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# Incorporation of behavioural sciences into financial regulation – a better way to protect investors

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*Current financial regulation is based on neoclassical economics. Its core assumption is that well-informed investors make rational and wealth-maximisation decisions. This approach is strongly reflected in EU financial legislation, which focuses on information disclosure. However, evidence provided by behavioural sciences reveals that investors fail to make optimal decisions because they are prone to biases and framing effects. Studies show that people may be subject to bounded rationality and bounded self-control. Despite growing interest in behavioural sciences, its explicit applications in financial regulation are still rare and the use of measures countering the negative impact of the biases is rather exceptional. This article provides a number of examples of the incorporation of behavioural economics into different legal areas and considers what lessons can be drawn therefrom. The objective is to provide a review, which will help to see whether behavioural sciences could be used to fine-tune policy design in financial regulation and/or enhance its enforcement in order to better protect investors. This paper will further discuss what could be the best way to incorporate psychological aspects into financial regulation.*

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## Introduction

In the European Union (EU), investor protection is predominately based on full and complete information disclosure. The purpose is to ensure that investors are able to make well-informed decisions and to allocate their funds according to their risk appetite and personal circumstances. In addition, transparency and full disclosure is supposed to protect from abuses and fraud. The rationale behind this approach is the assumption that the investor is a rational individual with well-defined preferences. The well-informed investor, in turn, is supposed to make optimal resource allocation and wealth-maximisation decisions.<sup>1</sup>

<sup>1</sup> E. AVGOULEAS, "Reforming Investor Protection Regulation: The Impact of Cognitive Biases", in M. FAURE and F. STEPHEN (eds), *Essays in the Law and Economics of Regulation in honour of Anthony Ogus*, Intersentia, Antwerpen, 2008, p. 1.

Empirical and experimental research from behavioural sciences show, however, that even well-informed and experienced investors do not make optimal decisions.<sup>2</sup> This article will focus on the psychological factors that influence investors' choices. Its purpose is to analyse which cognitive biases have an impact on investors' decision-making and examine the psychological constraints that disturb processing and absorbing all of the available information. In contrast to the traditional approach based on the rational investor model, whereby decision-making is associated with information, knowledge, and experience, this paper will link decision-making to cognitive abilities of the mind. The ultimate objective is to examine whether investors can be empowered by incorporating psychological aspects into financial regulation, and, if so, what is the best way to do so.

This article does not claim to give an exhaustive overview of the impact of behavioural sciences upon financial regulation nor a complete analysis of all provisions relating to investor protection. Rather, its focus is on those behavioural insights that are well grounded and widely documented and that can have a significant impact on investor protection. The objective is to provide a review that will answer the question of whether behavioural sciences can be used to fine-tune policy design in financial regulation and/or enhance its enforcement.

## 1 Traditional paradigms

### 1.1 *Homo Economicus*: a rational and self-interested individual

Current financial regulation is based on the assumptions of the neoclassical economy in which human behaviour is defined by the theory

of rational choice. Its main premise is that most people act in a rational way. It does not necessarily mean that all people behave rationally in all circumstances. Traditional economists, however, maintain that deviations from rationality are so small or unsystematic that they should be considered insignificant.<sup>3</sup> Scholars advocating for a traditional approach also claim that deviations from rational choice mute each other. For example, while some people overestimate the risk, others underestimate it and, in consequence, these behaviours do not produce a systematic bias.<sup>4</sup>

There are different versions of rational choice theory, such as the expected-utility version, the self-interest version, and the wealth-maximisation version.<sup>5</sup> The most prevalent version of the rational choice is the expected-utility version. This concept assumes that decision-makers make a cost-benefit analysis of different options and choose the optimal method to achieve their goal.<sup>6</sup> The goal that people try to reach is either to maximise a financial situation (wealth-maximisation approach) or to fulfil selfish preferences (the self-interest approach). As described by Adam Smith, one of the founding fathers of neoclassical economics, every individual pursues his own "gain and he is in this, as in many other cases, led by an invisible hand" and that by "pursuing his own interests he frequently promotes that of the society".<sup>7</sup>

In modern economic theory, a rational and self-interested individual who tries to optimally maximise his satisfaction or utility is portrayed as *homo economicus*.<sup>8</sup> Moreover, according to the standard economic model, individuals use all available information to make their choice and their preferences are assumed to be predefined, stable, and "time-consistent, affected only by their own payoffs".<sup>9</sup>

2 There is no agreed-on definition of "behavioural sciences"; it is more an overarching term for a multidisciplinary research area that explores behavioural interactions between humans with an attempt to identify recurrent patterns. A distinctive feature of behavioural sciences is that it derives its concepts from observation and experiment. It encompasses disciplines such as sociology, psychology, anthropology, cognitive science and behavioural economics. This paper will largely focus on the concepts formulated in behavioural economics and more particularly from its sub-discipline called behavioural finance. Noteworthy papers in behavioural finance include pioneering articles from Professors D. KAHNEMAN, and A. TVERSKY. For some examples see: D. KAHNEMAN, A. TVERSKY, "Judgement under Uncertainty: Heuristics and Biases", *Science*, Vol. 185, No. 4157, 1974, pp. 1124-1131, D. KAHNEMAN, A. TVERSKY, "Prospect Theory: An Analysis of Decision under Risk", *Econometrica*, Vol. 47, No. 2, 1979, pp. 263-291, A. TVERSKY, D. KAHNEMAN, "Rational Choice and The Framing of Decisions", *The Journal of Business*, Vol. 59, No. 4, Part 2: The Behavioural Foundations of Economic Theory, 1986, pp. 251-278.

