}{1-\frac{1}{2}\beta(1-\varphi)(1-\theta_0)}$	θ_0
$w_G - w_B$	$xf\frac{(1-\varphi)\theta_0}{1-\frac{1}{2}\beta(1-\varphi)(1-\theta_0)}$	$xf(1-\varphi)\theta_0$
σ	1	0

Table 1: Equilibrium commissions, wages and trust

Proof of Proposition 3. The equilibrium bonus, trust and clean record wage premium in the high commission equilibrium are given by the left hand column of Table 1. Results (i) to (iii) then follow by differentiation. For (iv) the total amount of misconduct caught is:

$$(1-\theta_0)(1-\varphi)\frac{1}{2}\beta \quad [35]$$

The required result then follows by inspection. □

Proof of Proposition 4. Once an advisor has a blemish then clients understand that the advisor must be unethical. It follows that such an advisor is the least sought-after advisor and so their wages will be given by the outside option less the bonus which will be earned with certainty. Thus:

$$[\sigma_{\mathrm{B}} = 1 = \sigma_{\mathrm{BB}} = \sigma_{\mathrm{BG}} = \sigma_{\mathrm{GB}}] \;\; \Rightarrow \;\; [w_{\mathrm{B}} = w_{\mathrm{BB}} = w_{\mathrm{BG}} = w_{\mathrm{GB}} = w_o - b]$$

In the last period of their careers, an unethical advisor with a clean record will cheat as there are no repercussions from securing the commission, $\Rightarrow \sigma_{\mathrm{GG}} = 1$.

It remains to find the probability an unethical advisor will cheat at the start of their career ($\sigma_\emptyset$) and mid-career if they have avoided a blemish (σ_{G}). Implementing Bayes' Rule we have:

$$\theta_{\mathrm{G}} = \Pr\left(\tilde{\imath} = 1 | \hbar = \mathrm{G}\right) = \frac{\theta_0}{\theta_0 + (1-\theta_0)(1-\frac{1}{2}\beta(1-\varphi)\sigma_\emptyset)} \quad [36]$$

$$\text{similarly} \quad \theta_{\mathrm{GG}} = \frac{\theta_{\mathrm{G}}}{\theta_{\mathrm{G}} + (1-\theta_{\mathrm{G}})(1-\frac{1}{2}\beta(1-\varphi)\sigma_{\mathrm{G}})}. \quad [37]$$

Using [10] and proceeding analogously to Lemma 2 yields market equilibrium wages for the advisors:

$$w_{\mathrm{GG}} - w_{\mathrm{B}} = xf(1-\varphi)\theta_{\mathrm{GG}} \quad [38]$$

$$w_{\mathrm{G}} - w_{\mathrm{B}} = xf(1-\varphi)[1-(1-\theta_{\mathrm{G}})\sigma_{\mathrm{G}}] \quad [39]$$

Suppose for a contradiction that $\sigma_{\mathrm{G}} < 1$ and yet $\sigma_\emptyset > 0$. $\sigma_{\mathrm{G}} \in [0,1) \Rightarrow \hbar = \mathrm{G}$ type weakly prefers not cheating to cheating. If an unethical advisor with history $\hbar = \mathrm{G}$ doesn't cheat then her expected payment will be $w_{\mathrm{GG}} + b$. While cheating (when it is possible) yields $b + w_{\mathrm{GG}}(1-\frac{1}{2}\beta) + \frac{1}{2}\beta w_{\mathrm{B}} + b$, reflecting the career concern of receiving a blemish which would cost the following period's high wage. A weak preference for $\hbar = \mathrm{G}$ not to cheat therefore implies

$$b \leq \frac{1}{2}\beta \left(w_{\mathrm{GG}} - w_{\mathrm{B}}\right). \quad [40]$$

Now we note that $\sigma_{\emptyset} > 0 \Rightarrow \hbar = \emptyset$ type weakly prefers cheating. For a new advisor, the payoff from cheating includes the anticipation that should she secure a G label then she will be (weakly) better off not cheating at that point in her career, given $\sigma_{\mathrm{G}} \in [0, 1)$ by assumption. The payoff to a new advisor from cheating is therefore:

$$\begin{aligned} & b + (1 - \frac{1}{2}\beta)[w_{\mathrm{G}} + b\varphi + w_{\mathrm{GG}} + b] + \frac{1}{2}\beta[2w_{\mathrm{B}} + 2b] \\ =& b[1 + \beta + (1 - \frac{1}{2}\beta)(1 + \varphi)] + (1 - \frac{1}{2}\beta)(w_{\mathrm{G}} + w_{\mathrm{GG}}) + \beta w_{\mathrm{B}} \end{aligned}$$

