

The need for effective investor-borrower protection

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1. Introduction

The last decades have seen a substantial increase in the pace of financial innovation, with new and ever more complex financial products appearing on the market for retail investors. This goes hand in hand with consumers being swamped with an overwhelming amount of information. Simultaneously, households are now expected to rely on their own knowledge and abilities to navigate financial markets. They are forced to take on responsibility for their own financial welfare and need to make financial decisions ranging from pension plan contributions to choosing the right debt instruments to adequately finance home purchases, exposing them to the risk of delinquency.

However, the household finance literature provides ample evidence of financial instruments utilisation resulting in harmful outcomes for investors. Research focused on household stock trading (Barber and Odean, 2001; Barber et al., 2009) has found that households overtrade stocks located in brokerage accounts, resulting in diminished wealth generation caused by exorbitant transaction costs. Barber and Odean (2000) analyse a data set from a large discount brokerage firm containing information on the investments of 78,000 U.S. households and observe that households with the most trades earn an annual return of 11.4 percent, which they contrast to the market return of 17.9 percent in the same period. Furthermore, they discover that the average household turns over 75 percent of its portfolio annually.

A pervasive, perplexing phenomenon first observed by Morrison (1998) has consumers rolling over high-interest credit card debt despite simultaneously being in possession of low-interest liquid assets, which a financially savvy (“rational”) household would use to pay down the revolving debt. Researchers have dubbed this phenomenon the credit card debt puzzle. These very liquid assets are usually held in checking and savings accounts with interest rates well beyond one percent in most developed countries. On the other hand, according to data from the Federal Reserve, the average credit card interest rate in the U.S. is 14.65 percent.

Using the 1995 Survey of Consumer Finances, Bertaut and Haliassos (2006) establish that an astonishing 39 percent of credit card revolvers have the necessary liquid assets to pay off their balance in full. There are multiple reasons for such outcomes. Firstly, a customer may be faced with an unfamiliar, extraordinarily complex financial

product. It is also possible that the buyer is financially unsophisticated. Suboptimal decision-making brought about by cognitive biases can never be completely eliminated.

In this paper, the market for financial advice needs to be examined first. Financial advisers theoretically serve as informed individuals who are able to provide households with the essential information they need to make reasonable financial decisions. However, this is often not the case in practice because advisers are tempted to enrich themselves at the expense of their clientele. Moreover, motivations behind adviser misconduct are explored. This is done in the context of misselling and, while largely applicable to financial markets, can also apply to other industries where marketers profit from convincing customers that products are worth more than they are inclined to believe.

When it comes to household financial decisions, the topic of efficient regulation cannot be ignored. Regulation can prevent households from falling into pitfalls that would lead to overwhelming debt accumulation or even delinquency. That is why regulation plays a vital role in improving household outcomes. Nevertheless, regulation is only one component in the comprehensive framework consisting of financial education and financial literacy provision, nudging and rules of thumb, and other mechanisms that rely on the findings generated by behavioural economics and cognitive science.

2. The Market for Financial Advice and Financial Adviser Misconduct

In order to understand the reasons behind the growing interest in the market for financial advice in the literature on household finance, its contribution to economic activity in general and household consumption in particular needs to be illuminated. Measured by revenue, the total size of the market adds up to \$52.9 billion in 2021. Between 2016 and 2021, the average annual growth rate has been 2.1 percent. From 2020 to 2021, the market is expected to increase by 3.5 percent. The factor that has shaped the development of the financial advice market the most significantly during the last two decades is the increasing median age of the population. The consequence is that demand for retirement planning services and other industry services focused on capital preservation and estate planning has skyrocketed.

For many retail investors, consulting with a financial adviser is an inseparable part of conducting financial market transactions. The survey carried out in Hung et. al. (2008)

revealed that 73% of participants consult a financial adviser before purchasing mutual fund or company shares. Furthermore, a significant, continuously increasing segment of the population has been relying on professional financial advice in the belief that doing so is a necessary prerequisite to making a reasonable, informed consumption or investment decision. The results of the CFP board's 2015 survey show that in the United States, consumer use of financial advisers has grown dramatically, with the number rising from 28 percent in 2010 to 40 percent in 2015, constituting an increase of roughly 43 percent.