3 E. ANGNER, *A course in behavioural economics*, Palgrave Macmillan, New York, 2016, p. 4.

4 J. ARLEN, "Comment: The Future of Behavioural Economic Analysis of Law", *Vanderbilt Law Review*, Vol. 51, No.6, 1998, pp. 1765-1788.

5 R.B. KOROBKIN, T.S. ULEN, "Law and Behavioural Science: Removing the Rationality Assumption from Law and Economics", *California Law Review*, Vol. 88, No. 4, 2000, pp. 1051-1144.

6 By 'Achieving a goal' it is understood that an individual's aim is to maximise expected benefits and minimise expected costs. See: *Op. cit.*, footnote 5.

7 A. SMITH, *An Inquiry into the Nature and Causes of the Wealth of Nations*, 1950, available on online Library of Liberty: file:///C:/Users/anna.machura/Downloads/Adam%20Smith.pdf (accessed 8 February 2021), p. 365 of the pdf version of the e-book.

8 On the history and meaning of the concept of 'homo economicus' see: J. PERSKY, "The Ethology of *Homo Economicus*", *Journal of Economic Perspectives*, Vol. 9, No. 2, 1995, pp. 221-231.

9 S. DELLAVIGNA, "Psychology and Economics. Evidence from the Field", *Journal of Economic Literature*, Vol. 42, No. 2, pp. 315-372.

To sum up, the traditional paradigm assumes that an individual is a *rational* person with *well-defined preferences*, who makes, due to a *cost-benefit analysis*, *optimal resource-allocation* and *wealth-maximisation decisions*. This perception of human beings is inconsistent with behavioural findings, which demonstrate that:

- instead of conducting a cost-benefit analysis, people use heuristics (rules of thumb);
- people often do not have well-defined preferences and, what is more, their preferences are highly context-dependent.<sup>10</sup> People's choices are often inconsistent with each other, over time, or with the individual's stated aims;<sup>11</sup>
- people are not only self-interested, they also care about others (i.e., they display reciprocity and altruistic preferences); and
- people fail to maximise their expected utility and often make suboptimal decisions (their behaviour is often inconsistent with their self-interest).

In the following section, I will analyse how the assumptions of the rational-choice theory have shaped present financial regulation. I will further discuss whether measures foreseen by current law counteract the negative effects of the biases<sup>12</sup> and consider whether it is necessary to add new measures to the existing toolbox.

## 1.2 Current approach to investor protection

European regulation protects investors in three ways: first, through the prohibition of market misconduct

(rules prohibiting market abuse);<sup>13</sup> second, through information disclosure requirements;<sup>14</sup> and third, through business-conduct regulation.<sup>15</sup> The core element of all of these areas is *information disclosure*. It is particularly visible in the Directive 2014/65/EU on Markets in Financial Instruments (MiFID II Directive)<sup>16</sup> and the Regulation (EU) no 600/2014 on Markets in Financial Instruments (MIFIR Regulation).<sup>17</sup> They impose various *disclosure obligations* on investment firms, which act as 'market gatekeepers' in the retail sector. The extent of disclosure obligations varies depending on the client category: the eligible counterparty; the professional client (i.e., professional client *per se* and non-professional client asking for professional classification); and retail clients, who benefit from the highest level of investor protection.

Generally, investment firms are obliged to disclose all appropriate information about the financial instruments and proposed investment strategies.<sup>18</sup> An important element of information disclosure is the unbundling of client payments.<sup>19</sup> To ensure that distributed or marketed instruments suit the client, an investment firm has to assess the appropriateness and suitability of the financial product based on the client's knowledge, experience (i.e., experience in the investment field relevant to the specific type of product or service), financial situation, and investment objectives (i.e., the "Know your client" principle).<sup>20</sup>

In recent years, however, various cases of mis-selling financial instruments revealed that eliminating information asymmetries is not sufficient to protect investors.<sup>21</sup> Numerous financial scandals made

