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 labour market rewarding good advisor behaviour and the strategic fund which can frustrate clients' inference through advisor incentives. We characterise market conditions leading to high misconduct. We offer a prediction as to the pattern of misconduct as wealth inequality increases. And we establish when, over the course of a career, financial advisors are most trustworthy.

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Keywords: financial advisors, misconduct, career concerns, financial regulation, mutual funds, bonuses

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1. Introduction

The market for financial advice is large with some estimating that assets under management will top $145 trillion by 2025.[1] The market for financial advice is important: in the US, almost all purchasers of mutual funds or equities have sought investment advice; in Germany 80% do (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.[2] The misconduct is usually misrepresentation of investments and selection of unsuitable investments, and transgressions are large with average payouts 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 the pay premium senior financiers enjoy is two and half times that of other professionals,[3] with the lion's share of this increase coming when the financier has acquired exprience and a clean 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? If wealth inequality amongst clients increases, which prominent scholars suggest is likely[4], will misconduct increase? And if so, who will suffer it? When, over the course of one's career, are advisors most unethical, and when most ethical and so most trustworthy?

To address these questions we develop a theoretical model of the labour market for financial advice. We construct an overlapping generations model of financial advisors, who have ethics, are hired competitively, interact with strategic investment funds, and are regulated. Our model

[1] See https://www.pwc.com/ng/en/press-room/global-assets-under-management-set-to-rise.html.

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

[3] The comparison is of the pay premium earned by senior financiers, controlling for education, compared with the non-farm private payroll. See Philippon and Reshef (2012) and the discussion around the paper's Figure X.

[4] See for example Piketty (2020).

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*.[5] The remainder of our advisors are opportunistic and prone to cheating if it is in their financial interest. Financial advisors assist clients in directing their wealth towards a safe product or a specialised fund. Which is best for the client is identified by the advisor, but not visible to the client, permitting scope for misinvestment. We allow the specialised fund to be strategic, optimally setting incentive schemes to (mis-)encourage advisors. This reflects the fact that bonuses to brokers are significant; for example, in the US, they average above 2.3% in SEC data (Christoffersen, Evans, and Musto, 2013).[6] But regulators may catch wrongdoing and the labour market rewards good records with higher pay as such advisors are trusted more.

At the heart of our model is a tension between two forces. The first force occurs in the labour market which creates endogenous career concerns through pay which increases with a clean track record. The second force is that the strategic investment fund can incentivise mis-investment and frustrate clients' inferences, but at a cost which can become prohibitively large.

We show that the strategic fund chooses to use bonuses only when the regulatory environment is sufficiently lax. If the regulatory detection technology is weak or if unethical advisors (open to misconduct) are widespread then the fund chooses bonuses high enough to encourage significant mis-investing. However improvements in the regulatory environment require the fund to increase bonuses, which is costly. We show that this follows because better enforcement causes clients to trust their advisors more, and so pay for clean records rises in a competitive labour market. This deters misconduct amongst junior advisors. Bonuses must rise if this effect is to be countered. Eventually this becomes too expensive for the fund, given that advisors would recommend the fund in any case when it was appropriate for the client.

Our answer as to why misconduct is widespread and yet clients still buy is therefore two-fold. First clients buy because of market clearing — unblemished advisors are worth more to clients, and their wages are bid up until the employing firms are indifferent. So some firms, and their clients, are indifferent if using the lower paid blemished advisors. The second reason we offer for widespread misconduct, despite high late career wages creating career concerns, is that the investment funds are strategic. Funds exploit the fact that some advisors can be influenced by incentives to mis-invest. We characterise when it is optimal for funds to do this.

As wealth inequality amongst clients increases an entirely new effect arises: the strategic fund optimally chooses to *lower* the bonuses she offers to financial advisors. The wealthiest clients are the most valuable ones for the strategic fund. In a competitive market such clients will be

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

[6]Egan (2019) reports that J.P. Morgan offers brokers a higher bonus than this in the fixed income case study that he considers.

served by the best advisors. These are senior advisors with a clean track record. The strategic fund appreciates however that at the margin bonuses affect the investing behaviour of advisors at the beginning of their careers and not at the end. An unethical advisor in the latter part of her career is not exposed to career concerns — there are no career repercussions to misinvesting — so such an advisor will secure her bonus and direct the wealth of her client into the fund. The strategic fund wishes to maximise the chance of this happening to HNW clients. To achieve this, lowering the bonus deters some unethical juniors from misinvesting; that is, it encourages *disguise*. Such an unethical advisor will therefore acquire a clean record and may secure a wealthy client later in her career, and she will misinvest then. It follows that overall misconduct declines as wealth inequality increases, but it does so only for the middle class; high net worth individuals suffer increased levels of misconduct. Perhaps some will see this as market induced justice in response to increased inequality.

The simplest 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 a junior to be willing to cheat, but then to stop cheating if they acquire a clean record mid-career. If mid-career advisors do not cheat then this is as a result of career effects being strong in the latter part of one's career. But in this case mid-career advisors with a clean record are valuable to clients, and so are paid well. In turn this creates stronger career incentives at the beginning of an advisors' career. Hence we show that misconduct is always more likely to be perpetrated by those with the most experience.

The paper is organised as follows. The literature review follows in Section 2. The model is introduced formally in Section 3. To solve the model we develop some preliminary results in Section 4. We solve the model to determine the equilibrium behaviour of the strategic fund and its impact on the financial advisor labour market in Section 5. Section 6 solves for misconduct patterns when wealth inequality rises. Section 7 establishes the time pattern of misconduct over the course of an advisor's career. Section 8 concludes with omitted proofs in Appendix A. Appendix B develops an extension allowing for a distribution of guilt costs amongst 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 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 market microstructure models in which investment decisions interact with the security price formation process. 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). This effect is referred to as a *sharing-the-blame* effect.[7] Our work differs to this strand of the career concerns 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 able types cannot behave as if they are more able. Secondly we additionally model a strategic investment fund whose incentive structure alters the market's inferences from advisor behaviour and so we endogenise the career incentives created in a new way. This allows us to study an important channel by which misconduct propagates and which has yet to be understood.

Building a model of misconduct in a financial advisory setting with career concerns, and embedding it into a framework with both a competitive labour market and a strategic investment fund is a significant contribution of this work. In a setting which abstracts from career concerns, and sometimes also from competition between firms, a number of misconduct models have been proposed by Thanassoulis (2023), Inderst and Ottaviani (2009), Carlin and Gervais (2009), Zhou, Keppo, and Jokivuolle (2020) 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 labour 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.

There are also principal-agent models of settings similar to the market for financial advice, in which agents have the opportunity to misbehave. However these models do not include competition between firms, the competitive labour market, nor strategic investment funds. Examples in this vein include Bénabou and Tirole (2006, 2011), Kartik (2009) and Axelson and Bond (2015).

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). 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). In our work financial

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

advisors acquire reputations courtesy of their histories, but the meaning of these histories depends upon the regulatory technology and the actions of the strategic fund.

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 Limbach, Rau, and Schürmann (2020). 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), and such people can be screened out by creating an appropriate work culture (Bunderson and Thakor, 2022). Our work connects trust in financial advisors with the career concerns they face.

3. Model

Here we present our overlapping generations model of financial advisors, with ethics, hired in a competitive labour market, regulated and subject to a strategic fund as they decide how to serve their clients. The clients, their investment options and the resultant labour market are described in §3.1. The financial advisors and their utility reflecting their potential for (un)ethical behaviour is modeled in §3.2. Regulation and implications for advisor reputation are modeled in §3.3. Finally the objectives of the strategic fund are captured in §3.4.

3.1. Consumers, financial products and the labour market

We model an economy with an infinite time horizon. Investment decisions take place at integer times, $t = 1, 2, 3, \ldots$. In each period there is a measure 1 of clients who live for one period. Almost all clients have the same wealth x. A small measure μ_H are high net worth (HNW) clients and these have wealth $X_H \geq x$.

Each client has access to one advisory firm. The firms are monopolists when serving their clients. Each firm bargains with each of its clients as to the price for the financial advice which will be provided. For tractability we allow the firms to have all the bargaining power and so set the price each client pays equal to the expected value created over and above the outside option of not using a financial advisor.[8] Without an advisor, we normalise each client's expected utility to 0.

Firms hire financial advisors (one per client) in a competitive labour market. The role of financial advisors is to choose one of two financial products, targeted ($\mathbb{t}$) or standard ($\mathbb{s}$), on behalf of their client. This choice is denoted $\tilde{\rho}_i \in \{\mathbb{t}, \mathbb{s}\}$ made on behalf of client i. The targeted products can be thought of as more active financial investment vehicles like an actively managed fund or a

[8]The division of bargaining power is not a critical feature of the analysis. It will become apparent that allowing the clients some bargaining power, e.g. by introducing search, would not alter the equilibrium allocation of advisors to clients and so would not alter the economics of our analysis. Our formulation allows us to simplify the exposition.

hedge fund, a more complex financial security such as a stock option or crypto-currency, or a more sophisticated financial instrument such as an adjustable-rate mortgage. In contrast, the standard products might be an index fund or a life-cycle fund, a stock or treasury bond, or a fixed-rate mortgage.

We model financial advisors using an overlapping generations technology. We consider two variants of our model. The first study assumes that advisors live for two periods with a measure $\frac{1}{2}$ of advisors entering each period. In this setting half the available financial advisors are in the first period of their careers and overlap with the other half in the second period of their careers. We also consider the setting in which financial advisors live for three periods with a measure of $\frac{1}{3}$ of financial advisors entering each period.

Recall that without the advisor, the expected utility of clients is normalised to zero. Clients can improve on this (reservation) utility by hiring an advisor who looks for the financial products that are most appropriate for them. Each consumer is better off with either a targeted financial product $\mathbb{t}$ or with a standard financial product $\mathbb{s}$. This is the client'stype, which is drawn from

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

where $\varphi \in (0,1)$. Consumers do not know their own type, nor can they access such financial products themselves. A financial advisor observes the client's type and can access both types of investment product on the client's behalf. These are the two reasons why clients hire an advisor.

The (certainty-equivalent) utility that consumers get from using the standard product (selection $\tilde{\rho} = \mathbb{s}$) is normalized to one per dollar invested:

$$\Pr\left\{\tilde{u}_i = 1 \mid \tilde{\rho}_i = \mathbb{s}, \tilde{\tau}_i = \mathbb{t}\right\} = \Pr\left\{\tilde{u}_i = 1 \mid \tilde{\rho}_i = \mathbb{s}, \tilde{\tau}_i = \mathbb{s}\right\} = \Pr\left\{\tilde{u}_i = 1 \mid \tilde{\rho}_i = \mathbb{s}\right\} = 1.$$

In contrast, the (certainty-equivalent) utility per dollar invested that consumers get from using the targeted product (selection $\tilde{\rho} = \mathbb{t}$) depends on their type. Specifically, the targeted 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:

$$\Pr\left\{\tilde{u}_i = 2 \mid \tilde{\rho}_i = \mathbb{t}, \tilde{\tau}_i = \mathbb{t}\right\} = \frac{1+q}{2} = 1 - \Pr\left\{\tilde{u}_i = 0 \mid \tilde{\rho}_i = \mathbb{t}, \tilde{\tau}_i = \mathbb{t},\right\}, \quad \text{and} \qquad [\mathbf{2}]$$

$$\Pr\left\{\tilde{u}_i = 2 \mid \tilde{\rho}_i = \mathbb{t}, \tilde{\tau}_i = \mathbb{s}\right\} = \frac{1}{2} = 1 - \Pr\left\{\tilde{u}_i = 0 \mid \tilde{\rho}_i = \mathbb{t}, \tilde{\tau}_i = \mathbb{s},\right\}. \qquad [\mathbf{3}]$$

That is, while the expected utility that a standard consumer gets from a targeted product is exactly the same as that from a standard product (one), the expected utility that a targeted consumer gets from the same product is $1 + q > 1$.

The standard product is free (e.g., an index fund), but the targeted product (e.g., actively managed fund) costs consumers $f > 0$ per unit of capital invested in it. The fee f is specified exogenously.[9] This means that targeted consumers benefit from the targeted product if and only if $1 + q - f > 1$, which is equivalent to

$$f < q. \quad [4]$$

We assume [4] holds throughout. Clearly, standard consumers never benefit from choosing targeted products.