Consequently, investigating if financial advisers dispel biases (also known as de-biasing in behavioural economics) that inhibit retail investors from making welfare-enhancing financial decisions has never been more important. Following biases can severely hurt household financial performance, as documented in the literature on behavioural biases (Baker and Nofsinger, 2002; Ricciardi, 2008; Baker and Ricciardi, 2014). The arguably best-known bias is the disposition effect. This is the propensity to sell stocks that have appreciated in price since purchase ("winners") too early and to hold on to losing stocks ("losers") too long.

The disposition effect occurs because investors feel inclined to sell winning investments in order to turn a profit, yet are averse to selling losing investments in hopes of eventually turning them into gains. It is harmful insofar as, aside from resulting in lower returns, investors might also have to pay higher capital gains taxes. Other biases include representativeness (gauging investment attractiveness based on recent performance), familiarity bias (preference for familiar investments; often leads to underdiversification), or self-attribution bias (attributing successful outcomes to one's own actions and bad outcomes to external factors).

Financial advice has the potential to correct possible mistakes investors would make without the provision of such a service. There are different ways to define what constitutes useful financial advice. In general terms, any advice that leads to the improvement of the financial well-being of the advisee in the realm of the topic that was discussed during the consultation may be viewed as useful. More specifically, Mullainathan et al. (2012) describe useful advice as advice that aims to convince a customer to invest in a low-cost, diversified index fund. They chose this type of

investment due to it being a textbook example of an investment that even inexperienced investors can navigate with relative ease (Carhart, 1997).

One of the major obstacles to the efficiency of the market for financial advice is encountered in the form of people's perceptions of useful advice and independent advice. It appears that small investors are not conscious of the fact that adviser interests often do not synchronise with their own interests. They fail to account for incentive structures that distort advisers' intentions and follow recommendations to the letter even though, as one study found, advisers make "buy" and "strong buy" stock recommendations in over 90% of cases (Malmendier and Shanthikumar, 2007).¹ A European Survey with a few thousand participants conducted by Chater, Inderst, and Huck (2010) also discovered that advisers' conflict of interest tends to be ignored by retail investors.

Considering that awareness of conflict of interest permeating many adviser-client relationships is a blind spot for many investors, it is highly probable that investors are capable of appreciating the services rendered by advisers who truly act in the best interests of their clients. If it is not possible for such advisers to attract larger numbers of customers compared to colleagues who act in bad faith, their business model of directing clients towards relatively low-fee products puts them at a disadvantage.

The outcome is that advisers acting in good faith are faced with two options: give in to the pressure of competition and start displaying a bias towards high-fee funds in recommendations or continue putting advisees' interests ahead of your own and risk being forced out of the market. The first big investment management company to offer low-cost index funds and become a victim of its reliance on these funds was Vanguard. Because it turned out that consumers were highly susceptible to advertisements made by Vanguard's competition, who operated much more costly funds, the company had to introduce similarly costly products to keep up (Bogle, 2015).

Mullainathan et al. (2012) conduct an audit study with the goal of finding out whether advisers de-bias their clients or instead amplify existing biases in such a way that adviser fees and turnover are increased. For this purpose, four different portfolios are constructed and auditors randomly assigned to those. The losses that can be triggered by auditors acting on their biases are of a comparable magnitude for each portfolio

¹ Large traders, on the other hand, adjust their trading response to the upward distortion.

because advisers could be more hesitant to reinforce biases with more severe consequences. A crucial benefit of this study design consists in the lack of self-selection of different types of clients to different types of advisers.

The first portfolio has the auditor invest 30% in one sector exchange traded fund whose performance in the previous year was stellar. This auditor's stated aim is to identify more industries that have done well recently (trend trading). Portfolio theory dictates that this auditor diversify their portfolio. However, it is in the adviser's interest to persuade the auditor to retain a low level of diversification and to simply shift a large portion of the investment from one industry to another every now and then. Swaying the auditor into one-time diversification does not generate nearly as much fee income.

The second portfolio scenario is designed in such a way as to be lacking a conflict of interest between adviser and auditor. In this situation, the auditor holds 30% of his portfolio in the company stock of their assigned employer. The adviser has an incentive to rebalance the portfolio and generate fees in the process. To accomplish this, they need to mitigate the effects of the auditor's bias. The auditor, on the other hand, would benefit from a well-diversified portfolio. Remember that diversification is important because spreading capital amongst different investments ensures that an investor is not reliant upon a single investment for their returns (Statman, 1987).