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- 10 J.R. BETTMAN, M.F. LUCE, J.W. PAYNE, "Constructive Consumer Choice Processes", *Journal of Consumer Research*, Vol. 25, No. 3, 1998, p. 188.
- 11 K. ERTA, S. HUNT, Z. ISCENKO, W. BRAMBLEY, "Applying Behavioural Economics at the Financial Conduct Authority", Occasional Paper No. 1 of the Financial Conduct Authority, 2013, p. 12.
- 12 "Biases" are defined as "tendencies to make judgments or decisions in ways that systematically depart from the economist's rational choice/ expected utility model." (D.C. LANGEVOORT, "Behavioural Theories of Judgment and Decision Making in Legal Scholarship: A literature Review", *Vanderbilt Law Review*, Vol. 51, No. 5, 1998, pp. 1499-1540).
- 13 The objective of these rules is to protect the integrity of the market. They prohibit unlawful behaviour in the financial markets, such as insider trading, unlawful disclosure of inside information, and market manipulation.
- 14 Disclosure obligations for publicly traded companies.
- 15 "Business-conduct regulation" regulates the way financial intermediaries provide investment advice, execute clients' orders, conduct investment promotions, and manage assets.
- 16 Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU, OJ L 173, 12 June 2014, p. 349.
- 17 Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012, OJ L 173, 12 June 2014, p. 84-148.
- 18 See, for example, Article 24 (4) of the MiFID II Directive according to which: "Appropriate information shall be provided in good time to clients or potential clients with regard to the investment firm and its services, the financial instruments and proposed investment strategies, execution venues and all costs and related charges".
- 19 Financial intermediaries are required to disclose all costs and charges, such as costs for analyst research and trading commissions (K. ALEXANDER, "Marketing, Sale and Distribution. Mis-selling of Financial Products", a study requested by the European Parliament's Committee on Economic and Monetary Affairs, 2018, p. 17).
- 20 Appropriateness and suitability requirements are set out in Article 25 of MiFID II Directive and Articles 54-57 of Commission Delegated Regulation (EU) of 25 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive, OJ L 87, 31.03.2017, p. 1-83.
- 21 The Joint Forum of the Basel Committee on Banking Supervision (BCBS), the International Organization of Securities Commissions (IOSCO) and the International Association of Insurance Supervisors (IAIS) defines 'mis-selling' as "the situation



clear that investors have difficulties understanding and assessing risks related to innovative and complex financial products. For example, financial instruments, such as collateralised debt obligations (CDO) and credit default swaps (CDS), were so complex that they were even opaque to those who were responsible for creating and managing them.<sup>22</sup>

To ensure that investment firms understand features of the financial products they develop and sell, MiFID II Directive foresees specific organisational requirements and business conduct provisions. For instance, investment firms are obliged to have appropriate arrangements in place to obtain and understand the relevant information concerning the product approval process (including characteristics of the product and identified target market) before it is marketed or distributed to clients. In addition, to maintain control over the distribution of extremely risky financial instruments to retail customers, MiFID II also contemplates the possibility of banning a product.<sup>23</sup> Even though that does not suggest the introduction of product approval or licensing, it is nevertheless a very interventionist measure that gives regulators a certain power to decide to what extent risk is acceptable. Such a response to complex products (i.e., product intervention) "acknowledges the limits of disclosure and financial literacy in addressing market failures".<sup>24</sup>

With time, it also became apparent that, contrary to what was assumed by policymakers, consumers are not able to process unlimited amounts of information for their own ends. Moreover, surveys revealed that few investors read a full prospectus,<sup>25</sup> as they are

too complex and profuse. To give an example, subprime, mortgage-based securities frequently had both a prospectus and a prospectus supplement, each close to two hundred pages long.<sup>26</sup> Obviously, information disclosure cannot be helpful in making informed decisions if investors do not read offering documents.

In 2010, the European Commission conducted a study on consumer decision-making in retail investment services from a behavioural-economics perspective.<sup>27</sup> That study revealed, among other things, that investors do not understand the true nature of certain investments and often do not know whether they are exposed to the risks or not.<sup>28</sup> It also proved that investors "*made worse investment decisions when the optimal choice was harder to understand (fees framed as percentages, annual returns do not compounded over the duration of the investment), and they were disproportionately averse to uncertainty (risky investments), ambiguity (incomplete information) and product complexity (structured products)*".<sup>29</sup>

One of the conclusions of that report was that standardising and reducing the amount of information about the financial product can significantly improve investment decisions.

To address the problem of lengthy and complex disclosures, the European legislature decided therefore to simplify product information. In an attempt to provide easily understandable information, Directive 2009/65/EC on UCITS IV<sup>30</sup> and Commission Regulation 583/2010<sup>31</sup> envisage a 'Key Investor Information Document' (KIID).<sup>32</sup> The

where the firm sells a product to a client that is not suitable for that client, whether or not a recommendation is made." The Joint Forum of the BCBS, the IOSCO and the IAIS, "Customer suitability in the retail sale of financial products and services", 2008, p. 4.

22 R. KOLB, *The Financial Crisis of our Time*, Oxford University Press, 2011, p. 226.

23 More specifically, a competent authority in a Member State (and, in exceptional cases, ESMA or EBA) have the ability to prohibit or restrict marketing, distribution, or sale of certain financial instruments or structured deposits, as well as curtail or prohibit certain types of financial activity or practices. The exercise of such powers is subject to certain conditions, such as serious concerns regarding investor protection or a threat to the orderly functioning and integrity of financial markets. See: Articles 40- 42 of the Regulation 600/2014.