The standard product does not generate any commission to an advisor who recommends it, but the targeted product results in a commission of b to the advisor. The commission b will be derived endogenously; the producer of the targeted product will choose it to maximize his expected profits (explained below, §3.4). The bonus is meant to represent the higher commissions that advisors often collect for placing clients into financial products that are more sophisticated and/or require more skill. For example, such a bonus might represent a direct payment (or a kickback) from a fund or security seller as a compensation or reward for the referral.

The existence of a bonus in our model draws from an 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.[10] Indeed, Inderst and Ottaviani (2012) and Egan (2019) make a similar assumption in their models of intermediaries and brokers. While this assumption creates a conflict of interest between the advisor and her client, it does not automatically lead the advisor to always recommend targeted products. Countervailing this is the possibility that advisors are ethical, and even if they are not, career concerns play a role.

The firms hire financial advisors in a competitive labour market. It follows that there will be wage rates conditional on the observable financial advisor history. In the most parsimonious version of our model advisors live for two periods and so the set of possible histories is given by $\hbar = \{\varnothing, \mathrm{B}, \mathrm{G}\}$. $\hbar = \varnothing$ denotes an empty history and signifies an advisor in the first period of their career. Advisors in the second period of their careers may receive 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 $\hbar = \mathrm{G}$.[11]

[9]Reflecting competition between funds or market practice.

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

[11]After being hired by a firm, the advisor privately observes the type of the firm's client, and chooses a financial product (standard or targeted) on their behalf. Note that this product is not observed by the public; it is known only by the client. In particular we rule out that the first period employing firm has an informational advantage over other firms in assessing the probability that an advisor is ethical at the beginning of the second period.

There are therefore three wages in the competitive labour market:

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

We assume that financial advisors have an outside option of 0 and cannot be paid negative wages. This final assumption permits expositional simplicity, but it is not critical to any of the results which follow. The rents a financial advisory firm makes from offering financial advice therefore depend upon what the clients are willing to pay for the advice. In turn this depends on the anticipated ethics of the financial advisor.

3.2. Advisors

We assume that each advisor is ethical (or honest) with probability $\Pr\{\tilde{\varepsilon} = 1\} = \theta_0 \in (0, 1)$ and unethical (or strategic) with probability $\Pr\{\tilde{\varepsilon} = 0\} = 1 - \theta_0$. While advisors know their own type, their type is unobservable by anyone else. Ethical advisors always recommend what is best for their client, taking fees into account. That is, they recommend standard (targeted) products if and only if their client's type is standard (targeted). 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 period 2, they always recommend the targeted product to all consumers at that point (as it comes with a bonus $b > 0$, while the standard product does not). Secondly, in period 1, unethical advisors always recommend the targeted product to consumers with $\tilde{\tau}_i = \mathbb{t}$ (this is the right thing to do, plus it comes with a bonus of b), but they recommend it only with probability $\sigma \in [0, 1]$ (to be endogenously derived in equilibrium) to consumers with $\tilde{\tau}_i = \mathbb{s}$. In addition we add a trembling hand refinement to avoid sets of zero measure. Unethical advisors are assumed to cheat their clients via a tremble when the opportunity arises with probability $\epsilon \searrow 0$, in addition to any determined strategy. Therefore if unethical advisors intend to randomise by cheating their client with some given probability σ we have:

$$\Pr\left(\rho = \mathbb{t} | \tau = \mathbb{s}\right) = \min\left(\epsilon + \sigma, 1\right).$$

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), and Janezic (2020). That humans' propensity to lie cannot be predicted, and so may be subject to mixing is evidenced in Fischbacher and Föllmi-Heusi (2013) and in the references cited in Bénabou and Tirole (2011).

3.3. Regulation, reputation and updating

As we will see the financial impact of a young advisor choosing the targeted product when $\tilde{\tau} = \mathbb{s}$ is not limited to just the bonus b; it also includes the effect that this choice is expected to have on her second-period compensation. 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 is because financial advisors are regulated, and the regulator is often asked to pronounce itself on the appropriateness of some actions taken by advisors on behalf of their clients. 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), which publicly report the unethical activities of financial advisors and brokers. In our model the probability that utility consistent with misconduct results in a blemished record ($\hbar_j = \text{B}$) for the advisor is β_u 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 $1 - \beta_u$ is the probability of a type-II error as it measures the probability that the regulator fails to correctly identify an unethical advisor as such.

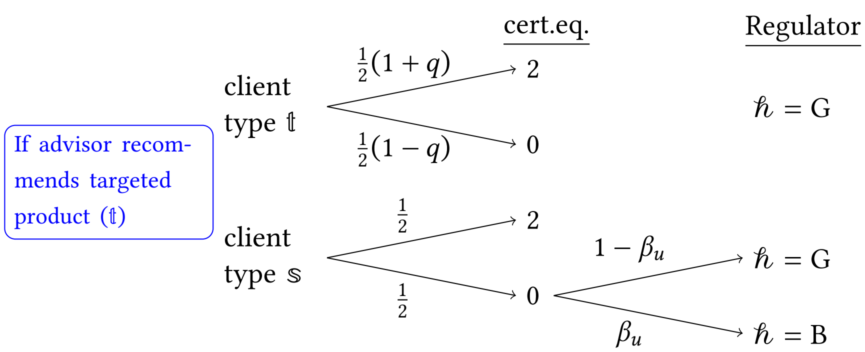

Figure 1: Client Outcomes and Public Information

Notes: Cert. eq. is the client's certainty equivalent utility presented in equations [2] and [3].

The information structure is illustrated in Figure 1. As we will see, while a blemished record indicates an unethical advisor, it does not necessarily render this advisor useless in the second period of her career. Indeed an advisor with such a blemished record still provides access to targeted funds which may be a good fit for the client.

3.4. Targeted fund

The targeted fund ($\mathbb{t}$) selects the bonus b it wishes to offer financial advisors so as to maximise its profits. This bonus will be a function of the model fundamentals, such as the wealth of clients, the efficacy of the regulator and the extent to which ethics are widespread in the financial advisor population.

4. Model Solution Preliminaries

4.1. Bayesian Preliminaries

Let us conjecture that young unethical advisors make biased recommendations to standard consumers with probability $\sigma + \epsilon$ capturing the strategy (to be verified later) and the tremble. The probability that an ethical advisor acquires a blemished record at the end of the first period is

$$\Pr\left\{ \hbar_j = \mathrm{B} \mid \tilde{\varepsilon}_j = 1 \right\} = 0, \tag{5}$$

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

$$\Pr\left\{ \hbar_j = \mathrm{B} \mid \tilde{\varepsilon}_j = 0 \right\} = (1-\varphi)\frac{1}{2}\beta_u(\epsilon + \sigma) := \ell_0 \tag{6}$$

Equation [6] captures that an unethical advisor will only need to be unethical if the targeted fund is not in the client's best interests (probability $1-\varphi$), in which case she cheats her client with probability σ. The client of type $\tilde{\tau}_i = \mathbb{s}$ goes on to have 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_u. 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 realised utility.

Consumers benefit more from hiring ethical advisors, and so will seek to figure out the probability that the advisor hired by their advisory firm is ethical. Since the only observable quantity about a senior advisor is whether or not she has a blemished record, consumers will update the probability that an advisor is ethical based on $\hbar_j = \mathrm{B}$ or $\hbar_j = \mathrm{G}$:

$$\theta_{\mathrm{B}} := \Pr\left\{ \tilde{\varepsilon}_j = 1 \mid \hbar_j = \mathrm{B} \right\} = 0, \tag{7}$$

$$\theta_{\mathrm{G}} := \Pr\left\{ \tilde{\varepsilon}_j = 1 \mid \hbar_j = \mathrm{G} \right\} = \frac{\theta_0}{1-(1-\theta_0)\ell_0} > \theta_0 \tag{8}$$

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 is expected to recommend $\tilde{\rho}_i = \mathbb{t}$ with probability σ if she learns that $\tilde{\tau}_i = \mathbb{s}$. Given that firms seek to maximize their expected profits, this is also the price that they will charge after hiring such an advisor when they know their client's wealth to be x.

If the advisor is a junior (new to the market), then θ will be equal to θ_0 (the prior as to the likelihood that any newborn advisor is ethical) and σ will be the equilibrium strategy used by junior unethical advisors. If the advisor is senior, then θ will be equal to θ_B or θ_G, depending on whether or not the advisor has a blemish. As mentioned before, senior unethical advisors recommend $\tilde{\rho}_i = \mathbb{t}$ to all customers and so $\sigma = 1$.

We have, allowing for the tremble (ϵ)

$$v(x,\theta,\sigma) = x\left[\theta\left[\varphi(1+q-f)+(1-\varphi)\right]+(1-\theta)\Big\{\varphi(1+q-f)+(1-\varphi)\left[(1-\sigma-\epsilon)+(\sigma+\epsilon)(1-f)\right]\Big\}\right]$$
$$= x\left[1+\varphi(q-f)-(1-\theta)(1-\varphi)f(\epsilon+\sigma)\right]. \quad [9]$$

By default, advisors improve the utility of consumers by one unit per dollar. Because targeted types always end up buying targeted products, these customers get an extra $q - f$ in utility. However, when standard types are advised by an unethical advisor, they may end up paying f for a targeted product that does not improve their welfare.

Lemma 1. *There exists a positive price clients are willing to pay for any financial advisor.*

Proof. Without financial advice the client's payoff is normalised to zero. Financial advisors have positive value if $v(x,\theta,\sigma) > 0 \ \forall\ \theta,\sigma \in [0,1]$. Note that

$$v(x,\theta,\sigma) > 1+\varphi(q-f)-f >_{\text{by [4]}} 1-f > 0.$$

The final inequality follows from [4] and the fact that $q < 1$ by construction. □

Therefore gains from trade are possible for all the financial advisory firms in the market.

4.2. Labour market preliminaries

Our first preliminary result is to confirm that advisors with history $\hbar$ = B are the least desired type of advisor and so have wage set by the outside option:

Lemma 2. $w_B = 0$.

Proof. We use the client's valuation function [9] to establish that advisors with history $\hbar$ = G are preferred to B:

$$v(x,\theta_G,1) - v(x,\theta_B,1) = x(1-\varphi)f\theta_G > 0$$

We are using the fact that, as noted, an unethical advisor in the final period of their careers will cheat and recommend the targeted fund ($\mathbb{t}$) with certainty so they can profit from the bonus. Market clearing therefore requires $w_G > w_B$ otherwise no firm would wish to employ B's as opposed to G's.

Similarly we show that new advisors are preferred to senior blemished ones:

$$v(x, \theta_0, \sigma) - x(x, \theta_B, 1) = x(1-\varphi) f[1 - (1-\theta_0)(\sigma + \epsilon)] > 0.$$

Market clearing therefore requires $w_\emptyset > w_B$.

Therefore B advisors earn the least. Wages are reduced in a competitive labour market by profit maximising firms until the lowest wage matches the advisors' outside option, yielding the result. □

Suppose now that all clients have wealth x (that is $X_H = x$). In equilibrium market clearing requires that there are firms serving clients with wealth x who employ all three types of advisor. Therefore indifference for the firms between B and G advisors requires that

$$\begin{aligned} v(x, \theta_B, 1) - \underbrace{w_B}_{=0} &= v(x, \theta_G, 1) - w_G \\ \Rightarrow w_G &= x f (1-\varphi) \theta_G. \end{aligned} \quad [10]$$

While indifference between B and ∅ advisors sets

$$\begin{aligned} v(x, \theta_B, 1) &= v(x, \theta_0, \sigma + \epsilon) - w_\emptyset \\ \Rightarrow w_\emptyset &= x f (1-\varphi)[1 - (1-\theta_0)(\epsilon + \sigma)]. \end{aligned}$$

5. Model Solution With Optimal Bonus

In this first section we study the model with all clients having the same wealth x. We build up to the solution in a number of steps. We explore all the different possible fund choices of bonus and evaluate the resultant labour market equilibrium and so fund profit in each case. We then derive the global optimal fund behaviour and so solve the model.