In contrast to the first two scenarios, auditors were provided with a well-diversified, low-fee portfolio with investments in U.S. bonds and index stock funds in the third scenario. Observing adviser behaviour in this case is interesting because if an adviser moves the auditor from this efficient allocation to an actively managed portfolio with an equivalent Sharpe ratio, but significant management fees, they are most likely not acting in good faith. However, it is also important to note that the portfolio lacks international diversification², indicating that an adviser acting in the interests of the auditor would encourage the auditor to increase exposure in foreign assets.

The last portfolio consists of short-term certificates of deposit and the auditors assigned to it serve as the control group in the field experiment in Mullainathan et al. (2012). Here, the auditor is aware that their investment strategy is suboptimal and

² Such a portfolio often implies the presence of home bias, which refers to investors' tendency to possess shares of domestic assets and avoid foreign assets. It is one of a few manifestations of the previously mentioned familiarity bias.

explicitly communicates a desire to invest their money in riskier assets in order to increase returns. Notably, the auditor does not possess any preconceptions towards any investment strategy, unlike auditors in the treatment groups.

Mullainathan et al. (2012) find that advisers' reaction when first hearing about the original investment strategy of the auditor could often not be more different from the course of action that was later suggested. While it is true that auditors investing in employer stock or returns-chasers initially received mixed responses from advisers, index fund portfolios were received overwhelmingly positively. If advisers were behaving honestly towards auditors, they would have had an unequivocally negative response when introduced to such inefficient asset allocations.

The company stock portfolio receives the fewest positive reactions at the beginning of the consultation (12.9% of cases). Returns-chasing and index portfolios were more often met with positive responses, with 16.5% returns-chasers and 24.4% index fund investors receiving positive reactions. This outcome could mean that advisers are worried that auditors would be less likely to listen to their advice if they disapproved of the investment strategies clients had committed to before the first consultation, as people tend to be sensitive to criticism, even if it is well-meaning.

Even though this first response tends to not be negative, the results do not indicate that the fear of losing potential customers diminishes the investment strategies menu the adviser can draw upon to make recommendations. Evidence for this is found in the fact that advisers move investors from their original portfolios to different allocations, regardless of whether doing so improves portfolio performance. Put another way, "fee-chasing" behaviour exhibited by advisers is not restricted by either the near-efficiency of pre-advice asset positions nor by such advice producing outcomes that are diametrically opposed to clients' interests.

There is also reason to believe that financial advisers collect demographic characteristics of their clientele, but ignore the information when offering advice and selling products to customers. Mullainathan et al. (2012) reveal that in the large majority of adviser-client meetings (over 75% in the study sample), advisers inquire about customer demographic characteristics, which is the first step towards understanding the needs and preferences of their customers and providing suitable financial products. This nonetheless does not deter them from giving advice that

maximises fee income and might even leave households worse off than they were previous to acting on the advice.

3. A Model of Misselling

This section's primary focus revolves around misselling and the underlying agency problem. Conditions that exacerbate the problem and potential remedies are also discussed in more detail.

Misselling refers to the practice of deliberate omission of essential information or the provision of misleading advice on the part of a salesperson in an effort to sell a product whose features are not compatible with the customer's needs and preferences. In the market for financial products, misselling is often encountered in commercial banking and asset management. Retail customers interested in taking out a mortgage or buying mutual fund shares are commonly paired with financial advisers. In theory, advisers are supposed to provide customers with relevant and unbiased information on financial decision-making and offer fitting products. Nevertheless, financial advisers have been found to repeatedly engage in misselling (Anagol et al., 2013; Fecht et al., 2013).

Inderst and Ottaviani (2009) examine misselling from the perspective of a firm whose employees perform both the task of acquiring new customers for the firm and providing potential buyers with advice pertaining to the suitability of products. The paper argues that businesses with such internal sales and marketing structures are particularly susceptible to misselling, as opposed to entrepreneurial companies where marketing and advisory duties are carried out by the owner of the firm.³ This is mainly attributable to the problems arising from the principal-agent relationship between the company and its hirees.

The basic premise behind the principal-agent relationship is that the principal designates the agent as their legal representative, but the two entities have conflicting interests. This conflict leads to suboptimal results if either the firm or a third party (e.g. regulatory authority) does not intervene. In the case presented in Inderst and Ottaviani (2009), the firm's (principal's) goal of profit maximisation can only be achieved under the condition that the employees (the agent) dutifully increase the firm's customer base. However, advising potential customers and convincing them to purchase the

³ Common examples found outside the finance literature include notaries, lawyers, physicians, and veterinarians.

firm's products is associated with considerable effort. The firm's personnel are only interested in minimising the amount of exerted effort given a certain compensation⁴.