24 K. ALEXANDER, "Marketing, Sale and Distribution. Mis-selling of Financial Products", study requested by the European Parliament's Committee on Economic and Monetary Affairs, 2018, p. 15.

25 M.K.H. LAW, "Behavioural Risk Disclosure and Retail Investor Protection: Reflections on the Lehman Brothers Minibonds Crisis", *Hong Kong Law Journal*, 2010, Vol. 40, no. 1, p. 24.

26 S.L. SCHWARCZ, "Disclosure's Failure in the Subprime Mortgage Crisis", *Utah Law Review*, Vol. 2008, no. 3, 2008, p. 1102, FN 6. G. SPINDLER gave another example, a 60-page document for insurance sold online (G. SPINDLER, "Behavioural Finance and Investor Protection Regulations", *Journal of Consumer Policy*, Vol. 34, No. 3, 2011, p. 322).

27 N. CHATER, S. HUCK, R. INDERST, "Consumer Decision-making in Retail Investment Services: A Behavioural Economics Perspective", Report to the European Commission/ SANCO, 2010.

28 Researchers found that "nearly 40% of investors in stocks and shares (wrongly) believe their initial investment is protected." (N. CHATER, S. HUCK, R. INDERST, "Consumer Decision-making in Retail Investment Services: A Behavioural Economics Perspective", Report to the European Commission/ SANCO p. 7).

29 Ibid, p. 8.

30 Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS), OJ L 302, 17 November 2009, pp. 32–96.

31 Commission Regulation (EU) No 583/2010 of 1 July 2010 implementing Directive 2009/65/EC of the European Parliament and of the Council as regards key investor information and conditions to be met when providing key investor information or the prospectus in a durable medium other than paper or by means of a website, OJ L 176, 10 July 2010, pp. 1–15.

32 Directive 2009/65/EC on UCITS IV and Commission Regulation 583/2010 replaced the simplified prospectus with the "Key



objective thereof is to ensure that investors receive the most relevant and important information about the investment in non-technical language. The aim is to enable investor to understand the content and facilitate comparisons between products.<sup>33</sup> Similarly, the Packaged Retail and Insurance-based Investment Products (PRIIP) Regulation requires that retail investors receive short standardised documents with key information on investment products.<sup>34</sup>

Simplifying information is an important step towards incorporating behavioural insights, which demonstrate that people have limited abilities to process and absorb information. Many studies prove the negative impact of an overload of information on decision makers (for more detailed explanation on the information overload, see Section 3.2). However, as we will see later in this paper, the way in which information is presented (i.e., framing) may be of equal relevance.

In this regard, behavioural insights are valuable in identifying why people are not capable of processing and using information to their advantage and how to design and frame information disclosures to make them effective. In this vein, a recent report of the International Organization of Securities Commissions (IOSCO), drawing on the insights from behavioural sciences, presented propositions on how to design disclosures to optimise retail investors' absorption of essential information.<sup>35</sup> Suggested tactics focused on using design elements to direct consumers' attention on key information (different disclosure design should be tested in order to identify how consumers respond to them) or simplifying the language where possible. It

also advocated using standardised forms to ease the comparison of different investments and using graphics to describe the risk level of an investment (for example, investments may be defined as being 'high', 'medium' or 'low' risk).<sup>36</sup>

## 2 Behavioural sciences

### 2.1 Key concepts

In the 1970s, social scientists considered people to be rational. Departures from the rationality, on most of the occasions, were explained by the influence of emotions such as fear, affection, and hatred.<sup>37</sup> In 1974, Professors Daniel Kahneman and Amos Tversky, in their trail blazing article entitled "Judgement under Uncertainty: Heuristics and Biases",<sup>38</sup> documented systematic errors in individuals' thinking and linked these errors to cognition instead of emotions.<sup>39</sup> They claimed that people rely on *heuristics* (simplifying shortcuts) which reduce the complex tasks of assessing probabilities to simpler judgmental operations.<sup>40</sup> More importantly, they proved that shortcuts are predictable and that they may lead to severe and *systematic* errors.<sup>41</sup> This new understanding challenged the then-dominant, dogmatic assumption that the human mind is rational and logical.<sup>42</sup>

Research on the decision-making process and the cognitive limitations of the human mind was also conducted by Herbert A. Simon.<sup>43</sup> He first introduced the term "bounded rationality" to describe the fact that individuals' cognitive abilities are limited.<sup>44</sup> People have "limited computational

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Investor Information Document" (KIID). In fact, due to the lack of proper guidance, the simplified prospectus did not meet its objectives. It was often lengthy and full of technical terms.

33 According to Recital 59 of the Directive 2009/65/EC on UCITS IV, "Key investor information should be provided [...] to ensure adequate investor protection and comparability. Key Investor Information should be presented in a short format. A single document of limited length presenting the information in a specified sequence is the most appropriate manner in which to achieve the clarity and simplicity of presentation that is required by retail investors, and should allow for useful comparisons, notably of costs and risk profile, relevant to the investment decision".