5.1. Region of no junior cheating

Consider first the case in which the targeted fund decides to set a bonus which does not encourage the juniors to cheat in the first period of their careers: i.e. $\sigma = 0$. The wage w_G in this case is given by [10] which yields:

$$w_G|_{\sigma=0} = x f (1-\varphi) \frac{\theta_0}{1 - (1-\theta_0)(1-\varphi)\frac{1}{2}\beta_u \epsilon} > 0$$

New financial advisors who are unethical prefer not to cheat at the beginning of their careers if

$$w_G + b > 2b + w_G\left(1 - \frac{1}{2}\beta_u\right), \qquad [11]$$

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 zero wage with probability $\frac{1}{2}\beta_u$, that is if the outcome is poor for the client and the regulator succeeds in spotting the infringement. [11] simplifies to

$$b < \frac{w_G\beta_u}{2} \qquad [12]$$

$$= \frac{1}{2}\beta_u x f(1-\varphi)\frac{\theta_0}{1-(1-\theta_0)(1-\varphi)\frac{1}{2}\beta_u\epsilon} \qquad [13]$$

In this case of $\sigma = 0$, the measure of customers sent to the fund is given by

$$V|_{\sigma=0} = \varphi + (1-\theta_0)(1-\varphi)\left(\frac{1}{2} + \frac{\epsilon}{2}\right)$$

This follows as junior unethical agents only misinvest their client's funds when they tremble, and overall θ_0 of the seniors are unethical. The profit of the fund is therefore

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

This profit function is declining in b. We have established that

Lemma 3. *In the limit of trembles vanishing* ($\epsilon \searrow 0$) *if*

$$b \in (0, \underline{b}] = \left(0, \frac{1}{2}\beta_u x f(1-\varphi)\theta_0\right],$$

then the profit of the fund is maximised by $b = 0_+$ *at a value of*

$$\Pi(0) = xf\left(\varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}\right) \qquad [14]$$

In this case $\sigma = 0$ *and the wages satisfy:*

$$w_G = xf(1-\varphi)\theta_0$$
$$w_\emptyset = xf(1-\varphi) > w_G.$$

Note that new advisors are paid more than senior unethical ones in this case. This is so as new unethical advisors do not cheat at the beginning of their careers so as to earn the highest wage available to seniors. While all unethical seniors cheat.

5.2. Region of all juniors cheating

Consider next the case in which the targeted fund decides to set a bonus which delivers the pure strategy for unethical juniors of always cheating: $\sigma + \epsilon = 1$. In this case the equilibrium wage w_{G}, given by [10], becomes:

$$w_{\mathrm{G}}|_{\sigma+\epsilon=1} = \frac{xf(1-\varphi)\theta_0}{1-\frac{1}{2}\beta_u(1-\varphi)(1-\theta_0)} \tag{15}$$

The financial advisors would all rather cheat if $b \geq \frac{w_G \beta_u}{2}$ (from [12]) and this requires

$$b \geq \hat{b} := \frac{\frac{1}{2}\beta_u xf(1-\varphi)\theta_0}{1-\frac{1}{2}\beta_u(1-\varphi)(1-\theta_0)}.$$

It follows that the profit available to the fund for $b \geq \hat{b}$ is

$$\Pi(b) = (xf - b)\left(\varphi + (1-\theta_0)(1-\varphi)\right) \tag{16}$$

This profit function captures that transfers into the targeted fund ($\mathfrak{t}$) 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 [16] is decreasing in the bonus b. We have shown:

Lemma 4. *In the limit of trembles vanishing ($\epsilon \searrow 0$) if $b \geq \hat{b}$, then the profit of the fund is maximised by*

$$b = \hat{b} = \frac{\frac{1}{2}\beta_u xf(1-\varphi)\theta_0}{1-\frac{1}{2}\beta_u(1-\varphi)(1-\theta_0)} \tag{17}$$

at a value of

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

In this case $\sigma = 1$ and the wages satisfy:

$$\begin{aligned} w_{\mathrm{G}} &= xf(1-\varphi)\theta_G \\ w_{\emptyset} &= xf(1-\varphi)\theta_0 < w_{\mathrm{G}}. \end{aligned}$$

Note in this case that new advisors are paid less than senior unblemished advisors. This is because the bonus is such that unethical advisors cheat in both the first and second period of their careers, however fewer, in proportional terms, unethical advisors are contained among senior advisors with $\hbar = \mathrm{G}$ than among new advisors.

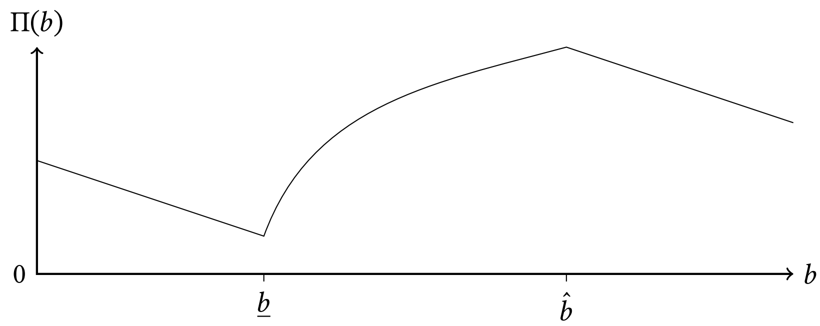

Figure 2: Targeted fund profits as a function of advisor bonus b

5.3. Targeted fund profit function

Sections 5.1 and 5.2 explored the profit function of the fund if a bonus is selected which incentivises a pure-strategy on junior financial advisors: a bonus below $\underline{b}$ delivers no cheating amongst juniors, whilst a bonus above $\hat{b}$ delivers cheating amongst unethical juniors. The targeted fund may decide on a bonus intermediate to these two values which delivers a mixed strategy for junior financial advisors. To determine the optimal bonus for the fund, we must establish the global shape of the targeted fund's profit function.

Proposition 1. *The profit of the targeted fund takes the general form given in Figure 2. Formally:*

(i) The profit function $\Pi(b)$ *is continuous and characterised by:*

$$\Pi'(b) \begin{cases} < 0 & b \in [0, \underline{b}) \\ > 0 & b \in (\underline{b}, \hat{b}) \\ < 0 & b \in (\hat{b}, \infty) \end{cases} \qquad \Pi''(b) \begin{cases} = 0 & b \in [0, \underline{b}) \\ < 0 & b \in (\underline{b}, \hat{b}) \\ = 0 & b \in (\hat{b}, \infty) \end{cases}$$

(ii) The junior financial strategies incentivised by the bonus are:

$$\sigma(b) \begin{cases} = 0 & b \in [0, \underline{b}] \\ \in (0,1) & b \in (\underline{b}, \hat{b}) \\ = 1 & b \in [\hat{b}, \infty) \end{cases}$$

(iii) The fund's optimal bonus satisfies:

$$\arg\max_b \Pi(b) \in \{0, \hat{b}\}.$$

Proof of Proposition 1. Figure 2 plots the general shape of the profit function as given by part (i)

of the proposition. By inspection one can see that the optimal bonuses must either be 0 or $\hat{b}$, so $(i) \Rightarrow (iii)$.

The pure strategy cases which arise for $b \le \underline{b}$ and $b \ge \hat{b}$ have been established in Lemmas 3 and 4.

It remains to study the model equilibrium when $b \in (\underline{b}, \hat{b})$ so that the junior financial advisors have a mixed strategy. Suppose therefore that $\sigma \in (0,1)$ and allow trembles to drop to zero ($\epsilon = 0$) as all histories are represented with positive probability. Financial advisors must be indifferent between cheating and not, and from [11] we require

$$w_G = \frac{2b}{\beta_u}.$$

Market clearing gives the equilibrium wage in [10]. Substituting in for w_G and solving for the mixed strategy we have:

$$\sigma(b) = a_0 - \frac{xf}{b} a_1 \qquad \text{where} \qquad a_0 = \frac{2}{\beta_u(1-\theta_0)(1-\varphi)}, \; a_1 = \frac{\theta_0}{1-\theta_0} \tag{18}$$

Observe that $b > \underline{b} \Rightarrow \sigma(b) > 0, \sigma(\underline{b}) = 0$, and $b < \hat{b} \Rightarrow \sigma(b) < 1$ with $\sigma(\hat{b}) = 1$.

The measure of clients sent to the fund is

$$V(b) = \varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}(1+\sigma(b)),$$

and so the profit of the fund is

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

The continuity of the mixing function yields the continuity of the profit function. For positive b, we see that $\sigma'(b) > 0$ and $\sigma''(b) < 0$. It follows that $\Pi(b)$ is concave for $0 < b < xf$.[12] We can therefore find the (unconstrained) maximum of the fund's profit function through the first derivative. We have

$$\Pi'(b) = \left(\frac{xf}{b}\right)^2 \frac{1}{2}(1-\theta_0)(1-\varphi)\cdot a_1 - \varphi - \frac{1}{2}(1-\theta_0)(1-\varphi)(1+a_0) \tag{19}$$

$$= \left(\frac{xf}{b}\right)^2 \frac{1}{2}\theta_0(1-\varphi) - \frac{1}{2}(1-\theta_0)(1-\varphi) - \frac{1}{\beta_u} - \varphi \tag{20}$$

And so

$$b^* = xf\left(\frac{\frac{1}{2}\theta_0(1-\varphi)}{\varphi + \frac{1}{\beta_u} + \frac{1}{2}(1-\theta_0)(1-\varphi)}\right)^{\frac{1}{2}}. \tag{21}$$

[12] As $\left[(xf-b)\sigma(b)\right]'' = -2\sigma'(b) + (xf-b)\sigma''(b) < 0$.

The profit function of the fund is increasing in the range $b \in [\underline{b}, \hat{b}]$ iff

$$b^* \geq \hat{b} \tag{22}$$

Establishing [22] completes the proof, and this is done in Lemma 6 in the appendix. □

Proposition 1 establishes that the profit function of the fund is always strictly increasing over the range of mixing solutions. The fund therefore prefers the pure strategy regions we analysed above in §5.1 and §5.2. The fund may maximise her profit by setting bonuses just high enough to corrupt junior advisors completely. In this case $b = \hat{b}$ and unethical juniors will always recommend the targeted fund, as will unethical seniors. The only possible alternative optimal course is for the fund to avoid distorting junior advisor decision making and lowering bonuses to the lowest level at which senior unethical advisors are just incentivised to cheat: $b = 0_+$. In this case the (just above) zero bonus delivers ethical behaviour from all the juniors.

5.4. Fund optimal bonus

The fund will prefer all juniors to misinvest ($\sigma = 1$) rather than juniors to be honest ($\sigma = 0$) if it makes more profits. Using the fund profit functions established in Sections 5.1 and 5.2 that is if:

$$(xf - \hat{b})\left(\varphi + (1-\theta_0)(1-\varphi)\right) > xf\left(\varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}\right)$$

This simplifies to

$$\hat{b} < \frac{xf}{2}\frac{(1-\theta_0)(1-\varphi)}{\varphi + (1-\theta_0)(1-\varphi)}$$

So substituting in for $\hat{b}$ we establish that bonuses to corrupt juniors are optimal for the fund when

$$\frac{\beta_u \theta_0}{1 - \frac{1}{2}\beta_u(1-\varphi)(1-\theta_0)} < \frac{(1-\theta_0)}{\varphi + (1-\theta_0)(1-\varphi)}. \tag{23}$$

Corollary 1. *The fund prefers bonuses to fully corrupt juniors ($b = \hat{b}$) as compared to no bonuses and honest juniors ($b = 0_+$) if and only if*

(i) the regulator's success probability in calling out unethical behaviour is low enough, $\beta_u \leq \bar{\beta}_u \in (0,1]$;

(ii) the population average level of ethics is low enough $\theta_0 < \bar{\theta}_0$ with $\bar{\theta}_0 \in (0,1)$;

(iii) the probability that clients are best served by the fund is low enough $\varphi \leq \bar{\varphi} \in (0,1]$.