Consequently, assuming a fixed monthly remuneration, employees solve the utility maximisation problem by choosing to exert the lowest level of effort possible. In the absence of monitoring, employees exert no effort whatsoever. Employees exert effort by inquiring about customers' financial status, tax status, investment objectives, and other information pertinent to offering helpful advice, as outlined in NASD Conduct Rule 2310(b). While comparable rules or legislation may not exist in countries other than the United States, asking about such information is consistent with modern portfolio theory and has become established as a best practice among financial advisers.

"Other information" usually refers to individual and household characteristics such as occupation, income and savings, marital status and many other demographic characteristics. Those attributes may be used to determine risk preferences, investment time horizon and human capital risks, among others. Only with this knowledge can adequate advice be provided. In Inderst and Ottaviani (2009), it is assumed that the quality of the advice or the number of customers that receive correct advice increases proportionally with the amount of exerted effort. A complete lack of effort would be akin to employees refusing to even talk to potential customers, let alone engage in persuasion attempts

In practice, monitoring efforts range from the most rudimentary keeping of written records of adviser-customer conversations to the more sophisticated use of video cameras to visually observe employee activities. Principal-agent models are almost exclusively based on the assumption of non-zero monitoring efforts, confirming that the idea of employees exerting no effort whatsoever merely illustrates the motivation behind implementing monitoring systems.

As beneficial as monitoring may be, its major drawbacks are the cost factor and its inability to be all-encompassing. As of yet, monitoring technology whose average cost tends towards zero has not been discovered. In the context of computer software development, Microsoft requires substantial funds to create a new version of the Windows operating system, but the marginal cost of each additional Windows copy

⁴ Alternative formulation: maximising compensation given a certain amount of exerted effort.

approaches zero (Reddy et al., 2002). In a scenario where government subsidies to Microsoft are sufficiently high, Microsoft bears almost no costs for both developing the operating system and producing any number of copies.

Thus, most employers opt to combine it with a compensation scheme that incentivises hires to carry out their obligations to a satisfactory degree. Such a scheme usually takes the form of a monthly wage that consists of a fixed and a variable component, where the latter is dependent on the number of new customers acquired by the employee.

Regrettably, encouraging employees to work more vigorously towards the acquisition of new clientele has unintended consequences: the frequency and severity of misselling is increased. Employees realise that the most effective way to expand the customer base and therefore increase their own salary is by advising purchase indiscriminately, irrespective of the demographic characteristics and risk preferences of their advisees. Notably, this dynamic does not exist when employee remuneration is solely of a fixed nature.

Certain conditions exacerbate the issues arising from the principal-agency relationship even more. Under the condition that the effort exerted by the employee remains unchanged, increased competition in the market results in a decrease in the number of new customers an employee is able to interest in the firm's products. This inevitably induces employees to be less careful in matching customers with appropriate products, similarly to when variable compensation is introduced.

The underlying cause behind recommending purchases more liberally can be best explained by framing it in terms of a simple effort-advice quality trade-off problem. Employees are confronted with the choice between exerting considerable effort and earning a salary close to the industry average whilst simultaneously advising customers correctly; and attracting a larger number of new customers and therefore receiving a higher pay, but exerting significantly less effort due to advising purchases even to individuals who would have been better off had they not listened to the advice.

In a basic economic model that assumes rational actors, employees will always choose the latter course of action because it leads to an optimal outcome by increasing compensation and reducing cost (exerted effort) compared to the behaviour in the former case. Because the relationship between utility and compensation is positive,

and utility and amount of exerted effort display an inverse relationship, from a utility maximisation standpoint, the preference for combining less exerted effort with higher remuneration is unambiguously greater than for the opposite scenario.

This standard model can be expanded by adding insights from cognitive science and behavioural economics. For example, an employee might partially derive their self-esteem and experience gratification from altruistically improving customers' lives by equipping them with the knowledge and products they need to improve their financial well-being (Feng and Guo, 2017). Alternatively, they might want to positively influence customer outcomes, but are marred by preconceptions preventing them from achieving the intended goals, possibly causing them to harm customers in the process.

Mullainathan et al. (2012) found that financial advisers suggested to their female clients to hold a higher share of liquid assets, asked them to be less internationally exposed, and pushed them less frequently to acquire shares in actively managed funds. While the first point could possibly be justified by the fact that women are on average more risk-averse than men, this possible explanation does not seem very likely because women would have then been advised to invest more in bonds and less in stocks, which did not occur. In fact, female clients were advised to invest markedly less in both asset classes. This behaviour therefore indicates that financial advisers based some of their advice on customers' gender and not on personal attributes that are more pertinent to certain financial decisions.