34 Regulation (EU) No 1286/2014 of the European Parliament and of the Council of 26 November 2014 on key information documents for packaged retail and insurance-based investment products (PRIIPs), OJ L 352, 9 December 2014, pp. 1–23.

35 The International Organization of Securities Commissions (IOSCO), "The Application of Behavioural Insights to Retail Investor Protection", No. FR05/2019, 2019, available on: <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD626.pdf> (accessed 8 February 2020).

36 Ibid.

37 D. KAHNEMAN, *Thinking, fast and slow*, Farrar, Straus and Giroux, 2011, p.8. In the investment field, already in the beginning of 30-ties, Benjamin Graham and David Dodd, famous investment philosophers and ancestors to today's behavioural economists, claimed that "... the market is a voting machine, whereon countless individuals register choices which are the product partly of reason and partly of emotion". (B. GRAHAM, D. L. DODD, *Security Analysis*, Sixth edition, McGraw-Hill, New York, 2009, p. 70. First edition of this book was first published in 1934.)

38 A. TVERSKY, D. KAHNEMAN, "Judgement under Uncertainty: Heuristics and Biases", *Science*, 1974, Vol. 185, No. 4157, pp. 1124-1131.

39 D. KAHNEMAN, *Thinking, fast and slow*, Farrar, Straus and Giroux, 2011, p. 8.

40 Article described three heuristics employed in making judgements under uncertainty: representativeness, availability and anchoring (Op. cit., footnote 38, p. 1124).

41 Ibid.

42 D. KAHNEMAN, *Thinking, fast and slow*, Farrar, Straus and Giroux, 2011, p. 8.

43 In 1979, H. SIMON received Nobel Prize in Economics "for his pioneering research into the decision-making process within economic organizations". (<https://www.nobelprize.org/prizes/economic-sciences/1978/simon/facts/>) (accessed 9 February 2021).

44 According to H. SIMON : "The capacity of the human mind for formulating and solving complex problems is very small compared

skills and seriously flawed memories”<sup>45</sup> and “to deal with limited memories we make lists. To deal with limited brainpower and time we use mental shortcuts and rules of thumb”.<sup>46</sup>

The use of heuristics is certainly helpful in daily life situations but, alas, it can also lead decision makers to make choices, which are not optimal for them. The leading cause of the departure from a cost-benefit analysis is the complexity of a decision, which requires a substantial cognitive effort.<sup>47</sup> To simplify complex decisions and, therefore, to reduce the cost of processing information and decision-making, individuals use heuristics, which often lead them to *systematic errors*.<sup>48</sup> For instance, D. Kahneman and A. Tversky identified the ‘availability heuristic’, which postulates that people judge the likelihood of an event by the ease with which an example of this event can be brought to mind.<sup>49</sup> Numerous factors, such as familiarity, recency, and salience, affect memory retrieval.<sup>50</sup> Another example is the ‘representativeness heuristic’ according to which instead of assessing the plausibility of events, individuals often tend to assign high probability to an event that seems to best represent given situation.

Researchers in behavioural economics and related disciplines have also analysed how individuals incorporate new information into their set of beliefs. Contrary to classical theory, which assumes that an individual updates his beliefs according to all new information, behavioural science shows that people give some information more weight than other information. For instance, “confirmation bias” suggests that people give more attention and weight

to the information that confirms their beliefs and less attention to the information that challenges their view.

Finally, conventional theory assumes that people are self-interested, that is to say, they do not care about others and tend to pursue their own interests. Literature on behavioural sciences documents, however, numerous deviations from this assumption. For instance, Fehr and Gächter show that many people are motivated by reciprocity.<sup>51</sup> The standard self-interest model is also contradicted by other psychologist-identified factors, such as altruism, fairness, and inequality averseness.<sup>52</sup>

The fact that people do not care *solely* about their own interests is perfectly exemplified in the ultimatum bargaining experiment.<sup>53</sup> In this experiment, one participant decides on the division of a given amount of money. Second participant can accept or reject suggested distribution. In a number of experiments, if the offer was less than 30 % of the available sum, it was rejected. The fact that participants preferred to reject an offer that seemed unfair to them (rather than maximise their income) proves that people are also driven by fairness considerations.

## 2.2 Who applies behavioural insights?

Behavioural economics studies can no longer be perceived as a temporary fad. Its value is acknowledged both by the academic world and by policymakers. Indeed, the 2002 Nobel Prize in Economic Sciences was awarded to Daniel

with the size of the problems whose solution is required for objectively rational behaviour in the real world – or even for a reasonable approximation to such objective rationality.” (H. SIMON, *Models of Man*, Wiley, New York, 1957, cited after R. THALER, “Toward a Positive Theory of Consumer Choice”, *Journal of Economic Behaviour and Organization*, 1980, Vol. 1, No. 1, pp. 39-60).

45 C. JOLLS, C.R. SUNSTEIN, R. THALER, “A Behavioural Approach to Law and Economics”, *Stanford Law Review*, 1998, Vol. 50, No. 5, p. 1477.