Proof. All omitted proofs are in Appendix A. □

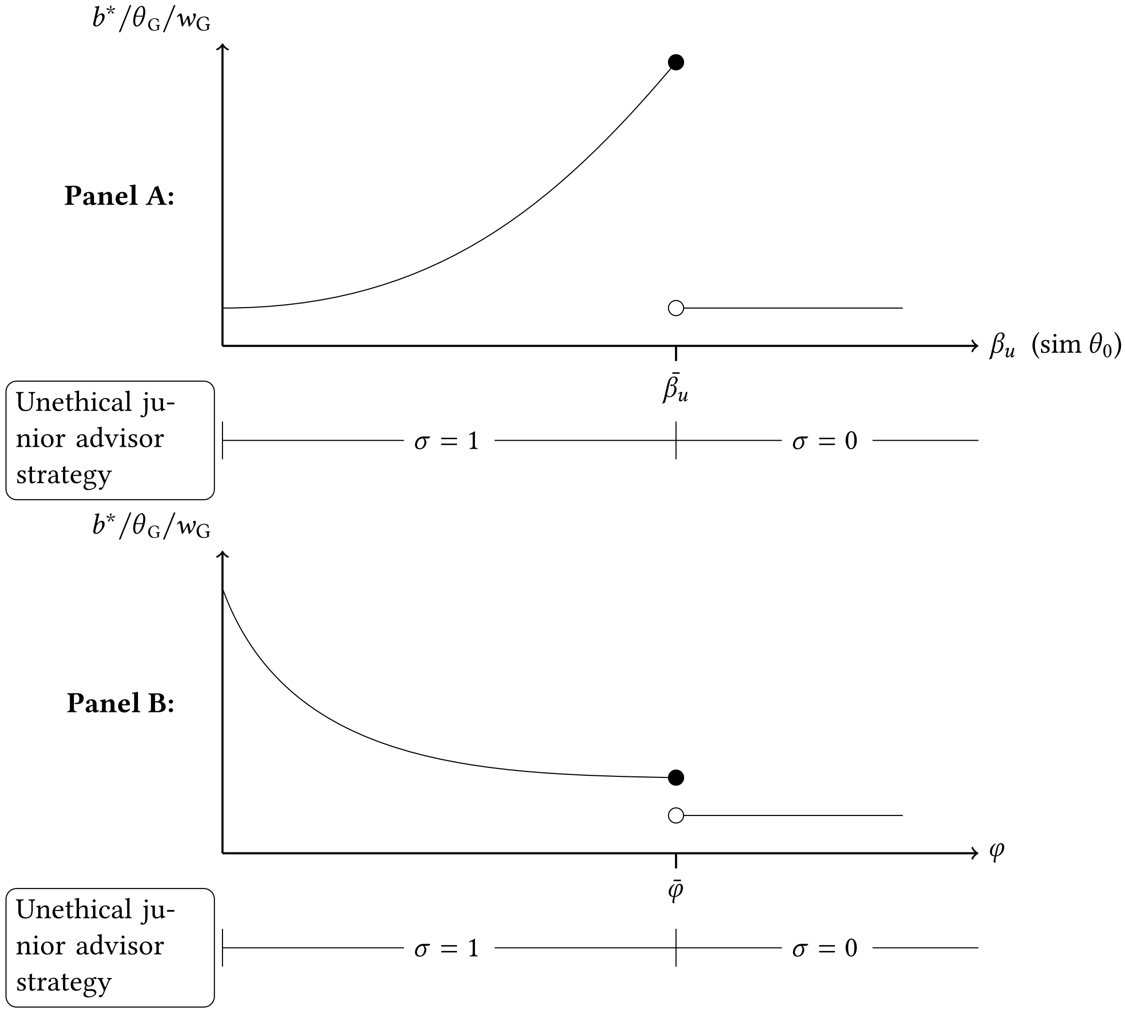

Figure 3: Relationship between optimal fund bonus (b^*), trust (θ_G) and pay (w_G) with respect to:
Panel A: with respect to the regulatory detection technology (β_u), with a similar figure applying when substituting β_u with population ethics θ_0.
Panel B: with respect to the probability the targeted fund is a good match for a client φ.
Results follow from Corollary 2. The misconduct strategy of new unethical financial advisors (σ) is shown below each graph.

We can now establish how optimal advisor bonuses, trust and pay depend upon the fundamentals of our modelled industry: the detection technology (β_u), the latent level of ethics (θ_0), and the probability clients are best served by the targeted fund (φ).

Corollary 2. *The relationship between the optimal advisor bonus b^*, or trust in* G *advisors θ_G, or market pay for* G *advisors w_G with respect to: the regulatory detection technology (β_u) or population ethics θ_0, or the probability the targeted fund is a good match for a client φ is depicted generically in*

Figure 3. Formally:

$$\frac{\partial b^*}{\partial \Gamma}, \frac{\partial \theta_G}{\partial \Gamma}, \frac{\partial w_G}{\partial \Gamma} > 0 \; for \begin{cases} \Gamma = \beta_u \; with \; \beta_u \in (0, \bar{\beta_u}) \\ or \, \Gamma = \theta_0 \; with \; \theta_0 \in (0, \bar{\theta_0}) \\ or \, \Gamma = 1 - \varphi \; with \; \varphi \in (0, \bar{\varphi}) \end{cases} \qquad [24]$$

$$\frac{\partial^2 b^*}{\partial \Gamma^2}, \frac{\partial^2 \theta_G}{\partial \Gamma^2}, \frac{\partial^2 w_G}{\partial \Gamma^2} = 0 \; for \begin{cases} \Gamma = \beta_u \; with \; \beta_u > \bar{\beta_u} \\ or \, \Gamma = \theta_0 \; with \; \theta_0 > \bar{\theta_0} \\ or \, \Gamma = 1 - \varphi \; with \; \varphi > \bar{\varphi} \end{cases}$$

with a point of discontinuity at the critical threshold $\{\bar{\beta_u}, \bar{\theta_0}, \bar{\varphi}\}$ *:*

$$\{b^*, \theta_G, w_G\}\big|_{\beta_u=0} = \{b^*, \theta_G, w_G\}\big|_{\beta_u=\bar{\beta}_{u+}} < \{b^*, \theta_G, w_G\}\big|_{\beta_u=\bar{\beta}_{u-}} \qquad [25]$$

$$and \;\; \{b^*, \theta_G, w_G\}\big|_{\substack{\theta_0=0 \\ \varphi=1}} \leq \{b^*, \theta_G, w_G\}\big|_{\substack{\theta_0=\bar{\theta}_{0+} \\ \varphi=\bar{\varphi}_+}} < \{b^*, \theta_G, w_G\}\big|_{\substack{\theta_0=\bar{\theta}_{0-} \\ \varphi=\bar{\varphi}_-}} \qquad [26]$$

Unethical juniors have misconduct strategy:

$$\sigma = \begin{cases} 1 & \beta_u \leq \bar{\beta_u}, \; \theta_0 \leq \bar{\theta_0}, \; \varphi \leq \bar{\varphi} \\ 0 & otherwise. \end{cases}$$

This model reveals the tension between market forces which favour advisors with a clean record and encourage good financial advisor behaviour, and the investment fund which can, at a price, frustrate the market's effectiveness. To understand Corollary 2, and especially Figure 3, consider first the extreme setting in which the regulator (e.g. FINRA) is entirely ineffective: $\beta_u = 0$. In this case an infinitesimal bonus encourages all unethical juniors to cheat ($\sigma = 1$), and the fund receives the maximum volume of business. Suppose now that the regulator were to improve and β_u 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 of value to firms. Firms would therefore bid the wages w_G 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 behaviour.

If the fund did not respond then the amount of misconduct would fall and the level of funds invested in the targeted fund would decline. The fund counteracts this effect by raising the bonus she offers financial advisors. As the regulator's skill increases this same cycle of logic repeats: the trust clients have in unblemished advisors rises, wages of seniors rise, and the bonus agents receive for recommending the targeted fund rises to counter the career incentive created. The total amount of misconduct remains unchanged (at its maximal value). As the regulator continues to improve it becomes increasingly expensive for the fund to fight the market due to the high (and so expensive) bonuses offered. It is also the case that financial advisors would recommend the targeted fund when it is the right investment anyway, even without a bonus. At some point therefore the cost of bonuses needed to maintain investment in the fund at the maximum level becomes too great and the fund stops fighting the market. At this point the bonus drops and similarly the trust in G advisors and their market wage also fall discontinuously.

An identical analysis and intuition holds if one replaces regulatory skill (β_u) 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 bonuses until the cost of doing so becomes prohibitive at which point bonuses, trust and pay all drop. Further improvements in population ethics (θ_0) linearly affect the market wage w_{G} and the trust in senior advisors θ_{G}, however this is a mechanical effect which is independent of the fund's bonus choice.

The intuition for the effect of the probability the targeted fund is a good match for clients is a little different. Suppose that the targeted fund is a very 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 very low if she does not offer bonuses. So bonuses to corrupt unethical junior and senior advisors are optimal. 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 wages senior unblemished advisors command declines. This lowers the career incentive and so allows the fund to lower the bonus she offers in turn. This process repeats as the suitability to the clients of the fund's offer improves. When the fund is very suitable for clients then the fund will receive investments from all ethical advisors and all unethical seniors with almost zero bonus. It therefore becomes unprofitable to keep bonuses high solely to keep unethical juniors cheating in the unlikely event that the targeted fund is not a good client match. And so the bonuses drop to zero as depicted in Panel B of Figure 3.

6. High Net Worth inequality

In this section we explore the implications of increases in income inequality on the trust that clients have in financiers, on pay, on strategically set bonuses, and on the misconduct that financial advisors actually deliver.

The share of national income enjoyed by the wealthiest 10% of Americans has risen steadily from about 35% in 1980 to nearly half in 2018 (Alvaredo et al. (2018)). Further there are respected predictions that wealth inequality is likely to remain on an increasing trajectory in the developed world (Piketty (2020)). This trend towards increased inequality is happening alongside an apparently increasing lack of trust in financial professionals, as noted in the Introduction.[13]

In this section we will show that these observations of increasing client wealth among the very richest and declining trust in financiers should be expected to occur together. They can both be explained by the interaction of investment fund incentive strategies with the labour market for financial advisors. We will show that increasing inequality causes strategic funds to lower their bonuses to encourage disguise amongst unethical juniors, which in turn leads to greater misconduct suffered by the richest at the hands of unblemished, yet increasingly unethical, senior advisors.

We develop our results using the richer version of our model in which we allow a measure μ_H to have substantial wealth $X_H \geq x$. The majority of clients (measure $1 - \mu_H$) each have wealth x. If the measure of clients with high net worth (HNW) μ_H is not too large then there will not be enough of these HNW clients to employ an entire class of desirable financial advisors (all unblemished senior advisors $\hbar = \mathrm{G}$, or all new advisors, $\hbar = \emptyset$). It follows that the marginal employing firms in the labour market for advisors will serve clients with wealth x, and so the equations given in the preliminary results section (§4.2) hold.[14]

We develop the technical machinery when allowing for HNW clients in §6.1. This section proves our main result linking bonuses and inequality: Theorem 1. Section 6.2 discusses the intuition for our results.

6.1. Technical analysis with HNW clients

In this technical section we demonstrate that increasing X_H (the wealth of the small measure of HNW clients) causes the region of the parameter space in which positive bonuses are optimal to expand. This is done via an inductive argument in §6.1.1. Then in §6.1.2 we develop Theorem 1 which establishes that the optimal bonus $b^*(X_H)$ is declining in X_H.

6.1.1. *No bonus region shrinks*

We will use an inductive argument to demonstrate that the region of the parameter space in which the fund favours a bonus $b = 0_+$ (which delivers no junior cheating) shrinks as the wealth of HNW clients rises.

Let us denote the profit of the targeted fund which sets a bonus of b when HNW clients have wealth X_H by $\Pi(b; X_H)$. If the targeted fund prefers to incentivise junior advisors to be honest then

[13] See, for example, Sapienza and Zingales (2012), and *Research finds most Brits do not trust financial advisers*, Financial Times, 16 Mar 2021.