If instead a new unethical advisor does not cheat, when she secures a G label then she will again be (weakly) better off not cheating at that point in her career, it follows that her payoff when she faces a client of type $\mathbb{s}$ as a junior is

$$w_{\mathrm{G}} + b\varphi + w_{\mathrm{GG}} + b = b(1 + \varphi) + w_{\mathrm{G}} + w_{\mathrm{GG}}.$$

Recall again that a new advisor ($\hbar = \emptyset$) weakly prefers cheating by assumption. The above two equations therefore combine to imply that

$$b \geq \frac{\frac{1}{2}\beta \left(w_{\mathrm{G}} - w_{\mathrm{B}} + w_{\mathrm{GG}} - w_{\mathrm{B}}\right)}{1 + \frac{1}{2}\beta(1 - \varphi)}. \quad [41]$$

The strategy of the proof is now to show that the upper bound on the commission [40] and the lower bound on the commission [41] are incompatible. This follows if we can establish that

$$\frac{1}{2}\beta(w_{\mathrm{GG}} - w_{\mathrm{B}}) \left(1 + \frac{1}{2}\beta(1 - \varphi)\right) < \frac{1}{2}\beta \left((w_{\mathrm{G}} - w_{\mathrm{B}}) + (w_{\mathrm{GG}} - w_{\mathrm{B}})\right).$$

Simplifying and then subbing in using [37], [38], and [39] to work in terms of θ_{G} and σ_{G} we wish to show that

$$\frac{\frac{1}{2}\beta(1 - \varphi)\theta_{\mathrm{G}}}{\theta_{\mathrm{G}} + (1 - \theta_{\mathrm{G}})(1 - \frac{1}{2}\beta(1 - \varphi)\sigma_{\mathrm{G}})} < 1 - (1 - \theta_{\mathrm{G}})\sigma_{\mathrm{G}}. \quad [42]$$

Observe that the left hand side of [42] is increasing in σ_G while the right hand side of [42] is decreasing in σ_G.[23] It follows that [42] is hardest to satisfy at $\sigma_G = 1$. So the contradiction is established if we can demonstrate [42] with $\sigma_G = 1$, that is if (after simplification)

$$
\begin{aligned}
&\frac{1}{2}\beta(1-\varphi) < 1 - (1-\theta_G)\frac{1}{2}\beta(1-\varphi) \\
\Leftrightarrow\ &\beta(1-\varphi) < 1 + \theta_G\frac{1}{2}\beta(1-\varphi). \qquad [43]
\end{aligned}
$$

But this is true by inspection as the left hand side of [43] is strictly below 1 while the right is strictly above. Hence we have established our contradiction as [40] and [41] are incompatible, and therefore the result follows. □

Proof of Proposition 5. Note from [2′] and [3′] that at the time of contracting, $E(z_t) = 0$ and so the expected payoff from the tailored fund is unchanged from the benchmark model. It follows that the valuation clients place on an advisor ($v(x, \theta, \sigma)$) is unchanged from [10]. The equilibrium wages clients are willing to pay to financial advisors therefore follows from Lemma 2 with the one change that the trust clients at time t have in an advisor with history G is a function of the state the prior period (z_{t-1}) and is given by [13].

We next establish the relationship between a probability of cheating σ and the commission b required to deliver it. If a junior advisor is willing to mix at the start of time t between not cheating and cheating then a condition analogous to [25] holds:

$$
\begin{aligned}
\lambda\mathbb{E}_t\left[w_{G,t+1}(z_t) + b\right] &= b + \lambda\mathbb{E}_t\left[\frac{1}{2}(1-z_t)\beta w_B + \left(1 - \frac{1}{2}(1-z_t)\beta\right) w_{G,t+1}(z_t) + b\right] \\
\therefore\ \frac{2b}{\lambda\beta} &= \mathbb{E}_t\left[(1-z_t)(w_{G,t+1}(z_t) - w_B)\right] \qquad [44]
\end{aligned}
$$