46 Ibid.

47 R.B. KOROBKIN, T.S. ULEN, “Law and Behavioural Science: Removing the Rationality Assumption from Law and Economics”, *California Law Review*, Vol. 88, No. 4, 2000, pp. 1051-1144.

48 Ibid, p. 1085.

49 A. TVERSKY, D. KAHNEMAN, “Judgement under Uncertainty: Heuristics and Biases”, *Science*, 1974, Vol. 185, No. 4157, p. 1127.

50 Ibid.

51 E. FEHR, S. GÄCHTER, “Fairness and Retaliation: The Economics of Reciprocity”, *Journal of Economic Perspectives*, 2000, Vol. 14, No. 3, 2000, pp. 159-181.

52 For reciprocity, see, e.g.: M. RABIN, “Incorporating Fairness into Game Theory and Economics”, *The American Economic Review*, 1993, Vol.83, No. 5, pp. 1281-1302; G. CHARNES, M. RABIN, “Understanding Social Preferences with Simple Tests”, *The Quarterly Journal of Economics*, 2002, Vol. 117, No. 3, pp. 817-869. On the inequality aversion see for example: E. FEHR, K. M. SCHMIDT, “A Theory of Fairness, Competition and Cooperation”, *The Quarterly Journal of Economics*, 1999, Vol. 114, No. 3, pp. 817-868. On the fairness see: R. FORSYTHE, J.L. HOROWITZ, N.E. SAVIN, M. SEFTON, “Fairness in Simple Bargaining Experiments”, *Games and Economic Behaviour*, 1994, Vol. 6, No. 3, pp. 347-369.

53 On the ultimatum bargaining experiment see: W. GRÜTH, R. SCHMITTBERGER, B. SCHWARZE, “An Experimental Analysis of Ultimatum Bargaining”, *Journal of Economic Behaviour and Organization*, 1982, Vol. 3, No. 4, pp. 367-388; E. FEHR, K. M. SCHMIDT, “A Theory of Fairness, Competition and Cooperation”, *The Quarterly Journal of Economics*, 1999, Vol. 114, No. 3, pp. 817-868. See also: E. FEHR, S. GÄCHTER, “Fairness and Retaliation: The Economics of Reciprocity”, *Journal of Economic Perspectives*, 2000, Vol. 14, No. 3, pp. 159-181. Other papers on this subject include: C. CAMERER, R. THALER, “Anomalies: Ultimatums, Dictators and Manners”, *Journal of Economic Perspectives*, 1995, Vol. 9, No. 2, pp. 209-219, E. HOFFMAN, K.A. MCCABE, V. L. SMITH, “On Expectations and the Monetary Stakes in Ultimatum Games”, *International Journal of Game Theory*, 1996, Vol. 25, No. 3, pp. 289-301.

Kahneman,<sup>54</sup> for his groundbreaking work in integrating psychological research into economic theory, particularly in the areas of human judgment and decision-making under uncertainty.<sup>55</sup> The same year, Vernon L. Smith was awarded the Nobel Prize in Economic Sciences for “having established laboratory experiments as a tool in empirical economic analysis”.<sup>56</sup> In 2007, the Nobel Prize in Economic Sciences was awarded to Richard Thaler for “his contributions to behavioural economics”.<sup>57</sup>

Moreover, behavioural sciences are also increasingly embedded in the policymaking process. The OECD has identified an impressive number of 202 institutions across the world whose purpose is to apply behavioural insights to public policy. In Europe, the leaders in the institutionalisation of behavioural insights practices are the United Kingdom, the Netherlands, Germany, France, and Denmark.<sup>58</sup>

A remarkable unit is the United Kingdom’s British Behavioural Insights Team (“UKBIT”). Its academic affiliates include Richard Thaler and Cass Sunstein, who developed the concept of libertarian paternalism. UKBIT is testing various behaviourally informed ideas to inform policy and improve public services. The spectrum of the issues that are addressed by UKBIT is very wide; it looks at issues from obesity to tax compliance. In the United States, Barack Obama issued “Executive Order 13707: Using Behavioural Insights to Better Serve the American People”.<sup>59</sup> In that order, Federal Government agencies were encouraged to apply behavioural science insights to design their policies and programs.<sup>60</sup> The European Commission initially tested behavioural insights through the work of its health and consumer directorate (DG SANCO)

and later through the Joint Research Centre (JRC). In 2014, the JRC established the Foresight and Behavioural Insights Unit, now known as the Foresight, Modelling, Behavioural Insights & Design for Policy Unit.

### 3 Impact of cognitive biases on investor behaviour

Information disclosure, which is a central feature of financial regulation, is unquestionably a *sine qua non* for making informed decisions. If information is not disclosed, consumers do not seek it out.<sup>61</sup> Nevertheless, disclosure can be – in some cases – ineffective or even counter-productive because important psychological aspects are not taken into account (see Section 3.1). As we will see below, the effectiveness of information disclosure may be affected by the factors such as the amount of information and choices that are given (see Section 3.2) or the design of the investment menu (see Section 3.3).