[14] We require $\mu_H < \min\left(\frac{1}{2}, \frac{1}{2} \cdot \Pr(\hbar = \mathrm{G})\right)$ which ensures that HNW clients cannot buy up all the desirable advisor types. As $\Pr(\hbar = \mathrm{G}) > 1 - (1-\varphi)(1-\theta_0)\frac{1}{2}\beta_u \geq \frac{1}{2}$ a sufficient condition for our analysis to hold is $\mu_H < \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$.

the optimal bonus to set is $b = 0_+$. We can therefore establish a lower bound on the fund's profit: $\Pi(b, X_H)|_{b=0_+}$. To derive this profit explicitly we must identify which types of financial advisor will serve HNW clients in equilibrium. This is achieved by comparing the value clients attach to new vs senior unblemished advisers. Using [9] we have:

$$\underbrace{v(x, \theta_0, \epsilon)}_{\substack{b=0_+ \Rightarrow \sigma=0 \\ \text{\& tremble } \epsilon}} - v(x, \theta_{\mathrm{G}}, 1) = xf(1-\varphi)\left[(1-\theta_G) - (1-\theta_0)\epsilon\right] > 0 \text{ for small } \epsilon \quad [27]$$

Equation [27] shows that HNW clients prefer new advisors over G advisors; they value them more highly. Firms serving HNW clients will be able to charge higher prices to their client if they employ a new advisor. And so in equilibrium firms will pay more in wages to such advisors, and HNW clients will be served by new advisors. This arrangement is expected as when $b = 0_+$ new advisors do not cheat whether they are ethical or not due to career concerns, whereas seniors cheat if they are unethical.

The profit of the fund in this case is given by:

$$\Pi(0; X_H) = xf\left(\varphi + \frac{1}{2}(1-\theta_0)(1-\varphi)\right) + (X_H - x)f\mu_H\varphi \quad [28]$$

The first term of the profit function is identical to [14] and captures the fund's profit if all clients had wealth x. The second term is the adjustment for the μ_H clients with higher wealth. These clients are served by new advisors who, with the zero bonus, do not cheat. Hence the HNW clients only invest in the fund when it is appropriate for them.

Now suppose that, by assumption, there exists a bonus $b > 0$ which the targeted fund finds more profitable than a zero bonus. Suppose this bonus generates a cheating strategy $\sigma(b)$ in juniors. As this is more profitable than no bonus it must be that $\sigma(b) > 0$. To derive the profit of the targeted fund in this case we must again determine whether HNW clients choose to hire new advisors or senior unblemished advisors. Comparing the value clients attach to new vs senior unblemished (G) advisors using [9] gives:

$$v(x, \theta_0, \sigma(b)) - v(x, \theta_{\mathrm{G}}, 1) = xf(1-\varphi)\underbrace{\left[(1-\theta_{\mathrm{G}}(b)) - (1-\theta_0)\sigma(b)\right]}_{\mathscr{V}(b)} \quad [29]$$

The junior strategy $\sigma(b)$ in $\mathscr{V}(b)$ is given explicitly by [18] as a consequence of labour market clearing. This in turn yields the Bayesian update θ_{G} given in [8]. To emphasise the dependence of client's trust in G on the actions of the juniors and therefore on b, we write $\theta_{\mathrm{G}}(b)$. Hence $\mathscr{V}(b)$ can be evaluated. If $\mathscr{V}(b) < 0$ then it follows that HNW clients are served by senior unblemished advisors (G). This occurs, for example, if $b \geq \hat{b} \Rightarrow \sigma(b) = 1$.[15] Otherwise, if $\mathscr{V}(b) > 0$ then HNW clients are served by new advisors. We analyse the first case which is a little more complicated. The second case follows similarly.

Therefore suppose that $\mathscr{V}(b) < 0$ so that HNW clients are served by senior unblemished advisors when the bonus is b. To derive the fund's profit we must establish the contribution to fund profits from all three histories of financial advisor:

(i) There is a measure $\frac{1}{2}$ of new financial advisors ($\hbar = \emptyset$). These serve clients with wealth x, a proportion θ_0 of these are unethical and will cheat their client with probability $\sigma(b)$ when possible. The contribution to fund profits is therefore

$$(xf - b)\frac{1}{2}\left(\varphi + (1-\varphi)(1-\theta_0)\sigma(b)\right) \tag{30}$$

(ii) The measure of blemished advisors ($\hbar = \mathrm{B}$) is $\frac{1}{2}\Pr(\hbar = \mathrm{B}) = \frac{1}{2}(1-\varphi)(1-\theta_0)\sigma(b)\frac{1}{2}\beta_u$. These advisors are all unethical ($\theta_{\mathrm{B}} = 0$), and will cheat in the final period of their careers. These blemished advisors all serve clients with wealth x. Their contribution to the fund's profits is therefore

$$(xf - b)\frac{1}{2}\Pr(\hbar = \mathrm{B}) \tag{31}$$

(iii) The measure of senior unblemished advisors ($\hbar = \mathrm{G}$) is $\frac{1}{2}\Pr(\hbar = \mathrm{G}) = \frac{1}{2}\left(1 - (1-\varphi)(1-\theta_0)\sigma(b)\frac{1}{2}\beta_u\right)$. These advisors are split across clients with wealth x and the HNW clients with wealth X_H:

  (a) The measure of G advisors serving clients with wealth x is $\frac{1}{2}\Pr(\hbar = \mathrm{G}) - \mu_H$. These advisors are ethical with probability $\theta_{\mathrm{G}}(b)$, and if unethical will cheat in the final period of their careers. Their contribution to the fund's profits is therefore

$$(xf - b)\left(\frac{1}{2}\Pr(\hbar = \mathrm{G}) - \mu_H\right)\left(\varphi + (1-\varphi)(1-\theta_{\mathrm{G}}(b))\right) \tag{32}$$

  (b) The remaining measure of G advisors, μ_H serve HNW clients, but otherwise behave as above. Their contribution to the fund's profits is therefore

$$(X_H f - b)\mu_H\left(\varphi + (1-\varphi)(1-\theta_{\mathrm{G}}(b))\right) \tag{33}$$

To derive the fund's profits we make use of two identities. The first is that

$$\Pr(\hbar = \mathrm{B}) + \Pr(\hbar = \mathrm{G}) = 1$$

[15] Where $\hat{b}$ is given explicitly in Lemma 4.

as advisors either receive a blemish or they do not. The second identity is:

$$\Pr(\hbar = \mathrm{B})\theta_{\mathrm{B}} + \Pr(\hbar = \mathrm{G})\theta_{\mathrm{G}} = \theta_0 \qquad \Rightarrow \qquad \theta_{\mathrm{G}} \Pr(\hbar = \mathrm{G}) = \theta_0.$$

Using these to sum [30] to [33] we have:

$$\Pi(b; X_H) = (xf - b)\left(\varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}(1+\sigma(b))\right) + (X_H - x)f\mu_H\left(\varphi + (1-\varphi)(1-\theta_{\mathrm{G}}(b))\right) \quad [34]$$

If $\mathcal{V}(b) > 0$ then similar working yields:

$$\Pi(b; X_H) = (xf - b)\left(\varphi + (1-\theta_0)(1-\varphi)\frac{1}{2}(1+\sigma(b))\right) + (X_H - x)f\mu_H\left(\varphi + (1-\varphi)(1-\theta_0)\sigma(b)\right) \quad [35]$$

We can now show that increasing the wealth of HNW clients expands the set of model parameters ($\{\theta_0, \varphi, \beta_u\}$) such that positive bonuses are preferred to no bonuses:

Lemma 5. *Consider any bonus b such that $\sigma(b) > 0$:*

$$\Pi(b; X_H) \geq \Pi(0; X_H) \Rightarrow \Pi(b; X_H + \eta) > \Pi(0; X_H + \eta)\ \forall \eta > 0. \quad [36]$$

Proof. Using [34], [35] and [28]:

$$\begin{aligned}
\Pi(b; X_H + \eta) =& \Pi(b; X_H) + \begin{cases} \eta f\mu_H\left(\varphi + (1-\varphi)(1-\theta_0)\sigma(b)\right) & \text{if } \mathcal{V}(b) > 0 \\ \eta f\mu_H\left(\varphi + (1-\varphi)(1-\theta_{\mathrm{G}}(b)\right) & \text{if } \mathcal{V}(b) \leq 0 \end{cases} \\
\Pi(0; X_H + \eta) =& \Pi(0; X_H) + \eta f\mu_H\varphi \\
\therefore \Pi(b; X_H + \eta) - \Pi(0; X_H + \eta) >& \Pi(b; X_H) - \Pi(0; X_H) \geq 0
\end{aligned}$$

Which proves [36]. □

Lemma 5 establishes that the model parameters under which a strategic fund would optimally choose a zero bonus shrink as wealth inequality (X_H) rises. Without wealth inequality ($X_H = x$), then a zero bonus was optimal for parameter values given in Corollary 1. As wealth inequality increases this region of optimal zero bonuses shrinks. In fact we can go further and establish that a zero bonus will always be dominated by a positive bonus at any model parameter values if inequality is large enough. To see this compare the profit $\Pi(\hat{b}; X_H)$ using [34] evaluated at the fund using a bonus which delivers certain junior cheating ($b = \hat{b}$) to the profit available with a zero bonus, [28]:

$$\lim_{X_H \to \infty} \Pi(\hat{b}; X_H) - \Pi(0; X_H) = [\text{constant}] + \lim_{X_H \to \infty} (X_H - x)f\mu_H(1-\varphi)(1-\theta_{\mathrm{G}}) = \infty \qquad \text{as } \theta_{\mathrm{G}} > \theta_0.$$

We have established that wealth inequality causes the bonus to rise above zero. Casual inference might lead one to conclude that the fund's optimal bonus will therefore rise with income inequality. But this is wrong. To explain why we first study the fully optimal bonus.

6.1.2. *Optimal positive bonus for the fund*

Let us consider parameter values such that the optimal bonus of the fund is positive. We study the effect of further increases in wealth inequality X_H.

Theorem 1. *Suppose the optimal fund bonus with wealth inequality X_H is positive: $b^*(X_H) > 0$. It follows that*

$$b^*(X_H + \eta) \leq b^*(X_H) \; \forall \eta > 0, \qquad [37]$$

with strict inequality if $b^*(X_H) \in (b^\dagger, \hat{b})$ for $b^\dagger > \underline{b}$ defined in [51]. Further:

$$\lim_{X_H \to \infty} b^*(X_H) = b^\dagger.$$

Theorem 1 establishes that as inequality in the client population rises (X_H increases), the optimal bonus set by the targeted fund falls. Further, bonuses do not fall down to zero, but decline to a positive lower bound ($b^\dagger$). The bonus lower bound satisfies $\underline{b} < b^\dagger < \hat{b}$. It follows that juniors optimally mix between cheating and not when wealth inequality is high enough. This contrasts with the optimality of pure strategies which the fund chooses to incentivise in advisors without HNW clients (Proposition 1). Secondly, the bonus $b^\dagger$, which bounds the optimal bonus from below, is the unique bonus level at which HNW clients are indifferent between hiring new advisors and unblemished senior advisors.

Unblemished seniors have a low chance of being unethical, but as they are at the end of their careers if the advisor is unethical then she will cheat. This compares to new advisors who have a higher chance of being unethical, but even so will moderate their cheating due to career concerns, and so only cheat with some probability. At the bonus $b^\dagger$ the market equilibrium causes clients to be indifferent between these two.

6.2. HNW inequality and misconduct discussion

When all clients have the same wealth, then Proposition 1 reveals that the fund's optimally chosen bonus takes one of two values, and if positive is optimally set so that junior advisors always cheat. We have shown that if wealth inequality should increase (by the small number of HNW clients getting richer), then the fund's optimal bonus is positive and declining in inequality. We now try and explain the implications and the intuition behind this result.

To fix ideas take as a baseline the setting of all in society having the same wealth (x) and the fund issuing positive bonuses set high enough to cause unethical juniors to cheat on their clients. Now consider a small measure of clients becoming HNW and having wealth $X_H > x$. As the wealth of these few increases let us consider the consequences for the fund if she were to lower the bonus she offers advisors. Juniors are more sensitive to the bonus than seniors as juniors face a tradeoff between lost future income versus bonus today; seniors can only gain from the bonus today and so unethical seniors strictly prefer to cheat. A reduction in the bonus therefore reduces misconduct in early career advisors. This causes the overall level of misconduct in society to decline. It also acts to lower fund profits as some of these juniors, who were serving (middle lass) clients with wealth x will not now direct their clients to the fund. However there is a second round effect: as juniors cheat with lower probability, unethical juniors are caught by the regulator less often and so receive a blemish with a lower probability. The second round effect is therefore to increase the proportion of unethicals who survive to the second period without a blemish. That is, a lower bonus causes some advisors to disguise their type. Hence unblemished advisors are less trustworthy; θ_{G} declines. These unblemished advisors, if unethical, will always cheat in the second period and some of them will be serving the HNW individuals. The deterioration of the quality of the pool of unblemished advisors therefore increases the proportion of HNW business which the fund secures. The investment from HNW clients is particularly valuable to the fund as fees which are charged are proportional to the sums invested, that is to wealth. So reducing bonuses with increasing client inequality becomes optimal for the fund.