However, Inderst and Ottaviani (2009) do not incorporate cognitive biases into their analysis of the incentives prompting employees to engage in misselling because the primary focus of their work is the principal-agency relationship between employer and employees instead. Still, it is possible to make a convincing case that even if psychological phenomena significantly influence employee misselling, the direction of the effect is in actuality the same as that of the effect determining the behaviour of the homo oeconomicus in the principal-agent model.

The relationship between money and existential dread has been well-documented (Zaleskiewicz et al., 2013a; Zaleskiewicz et al., 2013b) and was first derived from earlier findings establishing a connection linking money and anxiety (Lim and Teo, 1997; Lim and Sng, 2006). Employees whose remuneration is suddenly supplemented by a variable element may fear earning below industry average. On the other hand,

they could fear losing their job because the employer implicitly measures performance by customer acquisition and judge that the employee is not doing their job properly.

Other reasons behind recommending purchases indiscriminately include employees' fear of earning a pay significantly below the industry average, and their desire to earn a handsome reward for selling the firm's products to a larger customer base. A key mechanism driving indiscriminate sales recommendations is the firm's tying of hires' remuneration to a steeper model of incentivisation to increase employee motivation. Steepness of incentivisation refers to the relationship between an employee's wage and the number of customers they acquire.⁵ An increase in steepness implies that the employee's compensation is more dependent on the number of acquired customers.

Another situation that intensifies misselling is when customer acquisition is extraordinarily cumbersome. In that case, a firm might be tempted to shift the balance between the fixed and variable component of employee compensation in favour of the latter due to fear of employee idleness. Attracting new customers is more difficult if customers are less familiar with the products offered by the company, which is ascribable to either the novelty of those products or the fact that the company is a recent entrant to the market.

Companies may mistakenly believe that it is in their best interest to keep customers ignorant about the commission structure. In reality, customers are arguably more wary of buying products from firms that do not disclose information on employee remuneration because they reasonably suspect that such firms' suitability standards⁶ are relatively low. Ironically, if customers are inclined to pay less for products because they do not trust the firm, the firm will not be as concerned about maintaining a relatively high suitability standard.

However, even if a firm is keen to divulge such information, voluntarily information disclosure is in practice not trustworthy for two reasons; firstly, it is possible for a firm to provide its employees with implicit incentives that are not discernible on simple disclosure forms. Secondly, consumers could be unsure whether the information

⁵ It is also possible to define steepness as the relationship between an employee's compensation and the number of products they sell. However, customer acquisition does imply that a transaction occurred.

⁶ Defined as the firm's tolerance towards employees selling unsuitable products to customers. If a company enforces a higher suitability standard, misselling is less extreme.

provided is truthful and expect the firm to bet on customers not finding out the truth. A client can file a lawsuit against the company if they suspect that they were being misled. Unfortunately, many individuals are not able to make use of that possibility because legal proceedings are highly stressful, expensive and time-consuming.

Consequently, a firm needs to visibly signal its commitment to transparency to stimulate customers' willingness to pay more. This could be achieved by joining a self-regulatory organisation such as the Financial Industry Regulatory Authority (FINRA). However, Inderst and Ottaviani (2009) demonstrate that the suitability standard implemented under self-regulation is not high enough from a welfare optimisation standpoint. This is explained by the intuitive fact that corporations are hesitant to self-impose and enforce rules and standards as strict and binding as regulation implemented by government. The authors posit that instead, policymakers should step in and make disclosure of information on remuneration mandatory, thereby enhancing the credibility of disclosure.

The disadvantages of self-regulation are not limited to information disclosure. The threat of incurring penalties for employee misconduct does not serve as a credible commitment mechanism in the self-regulation scenario. Consumer suspicions towards self-regulations may be warranted. According to a review by Heilizer and Rubin (2007), FINRA has been scaling back its efforts to impose fines and enforce disciplinary actions. The number of disciplinary actions where supersized fines (fines exceeding \$1 million) were obtained plummeted from 35 in 2005 to 19 in 2006. Similarly, 2005 saw seven actions with fees over \$5 million, whereas only three are recorded for 2006. Moreover, fines collected by FINRA have been on a steep decline, totalling \$148.5 million in 2005, \$25.9 million in 2008, \$47.6 million in 2009 and \$42.2 million in 2010.