#### 3.1 Disclosure of information

The disclosure of information can be helpful as well as – in some circumstances – harmful. A series of experiments by Chater et al., on consumer decision-making in retail investment services revealed that when a potential conflict of interest is disclosed, individuals display a “contrarian” behaviour in their investment choices.<sup>62</sup> Namely, investors automatically turn away options that would bring the advisor a higher commission.<sup>63</sup> For instance, an experiment concerning a disclosure of a mortgage broker’s compensation revealed that it had a significant impact on the choice of loan.<sup>64</sup> The experiment demonstrated that compensation

54 D. KAHNEMAN conducted his research with A. TVERSKY. The latter, however, died in 1996 and could not be awarded the Nobel Prize, which is not given posthumously.

55 <https://www.nobelprize.org/prizes/economic-sciences/2002/kahneman/facts/> (accessed 9 February 2021).

56 <https://www.apa.org/monitor/dec02/nobel.html> (accessed 9 February 2021).

57 <https://www.nobelprize.org/prizes/economic-sciences/2017/thaler/facts/> (accessed 9 February 2021).

58 The European Commission is using PRECIS model to evaluate the institutionalisation of behavioural insights practices. PRECIS stands for Political support, Resources, Expertise, Coverage, Integration and Structure. For more details see: J.S. LOURENÇO, S.R. ALMEIDA, X. TROUSSARD, “Behavioural Insights Applied to Policy” Report of the European Commission Joint Research Centre, EUR 27726EN, 2016, p. 33.

59 Presidential Executive Orders: B. OBAMA Executive Order 13707, EO 13707, Federal Register (September 18, 2015) Vol. 80, No. 181, p. 56365.

60 According to section 1 (a) of the Executive Order Federal Agencies are directed to “identify policies, programs, and operations where applying behavioural science insights may yield substantial improvements in public welfare, program outcomes, and program cost effectiveness” (Barack Obama’s Executive Order 13707, EO 13707, Federal Register (September 18, 2015) v. 80, no 181, p. 56365).

61 See, for example, studies of KARDES et al. who conducted experiments aiming to improve judgement by increasing sensitivity to missing information (F.R. KARDES, S.S. POSAVAC, D.H. SILVERA, M.L. CRONLEY, D.M. SANBONMATSU, P. HERR, M. CHANDRASHEKARAN, “Debiasing Omission Neglect”, *Journal of Business Research*, 2006, Vol. 59, No. 6, pp. 786-792).

62 N. CHATER, S. HUCK, R. INDERST, “Consumer Decision-making in Retail Investment Services: A Behavioural Economics Perspective”, Report to the European Commission/ SANCO, 2010.

63 Idem, p. 21.

64 J. LACKO, J. PAPPALARDO, “The Effect of Mortgage Broker Compensation Disclosures on Consumers and Competition: A Controlled Experiment”, report of the Federal Trade Commission. Bureau of Economics Staff Report, 2004 (<https://www.ftc.gov/reports/effect-mortgage-broker-compensation-disclosures-consumers-competition-controlled-experiment>) (accessed 9 February 2021).

disclosure caused a substantial consumer bias against the mortgage broker's loans even when they costed the same or even less than direct lender loans. In consequence, disclosure resulted in higher costs for customers who eventually paid more for their loans. Moreover, compensation disclosure put mortgage brokers at a competitive disadvantage in relation to direct lenders.

Investors, thus, do not always respond rationally to disclosed information.<sup>65</sup> Disclosure of conflict of interests is, of course, necessary for investors to make an informed decision. However, policymakers should be cognisant of a potential loss of trust when professionals are obliged to disclose certain types of information, as such disclosures can be detrimental to the interests of investors who often need the assistance of a professional.

### 3.2 Information and choice overload

In the investment field, where individuals typically face a large array of options and have to take into consideration significant quantities of information, research on information and choice overload is particularly important. Empirical research, for example, has shown that individuals cannot optimally choose (or even prefer to abstain from buying at all) when they face too many alternatives (either too many items or too many attributes). An illustration of this phenomenon may be found in an experiment conducted by Iyengar and Lepper. It revealed that people were more likely to purchase items when they were choosing from 6 items rather than from 24 or 30.<sup>66</sup> Likewise, students were more likely to write an essay for extra credit when they were provided a list of only 6 rather than 30 potential essay topics.<sup>67</sup>

Iyengar and Lepper provide another example of the impact of information overload. They

examined whether an extensive choice influences decisions of employees about investing in 401(k) retirement plans.<sup>68</sup> Most 401(k) retirement plans offer employees a plethora of investment options, from mutual funds (composed of stocks, bonds, and money market investments), to insurance products, or bank products. Researchers found that increasing the number of choice actually decreased participation in 401(k) retirement plans.<sup>69</sup>

Moreover, studies prove that a large set of choices affects which alternative an individual will choose.<sup>70</sup> For instance, Iyengar et al. found that an extensive range of alternatives induce a stronger preference for simpler (easy to understand) options rather than less-risky options.<sup>71</sup> Behavioural science literature adds other reasons for individuals' tendency to follow the easiest path, such as procrastination, the *status quo* bias, and anticipated resistance.<sup>72</sup>

In addition, individuals "can pay attention to a limited number of attributes associated with any given option in front of them. There is evidence that more salient characteristics of decisions or options can hold sway over characteristics that may be as important but are not as salient".<sup>73</sup> As a consequence, people tend to choose the most salient item from the choice menu. It turns out that the "more-is-better" approach is not always right.