Collecting these insights we have established:

Proposition 2. *As client inequality increases due to the HNW getting richer* ($x < X_H$ *and* $X_H \uparrow$)*:*

(i) The amount of misconduct perpetuated by the population of financial advisors declines.

However

(ii) The amount of misconduct experienced by HNW clients increases.

(iii) Unblemished senior advisors ($\hbar = \mathrm{G}$) *are less trustworthy.*

(iv) The fund lowers the bonus it pays to advisors.

Proof. Theorem 1 $\Rightarrow b^*$ declines (gives (iv)) $\Rightarrow \sigma(b)$ declines (gives (i)) $\Rightarrow \theta_{\mathrm{G}}$ declines (gives (iii)) $\Rightarrow (1 - \theta_{\mathrm{G}})$ increases and these unblemished seniors serve the HNW clients (gives (ii)). $\square$

Proposition 2 reflects the insight that the fund maximises her profits by ensuring that as many unethical advisors as possible find themselves advising HNW clients. However HNW clients value high quality advisors the most and so will ensure they are served by advisors who have the highest chance of being ethical. That is those with the best records. The fund therefore optimally moderates the temptation to cheat early in advisors' careers so that a larger proportion of unethical

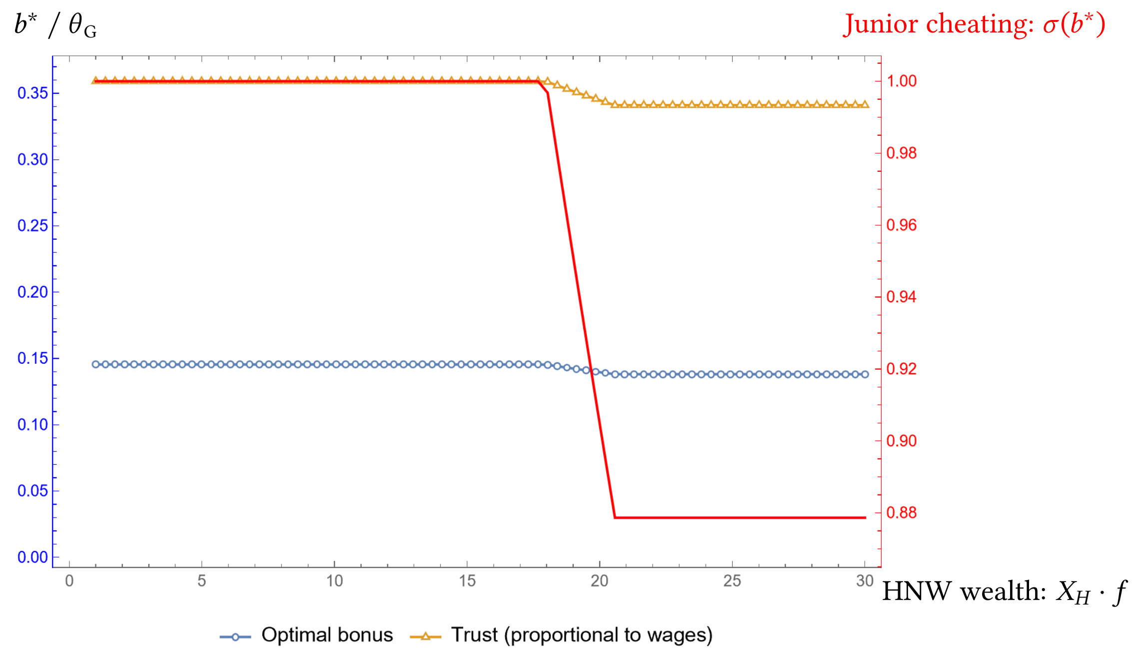

Figure 4: A numerical example depicting Proposition 2

Notes: The optimal bonus b^* is at the high level $\hat{b}$ with X_H low. Once HNW individuals become rich enough the optimal bonus drops to $b^\dagger$; the grey line of circles. This in turn causes a large change in the cheating probability of juniors, $\sigma(b)$; red line, right hand axis. The drop in the bonus offered causes juniors to disguise themselves and so trust declines; yellow line of triangles, θ_G. The wage w_G is not plotted, but is proportional to trust. We have set $xf = 1, \beta_u = .9, \varphi = .1, \theta_0 = 0.25, \mu_H = .1$.

advisors can acquire the same history as ethical advisors and so potentially win the right to serve HNW clients – and then cheat on them.

This dynamic therefore implies that the public trust financial advisors less (θ_{G}). This rationally reflects the fact that increasing inequality causes funds to optimally encourage juniors to do more to disguise their true type early on in their careers.

A numerical example depicting Proposition 2 is given in Figure 4. The figure shows that the optimal bonus is at $\hat{b}$ when X_H is small, and the optimal bonus drops to $b^{\dagger}$ when X_H is large (grey line of circles). The change in bonus is magnified in the juniors' strategy which drops significantly from juniors always cheating ($\sigma(\hat{b}) = 1$) to cheating only with $\approx 88\%$ probability ($\sigma(b^{\dagger})$). This is reflected in the yellow line of triangles which shows that the trust θ_{G}, which is the probability a G advisor is ethical, declines.

7. 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 maximising funds may find too expensive to counteract (Proposition 1). Our parsimonious model leaves open the question of whether over a longer career misconduct is monotonic increasing, or is it possible for misconduct to be non-monotonic with mid-career advisors loathe to spoil a good record to-date.

To study the time-path of misconduct over advisors' careers, we now extend our model to allow advisors to live for three periods. In each period advisors are employed, advise their clients, and may subsequently receive a blemish or not. The set of histories clients can see is therefore:

$$\hbar \in \{\varnothing, \text{B}, \text{G}, \text{BB}, \text{BG}, \text{GB}, \text{GG}\}$$

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. We develop some preliminary results in §7.1 and then prove in §7.2 our main result that misconduct is indeed monotonic increasing: unethical early career advisors are the least likely to cheat their clients.

7.1. Market equilibrium preliminaries

To solve our model with advisors living for three periods we begin with some preliminaries. 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 lower bound created by the outside option level of 0:

$$w_{\mathrm{B}} = 0 = w_{\mathrm{BB}} = w_{\mathrm{BG}} = w_{\mathrm{GB}}.$$

Blemished advisors will cheat given $b > 0$. Denoting $\sigma_{\hbar}$ as the probability an unethical advisor with history $\hbar$ cheats their client given the opportunity, we have

$$\sigma_{\mathrm{B}} = 1 = \sigma_{\mathrm{BB}} = \sigma_{\mathrm{BG}} = \sigma_{\mathrm{GB}}.$$

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

It remains to find $\{\sigma_{\emptyset}, \sigma_{\mathrm{G}}\}$.

We implement Bayes rule and determine the trust that clients have in advisors with different histories. This depends on the strategies $\{\sigma_{\emptyset}, \sigma_{\mathrm{G}}\}$, and so is endogenous to the model. Analogously to [8] we have:

$$\theta_{\mathrm{G}} = \Pr\left(\varepsilon = 1 | \hbar = \mathrm{G}\right) = \frac{\theta_0}{\theta_0 + (1-\theta_0)(1 - \frac{1}{2}\beta_u(1-\varphi)\sigma_{\emptyset})} \quad [38]$$

$$\text{similarly} \quad \theta_{\mathrm{GG}} = \frac{\theta_{\mathrm{G}}}{\theta_{\mathrm{G}} + (1-\theta_{\mathrm{G}})(1 - \frac{1}{2}\beta_u(1-\varphi)\sigma_{\mathrm{G}})}. \quad [39]$$

The value clients assign to advisors with these histories is given by [9]. Indifference of the firms at market equilibrium between hiring a B advisor and others gives the market equilibrium wages analogously to [10] as:

$$w_{\mathrm{GG}} = xf(1-\varphi)\theta_{\mathrm{GG}} \quad [40]$$

$$w_{\mathrm{G}} = xf(1-\varphi)[1 - (1-\theta_{\mathrm{G}})\sigma_{\mathrm{G}}] \quad [41]$$

$$w_{\emptyset} = xf(1-\varphi)[1 - (1-\theta_0)\sigma_{\emptyset}] \quad [42]$$

7.2. Misconduct grows over the course of an advisor's career

We now develop the main result of this section. We show that (unethical) later career advisors cheat more than early career advisors, implying that misconduct grows over the course of one's career:

Theorem 2. *We claim that*

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

or equivalently

$$\sigma_{\mathrm{G}} < 1 \Rightarrow \sigma_{\emptyset} = 0.$$

Theorem 2 implies that mid-career advisors (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 advisors will definitely cheat. If an early career advisor is open to cheating their client, then a mid-career advisor will strictly prefer to cheat rather than be honest.

Proof of Theorem 2. 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 $b + w_{\mathrm{GG}}(1 - \frac{1}{2}\beta_u) + b$, 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

$$b \leq \frac{1}{2}\beta_u w_{\mathrm{GG}}. \tag{43}$$

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:

$$\begin{aligned} &b + (1 - \frac{1}{2}\beta_u)[w_{\mathrm{G}} + b\varphi + w_{\mathrm{GG}} + b] + \frac{1}{2}\beta_u[0 + 2b] \\ =&b[1 + \beta_u + (1 - \frac{1}{2}\beta_u)(1+\varphi)] + (1 - \frac{1}{2}\beta_u)(w_{\mathrm{G}} + w_{\mathrm{GG}}) \end{aligned}$$

If instead a new unethical advisor does not cheat, and 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 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

$$b \geq \frac{\frac{1}{2}\beta_u(w_{\mathrm{G}} + w_{\mathrm{GG}})}{1 + \frac{1}{2}\beta_u(1-\varphi)} \tag{44}$$

The strategy of the proof is now to show that the upper bound on the bonus [43] and the lower bound on the bonus [44] are incompatible. This follows if we can establish that

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

Simplifying and then subbing in using [39], [40], and [41] to work in terms of θ_{G} and σ_{G} we wish to show that

$$\frac{\frac{1}{2}\beta_u(1-\varphi)\theta_{\mathrm{G}}}{\theta_{\mathrm{G}}+(1-\theta_{\mathrm{G}})(1-\frac{1}{2}\beta_u(1-\varphi)\sigma_{\mathrm{G}})} < 1-(1-\theta_{\mathrm{G}})\sigma_{\mathrm{G}}. \quad [45]$$

Observe that the left hand side of [45] is increasing in σ_{G} while the right hand side of [45] is decreasing in σ_{G}. It follows that [45] is hardest to satisfy at $\sigma_{\mathrm{G}} = 1$. So the contradiction is established if we can demonstrate [45] with $\sigma_{\mathrm{G}} = 1$, that is if (after simplification)

$$\begin{aligned} &\frac{1}{2}\beta_u(1-\varphi) < 1-(1-\theta_{\mathrm{G}})\frac{1}{2}\beta_u(1-\varphi) \\ \Leftrightarrow\ &\beta_u(1-\varphi) < 1+\theta_{\mathrm{G}}\frac{1}{2}\beta_u(1-\varphi). \quad [46] \end{aligned}$$

But this is true by inspection as the left hand side of [46] is strictly below 1 while the right is strictly above. Hence we have established our contradiction as [43] and [44] are incompatible, and therefore the result follows. □

Intuition:

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 ($\hbar$ = GG) and picking up a blemish is very high. But if this is the case the high terminal wage would also deter a new unethical advisor from cheating at the start of her career. This is because a high terminal wage implies that clients place a high probability on an agent with a clean sheet ($\hbar$ = GG) being ethical, which in turn means that clients value highly mid-career advisors without a blemish. That is the wage of mid-career advisors without a blemish must itself 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 experience grows.

8. Conclusions

Our study has addressed the fact that pay amongst financiers is high, while trust in them is low, the records of those committing misconduct is public, and misconduct is widespread. We have studied this market by constructing an OLG model of financial advisors, who have ethics, are hired in a competitive labour 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 and creates endogenous high pay for good behaviour via the competitive labour 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 bonuses to incentivise mis-investment amongst unethical advisors open to such inducements – though such bonuses reward both ethical and unethical advisors.