Therefore, government might be more successful in credibly signalling to customers that if a firm engages in misselling, it will be sanctioned appropriately. Accordingly, customers become willing to pay more for the firm's products because they expect the firm to abide by a higher suitability standard. These expectations are accurate: under circumstances where customers are willing to pay more, businesses are less concerned with the prospects of acquiring new customers and therefore more hesitant to lower the suitability standard. Furthermore, they are less eager to increase the steepness of

employee compensation, eliminating another factor that plays a role in exacerbating misselling.

Selling indiscriminately does not mean employees get away with that completely. However, because the firm does not want to get sued, it will implement certain monitoring mechanisms that will force the employees to abide by a certain standard. Therefore firms do have reason to prevent misconduct on the side of their sales force. In the United States, securities firms tend to be members of the Financial Industry Regulatory Authority (FINRA).

FINRA requires financial advisers to provide customers with advice that is suitable to their financial situations and needs. As collecting relevant information (e.g. overall financial situation, tax status, investment objectives) on customers is a prerequisite to offering sound advice, this is mandated by FINRA as well. Punishments for not acting in accordance with the rules set forth by FINRA include fines, suspensions and the barring of individuals from associating with any FINRA members.⁷ Furthermore, customers can file complaints against company hirees, alleging advisory misconduct. Even if these do not succeed, a company is obligated to bring any complaint to the attention of FINRA, which then makes these publicly available on its website⁸; and written customer complaint records need to be preserved in the appropriate offices for a period of at least four years.⁹

Going through FINRA to seek redress for misconduct is accompanied by higher chances of success due to the stricter standards associated with proving beyond a reasonable doubt (in front of a court of law) that misconduct occurred. On the other hand, it is clear that in the latter case, damages paid to compensate the harm caused to the claimant are much higher. Last but not least, firms must consider the potential damage to their reputation incurred by inappropriate adviser behaviour.

As a consequence, a firm cannot simply let financial fraud or misconduct perpetrated by its hirees go unpunished. However, detecting misbehaviour through internal

⁷ A list of disciplinary actions for any given year can be found under the following link: <https://www.finra.org/rules-guidance/oversight-enforcement/disciplinary-actions>.

⁸ <https://www.finra.org/investors/learn-to-invest/choosing-investment-professional/about-brokercheck/customer-complaint>.

⁹ <https://www.finra.org/rules-guidance/rulebooks/finra-rules/4513>.

monitoring is costly.¹⁰ Accordingly, a firm must compare the expected damage incurred due to regulatory sanctions or legal penalties to the size of expenses devoted to preventing or reducing misconduct. An increase in the expected monetary value of legal and regulatory action faced by the firm and a decrease in monitoring costs causes a reduction in the firm's tolerance towards misselling, and vice versa.

Inderst and Ottaviani (2009) warn that a fact often overlooked by regulators is that a one-size-fits-all approach towards reducing the severity and frequency of misselling is not tenable. The reason for this is that the acuteness of the problem differs significantly between firms who hire third party financial advisers that are responsible both for prospecting new customers and providing product advice and companies that do not outsource marketing and advisory duties, assigning these tasks to their own personnel instead.

Policymakers need to be aware of this distinction. Ideally, different regulatory standards would apply to firms with different internal sales and prospecting structures, even within the same industry. Considering that implementation of such a regulatory framework might not be viable in reality, it should at the very least be viewed as a utopian state worth replicating as closely as possible.

4. A Regulatory Framework

Regulation can be separated into two broad categories, depending on the object or subject whose production, distribution, utilisation or behaviour is directly targeted: product-based and user-based regulation. While the former is often associated with prohibitions imposed directly on products, the latter prescribes that households possessing certain demographic characteristics are not permitted to engage in the selling or purchasing of products that are deemed too complicated, risky or unreliable for such households.

4.1 User-Based Regulation

Policymakers are often worried that consumers or retail investors could find themselves acquiring financial assets or debt instruments that they are wholly

¹⁰ Companies can encourage customers to provide feedback and file customer satisfaction surveys to gain additional information on adviser behaviour. Questions should be designed in such a way that they induce customers to provide relevant, non-trivial and specific answers. In addition, some firms produce and keep transcripts of adviser-customer meetings to more easily resolve disputes.

unfamiliar with and underestimate the potential negative consequences of mishandling those assets. Even under the assumption that those households do possess some knowledge on the financial assets or debt instruments they are acquiring, it is possible that the amount of knowledge is not sufficient to adequately put these to use or the information is not interpreted correctly because the importance of some aspects of the financial instruments is either undervalued or overvalued.