Note in [44] that at the time of investing during period t the state z_t is not known and so expectations are taken of it. Equation [44] can be simplified by using the wage expressions from Lemma 2 alongside the trust expression $\theta_{G,t+1}(z_t)$ established from [13] and then taking the expectation over

[23] Note from [36] that θ_G is independent of σ_G as θ_G, trust mid-career, depends on the juniors' strategy: $\sigma_\varnothing$.

z_t to yield:

$$\frac{2b}{\beta} = \lambda x f(1-\varphi)\theta_0 \mathscr{H}(r,\sigma) \qquad [45]$$

$$\text{where } \mathscr{H}(r,\sigma) := \frac{1-\frac{1}{2}(1-\theta_0)(1-\varphi)\sigma\beta(1-r^2)}{\left(1-\frac{1}{2}(1-\theta_0)(1-\varphi)\sigma\beta(1-r)\right)\left(1-\frac{1}{2}(1-\theta_0)(1-\varphi)\sigma\beta(1+r)\right)}.$$

Equation [45] offers a mapping between commissions and the mixing strategy of junior advisors in equilibrium.

Setting b^* as the commission required to deliver certain cheating we use [45] to derive this as

$$\frac{2b^*}{\beta} = \lambda x f(1-\varphi)\theta_0 \mathscr{H}(r,1).$$

Noting that $\mathscr{H}(r,1) = \mathscr{C}(r)$ delivers [14]. The lower bonus b_* can be found analogously. That juniors always cheat if $b > b^*$ and never cheat if $b < b_*$ is proved analogously to Lemma 4.

To identify the tailored fund's optimal commission note that the profit function is unchanged from that in Lemma 5 for $b < b_*$ and for $b > b^*$. For $b \in (b_*, b^*)$ we work in terms of the associated cheating probability and rewrite [30] as

$$\Pi(\sigma) = (xf - b(\sigma))\left(\varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}(1+\sigma)\right)$$

The next step is to establish that $\lim_{\lambda\to 0} \Pi'(\sigma) > 0$. This follows as from [45] $\lim_{\lambda\to 0} b(\sigma) < xf$, and

$$\lim_{\lambda\to 0} b'(\sigma) = \frac{1}{2}\lambda\beta x f(1-\varphi)\theta_0 \frac{\partial}{\partial\sigma}\mathscr{H}(r,\sigma) = 0.$$

It therefore follows that the only possible optimal commissions are one of $\{0, b^*\}$. The high commission b^* is optimal if [34] holds. Using [45] we see that $\lim_{\lambda\to 0} b^* = 0$ which ensures that [34] holds for small [34]. This completes the proof. □

Proof of Lemma 1. For the mixed strategy to be viable we require $\sigma \leq 1$. For some B's to be employed we require $1-\gamma-\Gamma_G(\sigma) > 0$. Note that as $\Gamma'_G(\sigma) < 0$ this yields a lower bound for σ. Simplifying we have

$$\sigma \in \left[\frac{2\gamma-1}{\frac{1}{2}\beta(1-\theta_0)(1-\phi)\gamma}, 1\right] \qquad [46]$$

As noted we require the range [46] to be well-defined. This yields an upper bound on γ:

$$\frac{1}{2} < \gamma < \frac{1}{2 - \frac{1}{2}\beta(1-\theta_0)(1-\phi)}. \qquad [47]$$

The profit of the fund can be established by considering the cheating behaviour of each of the three types of advisors. There are a measure $\Gamma_G(\sigma)$ of G advisors. The probability of such an advisor being unethical is $(1-\theta_G)$, and such advisors will cheat. Therefore the total measure of invested funds from such advisors is

$$\Gamma_G(\phi + (1-\phi)(1-\theta_G))$$

There is a measure $1-\gamma-\Gamma_G(\sigma)$ of B advisors employed in the industry. Such advisors are unethical and will certainly direct their client into the fund. Finally there is a measure γ of junior advisors. The probability of such an advisor being unethical is $(1-\theta_0)$, and he will cheat an $\mathbb{S}$ client with probability σ which the fund is determining through the bonus. Combining these three groups of advisors yields fund profit of

$$\Pi(\sigma) = (xf - b(\sigma))\left[\phi + (1-\phi)\left(\Gamma_G\cdot(1-\theta_G) + 1 - \gamma - \Gamma_G + (1-\theta_0)\gamma\sigma\right)\right]$$

Now observe that $\theta_G = \theta_0\gamma/\Gamma_G$ and simplifying yields [17]. □

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