We have used our model to study when funds would optimally seek to distort the market mechanism and drive unethical investing. We characterise that this occurs when the industry is poorly regulated or advisors are widely unethical (and so open to misconduct if incentivised). Otherwise we show that this high-bonus approach becomes too expensive for the fund which then prefers low bonuses and low misconduct, but with concomitant lower pay for advisors and lower trust as career concerns weaken.

We have explored how the equilibrium amount of misconduct is changed by increases in inequality created by a small group of high net worth clients becoming richer than the middle class. We have found that such increasing wealth inequality reduces overall misconduct as funds conspire to disguise unethical advisors early in their careers by lowering bonuses. This causes an increase in the amount of misconduct suffered by the HNW clients – to the fund's benefit. We also study the pattern of misconduct over the course of an advisor's career, and we have shown that misconduct is monotonic; the probability of misconduct increases as an unethical advisor moves through her career. Thus unethical advisors are most trustworthy earlier in their careers, and become less so with seniority.

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 offer some results in this area for a given fund bonus in Appendix B and leave a full analysis of this aspect of the market to future research.

A. Omitted proofs

Lemma 6. *Equation [22] in the proof of Proposition 1 holds.*

Proof. The unconstrained maximum of the fund profit function, b^* is given in [21]. We have

$$b^* \geq \hat{b} \Leftrightarrow \left(\frac{1}{\beta_u} - \frac{1}{2}(1-\varphi)(1-\theta_0)\right)^2 \geq \frac{1}{2}(1-\varphi)\theta_0 \left(\varphi + \frac{1}{\beta_u} + \frac{1}{2}(1-\theta_0)(1-\varphi)\right) \quad [47]$$

To establish that [47] holds for all permitted parameter values we define

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

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

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

Therefore

$$A(\beta_u, \varphi, \theta_0) > A(1, \varphi, \theta_0)$$

Next observe that

$$\frac{\partial A(1,\varphi,\theta_0)}{\partial \varphi} = \left(1 - \frac{1}{2}(1-\varphi)(1-\theta_0)\right)(1-\theta_0) + \frac{1}{2}\theta_0\left(1 + \varphi + \frac{1}{2}(1-\theta_0)(1-\varphi)\right) - \frac{1}{2}(1-\varphi)\theta_0\left(1 - \frac{1}{2}(1-\theta_0)\right)$$

is linear in φ and $\frac{\partial}{\partial\varphi}A(1,0,\theta_0) > 0$, $\frac{\partial}{\partial\varphi}A(1,1,\theta_0) > 0$. It follows that $\frac{\partial}{\partial\varphi}A(1,\varphi,\theta_0) > 0$ and so

$$A(1, \varphi, \theta_0) > A(1, 0, \theta_0)$$

Now note that

$$A(1, 0, \theta_0) = \frac{1}{4}\left[(1+\theta_0)^2 - \theta_0(3-\theta_0)\right] = \frac{1}{4}[1 - \theta_0 + 2\theta_0^2] > 0$$

So we have established that $A(\beta_u, \varphi, \theta_0) > 0\ \forall\{\beta_u, \varphi, \theta_0\}$ and so $b^* > \hat{b}\ \forall\{\beta_u, \varphi, \theta_0\}$.

□

Proof of Corollary 1. For part (i) note that [23] is linear in β_u, is satisfied at $\beta_u = 0$, while at $\beta_u = 1$ [23] is satisfied iff $\varphi\left[\theta_0^2 - \frac{1}{2}(1-\theta_0)^2\right] < \frac{1}{2}(1-\theta_0)^2$ which is equivalent to $\frac{1}{\varphi} > 2\left(\frac{\theta_0}{1-\theta_0}\right)^2 - 1$. If this condition is satisfied then [23] holds for all allowable β_u; if not then there exists an intermediate value $\bar{\beta}_u$ at which [23] is satisfied with equality. Hence

$$\bar{\beta}_u \begin{cases} = 1 & \text{if } \frac{1}{\varphi} > 2\left(\frac{\theta_0}{1-\theta_0}\right)^2 - 1 \\ \in (0,1) & \text{otherwise.} \end{cases} \qquad [48]$$

For part (ii) note that the left hand side of [23] is increasing in θ_0 while the right hand side is declining in θ_0. [23] holds at $\theta_0 = 0$ and fails at $\theta_0 = 1$, so the intermediate critical point exists and is unique.

For part (iii) observe that [23] is linear in φ and is satisfied at $\varphi = 0$. The critical value $\bar{\varphi}$ at which [23] is satisfied with equality is given by

$$\bar{\varphi} = \frac{1}{\beta_u} \frac{(1-\theta_0)\left(1 - \frac{1}{2}\beta_u(1+\theta_0)\right)}{\left(\theta_0 - \frac{(1-\theta_0)}{\sqrt{2}}\right)\left(\theta_0 + \frac{(1-\theta_0)}{\sqrt{2}}\right)}$$

If $\theta_0 < \frac{1}{1+\sqrt{2}}$ then the expression above is negative. There is therefore no positive value of φ at which the inequality [23] changes sign, and so [23] is always satisfied. If $\theta_0 > \frac{1}{1+\sqrt{2}}$ there exists a positive critical value $\bar{\varphi}$ at which [23] is satisfied with equality. Setting $\varphi = 1$ in [23] we see that [23] is reversed if and only if $\beta_u\theta_0 > 1 - \theta_0 \Leftrightarrow \theta_0 > \frac{1}{1+\beta_u}$.[16] Hence we have

$$\bar{\varphi} \begin{cases} = 1 & \text{if } \theta_0 \leq \frac{1}{1+\beta_u} \\ \in (0,1) & \text{otherwise.} \end{cases}$$

□

Proof of Corollary 2. We use Corollary 1 and Lemmas 3 and 4 to establish the variables of interest as follows:

	$\beta_u < \bar{\beta}_u$ $\theta_0 < \bar{\theta}_0$ $\varphi < \bar{\varphi}$	$\beta_u > \bar{\beta}_u$ $\theta_0 > \bar{\theta}_0$ $\varphi > \bar{\varphi}$
b^*	$\frac{\frac{1}{2}\beta_u x f(1-\varphi)\theta_0}{1-\frac{1}{2}\beta_u(1-\varphi)(1-\theta_0)}$	0
θ_G	$\frac{\theta_0}{1-\frac{1}{2}\beta_u(1-\varphi)(1-\theta_0)}$	θ_0
w_G	$\frac{x f(1-\varphi)\theta_0}{1-\frac{1}{2}\beta_u(1-\varphi)(1-\theta_0)}$	$x f(1-\varphi)\theta_0$
σ	1	0

The result that the derivatives in [24] hold with respect to all three variables $\{\beta_u, \theta_0, 1-\varphi\}$ follows by simple differentiation. By comparing the entries in the left column against those at the right column at the critical threshold $\{\bar{\beta}_u, \bar{\theta}_0, \bar{\varphi}\}$ the downwards discontinuity is evident. Finally comparing the entries in the left column evaluated at $\{\beta_u = 0, \theta_0 = 0, 1-\varphi = 0\}$ with the entries in the right column evaluated at the critical threshold $\{\bar{\beta}_u, \bar{\theta}_0, \bar{\varphi}\}$ yields [25] and [26]. □

Proof of Theorem 1. By assumption $b^*(X_H) > 0$, and so junior agents cheat with positive probability. HNW clients will be served by G as opposed to new (∅) advisers iff $\lim_{\epsilon\to 0} \mathscr{V}(b) < 0$ where $\mathscr{V}(b)$

[16] Note that $\frac{1}{1+\beta_u} > \frac{1}{1+\sqrt{2}}$ as $\beta_u \leq 1$.

is given in [29].

$$\mathscr{V}(b) \leq 0 \Leftrightarrow \sigma \geq \frac{1}{1-\theta_0}\left(1 - \frac{\theta_0}{1-(1-\theta_0)\frac{1}{2}\beta_u(1-\varphi)\sigma}\right) \quad [49]$$

where we have used the results in §4.1 to write that

$$\theta_{\mathrm{G}} = \frac{\theta_0}{1-(1-\theta_0)\frac{1}{2}\beta_u(1-\varphi)\sigma}. \quad [50]$$

By the IVT there is a unique $\sigma^\dagger > 0$ which satisfies [49] with equality.[17] The mixing probability $\sigma^\dagger$ is generated by a bonus $b^\dagger$ which can be calculated explicitly as a function of $\sigma^\dagger$ from [18]. Hence

$$b > b^\dagger \Leftrightarrow \sigma > \sigma^\dagger \Leftrightarrow \mathscr{V}(b) < 0 \Leftrightarrow [\hbar = \mathrm{G}] \succ [\hbar = \emptyset]. \quad [51]$$

The profit of the fund in the case of HNW clients being served by G advisors is given in [34] and can be written:

$$\Pi(b; X_H) = \Pi(b; x) + (X_H - x) f \mu_H \left(\varphi + (1-\varphi)(1-\theta_{\mathrm{G}})\right) \quad \text{for } b \geq b^\dagger.$$

The function $\Pi(b; x)$ is concave in b and increasing in the range $b \in [\underline{b}, \hat{b}]$ which was established in the proof of Proposition 1. Define the function

$$B(b) := f \mu_H \left(\varphi + (1-\varphi)(1-\theta_{\mathrm{G}}(b))\right)$$

Using the functional form for $\sigma(b)$ given in [18] one can see that $B(b)$ is declining in b over the range $b \in [\underline{b}, \hat{b}]$.[18] By the reasoning of Proposition 1 we have $b^*(X_H) \leq \hat{b}$.

We now establish the theorem in two steps. The first step is to establish that $b^*(X_H) \geq b^\dagger$. Suppose otherwise that $b^*(X_H) < b^\dagger \Rightarrow \sigma(b^*) < \sigma^\dagger$ from [51]. In this case the HNW clients would be served by new advisors, by construction of $b^\dagger$. We would have [35] which we write as:

$$\Pi(b; X_H)|_{b<b^\dagger} = \Pi(b; x) + (X_H - x)C(b) \qquad \text{where} \qquad C(b) = f \mu_H \left(\varphi + (1-\varphi)(1-\theta_0)\sigma(b)\right)$$

Now note that $C(b)$ is increasing in b and recall $\Pi(b; x)$ is increasing in b for $b \in (\underline{b}, \hat{b}) \supset (\underline{b}, b^\dagger)$ so that $\Pi(b, X_H)$ is increasing in b for $b \in (\underline{b}, b^\dagger)$. This establishes that $b^*(X_H) \geq b^\dagger$.

The second stage is to derive the appropriate comparative static. Suppose that $b^\dagger \leq b^*(X_H) < \hat{b}$ for some X_H. Then $\sigma(b^*) \in (0, 1)$. It follows that $\Pi(b^*; X_H)$ is interior and therefore standard first

[17] Compare both sides of [49] evaluated at $\sigma = 0$ and $\sigma = 1$, and note that both sides of [49] are monotonic in σ.

[18] $\frac{\partial \sigma}{\partial b} > 0$ from [18], $\frac{\partial \theta_{\mathrm{G}}}{\partial \sigma} > 0$ from [50] $\Rightarrow B' < 0$.

and second order conditions apply. Therefore

$$\frac{\partial \Pi(b^*; X_H)}{\partial b} = 0, \qquad [52]$$

and is concave at that point: $\frac{\partial^2 \Pi(b^*;X_H)}{\partial b^2} < 0$. So taking differentials of [52] with respect to b and X_H we have

$$\underbrace{\frac{\partial^2 \Pi(b^*; X_H)}{\partial b^2}}_{<0} db + \frac{\partial}{\partial X_H} \frac{\partial \Pi(b^*; X_H)}{\partial b} dX_H = 0 \Rightarrow \frac{db}{dX_H} =_{\text{sign}} \frac{\partial}{\partial X_H} \frac{\partial \Pi(b^*; X_H)}{\partial b} = B'(b^*) < 0$$

Condition [37] follows.