Interestingly, not all investors are similarly likely to become victims of their own cognitive limitations and the complexities of financial markets. There are certain personality traits and demographic characteristics that can be used to predict household financial outcomes. Because of that, policymakers could implement user-based regulation and make access to certain financial instruments conditional on an investor possessing some of those characteristics. Investors that do not fulfil the criteria would be barred from acquiring those instruments and thus prevent them from bringing financial harm upon themselves or their social environment.

The idea behind user-based regulation is consistent with much of the existing literature in household finance. As this literature has shown, investor and borrower characteristics correlate with or influence financial behavior. These include resources (wealth, income, occupational status), knowledge (education, financial literacy, awareness, cognition, familiarity), attitudes and preferences (willingness to take risk, patience, investment horizon, reasons for saving and for borrowing, behavioral biases such as overconfidence), expenditure commitments (e.g., arising from household size, mortgage or other installment obligations), and access to credit (borrowing constraints, ability to raise funds at short notice).

While it is a well-known and long-established fact among researchers on household financial behaviour that there is a strong relationship between demographic characteristics and financial conduct, in order for user-based regulation to fulfil its goals whilst simultaneously not hampering the potential for investors to use financial instruments to enhance their well-being, the relationships between investor or borrower characteristics need to be considered as well. The logic behind this sentiment is not complicated: if access to financial instruments is to be denied to certain subgroups of the population, it is necessary that demographic characteristics used as

access criteria allow policymakers to unambiguously identify subgroups that should be excluded from participation.

To further elaborate on this idea, let us first recall some of the household characteristics that have been found to affect household behaviour. Financial resources, such as wealth and income, being male, married, highly educated and of advanced age, and possessing more financial knowledge are all traits that tend to be positively correlated with risk-taking (Grable, 2000). Extremely wealthy individuals have been found to own a disproportionate share of risky assets, particularly private equity, and experience greater volatility of consumption (Roussanov, 2010). Women are much less likely than men to participate in the stock market (van Rooij et al., 2011; Almenberg and Dreber, 2015).

In the next step, relationships between some of these characteristics are discussed. Women tend to exhibit lower levels of financial literacy (Lusardi and Mitchell, 2008), are more risk-averse (Wagner, 2001) and are better at delaying gratification than men. They also tend to be poorer than male households.

It is now time to examine why the relations amongst characteristics that also affect financial behaviour need to be considered when deciding whom to prevent from using certain financial instruments. Intuitively, it seems sensible to reason that high-income households should most assuredly not be barred from making some of the riskiest financial investments (e.g. pertaining to junk bonds, hedge funds or leveraged ETFs) because they tend to possess a higher level of education and financial literacy than people with less income.

However, one could argue that allowing high-income households to behave that way does not square with the fact that these individuals will invest a large amount of their money into their own company and thus expose themselves to the risk of losing most of their income all at once in case their company ceases operations. They do this in the belief that such behaviour will allow them to generate even more income. The ultimate goal is to increase social standing compared to households with less income. This phenomenon is called “getting ahead of the Joneses” (Roussanov, 2010). That is why different demographic characteristics should simultaneously be taken into account when deciding which characteristics to categorise as factors that allow or bar households from engaging in certain financial behaviour.

4.2 Product-Based Regulation

Product-based regulation aims to identify the intended and potential uses of financial innovations and to pre-empt abuse by practitioners or misuse by investors. To achieve this, regulators consult the literature on financial theory. However, theoretically plausible predictions of a product's use and the resulting consequences may not correspond to the actual outcomes. Credit default swaps are a prime example of a financial product whose theoretical harmlessness could not have been in starker contrast to the ramifications observed after its introduction.

So unremarkable is a credit default swap that its "dullness" is rivalled only by insurance contracts. Simply put, it is a financial derivative that allows an investor to "swap" or offset their credit risk with that of another investor. As an example, imagine that a firm purchases a corporate bond. To protect against borrower default, the firm buys a credit default swap from a third party, which agrees to pay the outstanding amount if the borrower defaults.

As innocuous as credit default swaps may seem, they are often identified as one of the major causes of the financial crisis of 2007-2008. In mid-2007, the total value of all credit default swap contracts exceeded \$45 trillion. To put that into perspective, the United States stock market held \$22 trillion. When Lehman Brothers, which owed \$600 billion in debt (where \$400 billion was covered by credit default swaps), declared bankruptcy, the Federal Reserve had to bail out American International Group, one of the companies that sold swaps to Lehman.