We complete the proof by observing that $\lim_{X_H \to \infty} \frac{\partial \Pi(b;X_H)}{\partial b}\Big|_{b>b^\dagger} =_{\text{sign}} B'(b) < 0$. Given that we have established that the optimal bonus cannot fall strictly below $b^\dagger$, the final result follows completing the proof. □

B. Extension: Guilt Cost

In this appendix we solve an extension of our model in which financial advisors have guilt cost $\gamma \in \mathbb{R}_+$ distributed according to a distribution $G(\gamma)$. In the benchmark model $G(\cdot)$ was degenerate with measure θ_0 having guilt cost of ∞ and the remainder having a guilt cost of 0. The guilt cost γ can be seen as each advisor's type. We hold the bonus offered by the targeted fund constant in this extension.[19]

B.1. Preliminary results

To solve this model suppose that the market equilibrium is characterised by wages $\{w_\emptyset, w_B, w_G\}$. A senior advisor will cheat iff $b < \gamma$, therefore the clients anticipate:

$$\Pr\left(\rho = \mathbb{t} | \tau = \mathbb{s}, \hbar = G\right) = \Pr\left(\gamma < b | \hbar = G\right) \quad [53]$$

$$\text{similarly } \Pr\left(\rho = \mathbb{t} | \tau = \mathbb{s}, \hbar = B\right) = \Pr\left(\gamma < b | \hbar = B\right) \quad [54]$$

Now turn to new advisors and suppose she faces a client such that $\tau = \mathbb{s}$. If the advisor does not cheat then a G badge is guaranteed and so her expected pay is $w_G + b\left(\varphi + (1-\varphi)\mathbb{1}_{\gamma<b}\right)$ where $\mathbb{1}$ is the indicative function which takes a value of one if the condition is true and zero otherwise. If instead the agent cheats her client then she expects to receive

$$b - \gamma + \left(\frac{1}{2} + \frac{1}{2}(1-\beta_u)\right)\left[w_G + b\left(\varphi + (1-\varphi)\mathbb{1}_{\gamma<b}\right)\right] + \frac{1}{2}\beta_u\left[w_B + b\left(\varphi + (1-\varphi)\mathbb{1}_{\gamma<b}\right)\right]$$

Comparing these payoffs we find that a new advisor cheats in the first period if and only if

$$\gamma < b - \frac{1}{2}\beta_u(w_G - w_B) \quad [55]$$

We now confirm that in equilibrium the wage of blemished advisors will be set to the level of the outside option, and so normalised to zero. As a first step we will establish that $w_B < w_G$. The value a client places an a senior client with $\hbar = G$ is

$$v(x, G) = x\left(1 + \varphi(q-f) - f(1-\varphi)\Pr\left(\gamma < b | \hbar = G\right)\right),$$

and similarly for the value when served by a blemished senior, $v(x, B)$. Suppose towards a contradiction that $w_B \geq w_G$. This requires $v(x, B) \geq v(x, G)$ which requires that $\Pr\left(\gamma < b | \hbar = G\right) \geq \Pr\left(\gamma < b | \hbar = B\right)$. But this is a contradiction as a blemish is proof that the guilt cost is bounded above by [55] while no blemish yields that a low guilt cost is less likely. Hence we establish that

[19] This would apply, for example, if the bonus is restricted by an external constraint such as regulation.

$w_{\text{B}} < w_{\text{G}}$. It follows that all agents with a blemish will cheat in the second period.[20] Therefore

$$v(x, \text{B}) = x\left(1 + \varphi(q - f) - f(1 - \varphi)\right)$$

The value clients have for a new advisor is

$$v(x, \emptyset) = x\left(1 + \varphi(q - f) - f(1 - \varphi)G\left(b - \frac{1}{2}\beta_u(w_{\text{G}} - w_{\text{B}})\right)\right)$$

It follows that $v(x, \text{B}) \leq v(x, \emptyset)$, and so

$$v(x, \text{B}) \leq \min(v(x, \emptyset), v(x, \text{G})) \Rightarrow w_{\text{B}} = 0,$$

by market clearing.

We next evaluate explicitly the value clients will place on good seniors. The measure of new advisors entering the second period without a blemish is

$$\frac{1}{2}\left\{1 - \frac{1}{2}\beta_u G\left(b - \frac{1}{2}\beta_u w_{\text{G}}\right)\right\}$$

as all advisors whose guilt cost satisfy [55] cheat in the first period and hence receive a blemish with probability $\frac{1}{2}\beta_u$. We also use the fact that the total measure of each population is $\frac{1}{2}$. The measure of G advisors cheating in the second period is

$$\frac{1}{2}\left\{G(b) - \frac{1}{2}\beta_u G\left(b - \frac{1}{2}\beta_u w_{\text{G}}\right)\right\}$$

These are all the G advisors whose guilt cost is below b, but removing those that recorded a blemish in the first period of their careers. So dividing one by the other we establish

$$\Pr\left(\rho = 𝕥 | \tau = 𝕤, \hbar = \text{G}\right) = \frac{G(b) - \frac{1}{2}\beta_u G\left(b - \frac{1}{2}\beta_u w_{\text{G}}\right)}{1 - \frac{1}{2}\beta_u G\left(b - \frac{1}{2}\beta_u w_{\text{G}}\right)}.$$

We can now solve the model by establishing the wages of seniors. As all clients have the same wealth, x, we require firms to be indifferent between hiring a blemished or a good senior advisor:

$$\pi(x, \text{B}) = \pi(x, \text{G}) \quad [56]$$

$$\Rightarrow v(x, \text{B}) = v(x, \text{G}) - w_{\text{G}} \quad [57]$$

[20] As $b - \frac{1}{2}\beta_u(w_{\text{G}} - w_{\text{B}}) \leq b$.

$$\Rightarrow w_G = xf(1-\varphi)\frac{1-G(b)}{1-\frac{1}{2}\beta_u G\left(b-\frac{1}{2}\beta w_G\right)} \qquad [58]$$

The total amount of misconduct perpetrated in this economy will be an important measure of the market's performance. We label this as M and

$$M = \frac{1}{2}(1-\varphi)\left[G\left(b-\frac{1}{2}\beta_u w_G\right)+G(b)\right]$$

Note that misconduct M is negatively related to the wage of seniors:

$$\frac{\partial M}{\partial w_G} < 0 \qquad [59]$$

The larger the wage of good seniors the greater the career concerns of young advisors and so the less misconduct there is overall.

B.2. Changes in guilt

We can now explore the effect of changes in the distribution of the guilt cost on market wages and levels of misconduct, holding the bonus b constant. To study this we suppose that the distribution of guilt cost is given by a distribution parametrised by ζ:

$$G_\zeta(\gamma) := G(\gamma) + \zeta F(\gamma) \qquad \text{with } \zeta > 0 \text{ small.}$$

We allow for a general perturbation of the guilt costs through F with the following general definition. Define any three points $b_1 < b_2 < b_3$ such that $b_1 < b - \frac{1}{2}\beta_u w_G$, $b_2 \in (b - \frac{1}{2}\beta_u w_G, b)$, and $b_3 > b$. Define any three real numbers $\left\{\eta_i : \eta_i \in \mathbb{R}, i \in \{1,2,3\}, \sum_{i=1}^3 \eta_i = 0\right\}$. Then let the perturbation F satisfy

$$F(\gamma) = \begin{cases} 0 & \gamma < b_1 \\ \eta_1 & \gamma \in [b_1, b_2) \\ \eta_1 + \eta_2 & \gamma \in [b_2, b_3) \\ 0 (= \sum_{i=1}^3 \eta_i) & b \geq b_3 \end{cases} \qquad [60]$$

The perturbation $F(\cdot)$ captures that mass is moved between the points b_1, b_2 and b_3. An example of this is Figure 5 which shows mass moving to lower guilt costs.

Proposition 3. *The impact on the wage of good seniors satisfies*

$$\frac{\partial w_G}{\partial \zeta} < 0 \Leftrightarrow \eta_2 > -\eta_1 \cdot \alpha \qquad [61]$$

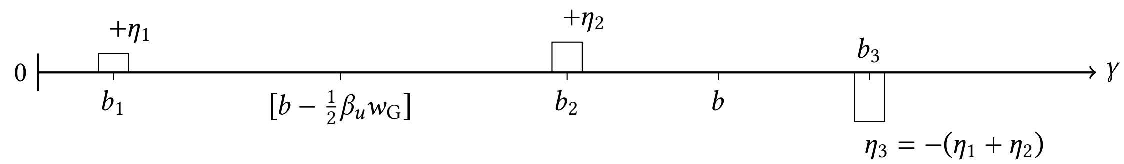

Figure 5: Example permutation of measure captured by $F(\cdot)$.

For $\alpha \in (1 - \frac{1}{2}\beta_u, 1)$ *and explicitly given by*

$$\alpha = 1 - \frac{1}{2}\beta_u \frac{1 - G(b)}{1 - \frac{1}{2}\beta_u G(b - \frac{1}{2}\beta_u w_G)}$$

Proof. The equilibrium senior wage w_G for $\zeta > 0$ is given in [58] as:

$$w_G = xf(1 - \varphi)\frac{1 - G_\zeta(b)}{1 - \frac{1}{2}\beta_u G_\zeta\left(b - \frac{1}{2}\beta w_G\right)}$$

The left hand side of this expression is increasing in w_G, while the right hand side is declining. Only the right hand side is affected by ζ. We have

$$\left.\frac{\partial \text{RHS [58]}}{\partial \zeta}\right|_{\zeta=0} = -\left(1 - \frac{1}{2}\beta_u G\left(b - \frac{1}{2}\beta_u w_G\right)\right)(\eta_1 + \eta_2) + (1 - G(b))\frac{1}{2}\beta_u \eta_1$$

It follows that

$$\left.\frac{\partial \text{RHS [58]}}{\partial \zeta}\right|_{\zeta=0} < 0 \Leftrightarrow -\eta_2 < \eta_1 \left[1 - \frac{1}{2}\beta_u \frac{1 - G(b)}{1 - \frac{1}{2}\beta_u G(b - \frac{1}{2}\beta_u w_G)}\right],$$

as required. □

Recall that the amount of misconduct is inversely proportional to the wage of good senior advisors. We can now establish how the amount of misconduct in the population changes in response to changes in the distribution of guilt costs amongst financial advisors:

Corollary 3. *If the distribution of guilt costs changes according to the deformation* $F(\cdot)$ *given in* [60] *then*

(i) Increasingly unethical: *Suppose that mass moves down such that* $\eta_1, \eta_2 > 0$ *then misconduct rises:* $\partial M/\partial \zeta > 0$.

(ii) Increasingly polarised: *Suppose that mass is removed from* b_2 *and added to* b_1 *and* b_3 ($\Rightarrow \eta_1 > 0 > \eta_2$) *then misconduct falls:* $\partial M/\partial \zeta < 0$.

(iii) Increasingly ethical: *Suppose that mass moves up such that $\eta_1, \eta_2 < 0$ then misconduct falls: $\partial M/\partial \zeta < 0$.*

The amount of misconduct is governed by the career incentives created by the wage w_G. In turn the wage is a measure of how confident clients are that G advisors have guilt cost high enough that they will not cheat even at the end of their careers. The regulator provides a technology which can capture some of the most unethical advisors – those with guilt cost below $b - \frac{1}{2}\beta_u w_G$. These are the advisors who cheat in the first period, and some of these will be caught. The clients are left to worry about those advisors with guilt cost high enough to be induced by career concerns to mask their type by not cheating early on, but with guilt cost low enough that they will cheat at the end of their careers. If the permutation of guilt cost changes to hollow out this centre and push advisors to the extremes, then a G badge becomes more valuable to the client. This pushes up senior unblemished wages, and the higher career concerns lowers misconduct overall.

Proof of Corollary 3. For part (i), $\eta_1, \eta_2 > 0$ implies that [61] holds, therefore $\partial w_G/\partial \zeta < 0$, and therefore $\partial M/\partial \zeta > 0$. For part (ii), we must have $\eta_1 \leq |\eta_2|$. It follows that $\eta_2 \leq -\eta_1 < -\eta_1 \cdot \alpha$. It follows from Proposition 3 that $\partial w_G/\partial \zeta > 0$, and therefore $\partial M/\partial \zeta < 0$ by [59]. For part (iii), $\eta_1, \eta_2 < 0$ implies that [61] doesn't hold and so the proof follows as above. □

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