Furthermore, banks were not fully aware of the risks associated with swaps and traded them in unregulated markets where buyers lacked any relationships to the underlying assets. The idea behind this was to use swaps to insure complex financial products. Once banks started defaulting, swap sellers found themselves in trouble. This resulted in a significant shrinkage of the credit default swap market. As market participants came to realise that insurance was unable to cover large or widespread defaults, credit default swaps became unattractive. Banks adopted the strategy of accumulating capital and making fewer loans in response, causing a drastic reduction in firms' access to funding and amplifying the overall economic downturn.

It is essential that product-based regulation, by being designed to protect naïve households, does not also impede beneficial innovation. For example, regulation can

prevent negative amortisation in mortgage contracts to avert situations where households incur unmanageable amounts of debt. However, if amortisation is defined in nominal terms, inflation-adjustment of the principal is also thwarted. Moreover, considering that providers of financial products use complexity strategically to abuse household financial illiteracy and investors' limited cognitive abilities, the idea of banning the sale of structured products to households is worth contemplating. On the other hand, the inevitable consequence of such a measure is that households miss out on the potential advantages of using those products.

5. Conclusion

The paper first introduces the issues related to the rapid pace of financial innovation and explains that households have never been more overwhelmed by financial decision-making. Households are plagued by various psychological and cognitive limitations that make it difficult to reach financial outcomes akin to those strived towards by the homo oeconomicus. They also do not know how to collect relevant decision-making information and distinguish between important and unimportant pieces of information.

That is why many researchers believe that financial advisers can help households. Financial advisers need to complete certain exams in order to be granted the permission to advice customers. As a result, they are most certainly more financially educated and literate than the average investor. Furthermore, they have been taught in traditional economic theories and models such as portfolio diversification, international portfolio exposure, the benefits of investing in low-fee as opposed to high-fee mutual funds, financial measurements such as the Sharpe ratio or risk-return trade-off.

They are able to inquire about demographic characteristics of households and use that information to determine things such as household risk-aversion, ideal asset allocation (e.g. bonds, stocks, liquid assets), and are most likely to spot some of the cognitive biases that households suffer from, such as overconfidence, representativeness or trend-chasing. Such approaches are a prerequisite to improving household financial outcomes because households are often prone to not revealing key information pertaining to their financial background, which would be of utmost importance to determine ideal diversification levels or (international) risk-exposure.

The market for financial advice has been growing rapidly in the last several decades. More and more consumers find themselves consulting financial advisers to help them make sophisticated investment and borrowing decisions. Unfortunately, this has also given rise to financial adviser misconduct. Advisers are aware of the many biases that households fall victim to and consciously exploit these to their advantage. Instead of de-biasing clients, they instead encourage them to make decisions that will increase adviser fee income and even decrease investor financial welfare. This occurs even in scenarios where household and adviser interests are fully aligned.

The third section of the paper deals with a model of misselling. It explains the incentives behind financial adviser misconduct. Conflict of interest between financial adviser and client is the most severe in companies where advisers both provide clients with advice and sell products to them. Advisers are incentivised to acquire large numbers of customers, which is done the most efficiently by recommending purchases indiscriminately. Even if certain psychological factors pertaining to altruism might dissuade advisers from behaving in such a manner, other psychological aspects counteract (most prominently existential dread) these and as a result, a traditional utility maximisation model might be appropriate for modelling misselling.

Because households are ill-equipped to make reasonable financial decisions on their own and financial advisers are more often than not prone to abusing household biases and financial illiteracy, regulation might be a suitable tool to overcome these issues. Regulation might come in the form of preventing certain types of households from accessing financial products that are too sophisticated for them to properly use. However, it is also possible to regulate products directly. In that case, products might be banned from markets entirely, the production could be prohibited or producers would be forced to modify products in order to retain the ability to sell them.

What needs to be paid attention to when considering regulation is that potential benefits reaped from certain products are not nullified by regulation. For example, it may seem reasonable to not allow some households to buy structured products. This could lead to the unintended outcome of households not being able to use the advantages inherent in these products. Appropriate use of novel or complex financial instruments is a process and not an event that can be determined by a simple financial literacy test or product familiarity check. In actuality, such simple tests or checks can

significantly hinder the promotion of household risk management through use of revolutionary products. Household finance can offer guidance in predicting mismatches between household characteristics, preferences, attitudes, and constraints on the one hand and financial product features on the other.

6. References

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