### 3.3 Framing effects and investment menu design

Risk preferences and financial decisions are sensitive to the way financial information is disclosed. Behavioural economists have shown that investment menu design has a significant impact on the choices investors make. For instance, Benartzi and Thaler established that investors react differently depending on whether long-run or short-term results

65 It is also worth mentioning that the way information is disclosed may have an inordinate effect on the impact of such a disclosure. For instance, individuals hardly react to disclosure that is made online (where only information about the commission of advisor is given) unless it is accompanied by a strong warning. In contrast, in laboratory experiments (where a detailed description and calculation of the compensation of advisor is provided) individuals overreacted to disclosure manifesting obvious mistrust of advice. For more information on the disclosure of conflict of interests, see: *Op. cit.*, footnote 27, p. 9.

66 S.S. IYENGAR, M.R. LEPPER, "When Choice is Demotivating: Can One Desire Too Much of a Good Thing?", *Journal of Personality and Social Psychology*, 2000, Vol. 79, No. 6, pp. 995-1006.

67 Similar examples can be found in an experiment conducted by N.K. MALHORTA. In his experiment, respondents reported overload when given 10 or more alternatives in the choice set or when provided with information on 15 or more attributes (N.K. MALHORTA, "Information Load and Consumer Decision Making", *Journal of Consumer Research*, 1982, Vol. 8, No. 4, pp. 419-430).

68 A 401(k) is a retirement saving plan sponsored by an employer, which is named after Section 401(k) of the Internal Revenue Code, which governs these retirement saving plans (S. SETHI-IYENGAR, W. JIANG, G. HUBERMAN, "How Much Choice Is Too Much? Contributions to 401(k) Retirement Plans", in O.S. MITCHELL, S.P. UTKUS (ed.), *Pension Design & Structure: New Lessons from Behavioural Finance*, Oxford University Press, 2004).

69 Ibid.

70 Ibid.

71 Ibid.

72 On the impact of status quo, the role of defaults, and passive choices, see: J.J. CHOI, D. LAIBSON, B.C. MADRIAN, A. METRICK, "Defined Contribution Pensions: Plan Rules, Participant Decisions, and the Path of Least Resistance", *Tax Policy and the Economy*, 2002, vol. 16, pp. 67-113.

73 P. LUNN notes that: "Disadvantageous decisions can arise from either weighting a particularly salient feature too strongly or not giving sufficient weight to an important non-salient feature – often called 'inattention' (P. LUNN, "Regulatory policy and Behavioural Economics: Under the Microscope", OECD, 2014, p. 47).



are presented.<sup>74</sup> In addition, experiments reveal that investors presented with few options tend to select the middle option.<sup>75</sup>

Investors' decisions can be also influenced by the way the risk-and-return of a given financial instrument is presented. It is well-documented that people dislike losses much more than they like gains (loss-aversion bias).<sup>76</sup> Hence, it is very likely that an investor's decision to acquire a risky investment product can change depending on whether the risk is presented as one of potentially reduced gains or one of losses.<sup>77</sup> Thus, investment firms can manipulate the investor's choice even though true and complete information is disclosed about both the risk and return.

Another example comes from Thailand, where marketing materials used by certain funds were framed in the way that gave the false impression that returns were guaranteed.<sup>78</sup> In response, the Securities and Exchange Commission of Thailand revised its disclosure rules to direct investors' attention to factors such as risk instead of past performance.<sup>79</sup> The use of behavioural insights can help to set the guidelines about the presentation of investment information, notably with respect to risk and return.

## 4 Lessons derived from behaviourally-informed interventions

Behavioural insights have already been incorporated in areas such as consumer protection, education, energy, environment, finance, health and safety,

labor market policies, and taxation.<sup>80</sup> So far, behaviourally informed interventions were mostly focused on consumers, with the aim to influence their choices or to change consumption patterns.<sup>81</sup> However, new studies are now being conducted regarding the incorporation of behavioural research into organisations.<sup>82</sup>

To illustrate how behavioural insights informed certain policies, I will have a look at the first explicit use of behavioural insights in EU policy (see Section 4.1). Then, I will examine the UK's pension policy reform, which was based on insights regarding default rules and *status quo* bias (see Section 4.2). In addition, I will examine how insights on behavioural convergence and social norms were used to increase tax compliance in the UK (see Section 4.3).

### 4.1 Default rules

The European Commission's first explicit use of behavioural findings in policy design dates back to 2009, when the EU Consumer Rights Directive<sup>83</sup> recognised scientific evidence on the impact of default options. The "Default rule" is an option automatically suggested to a consumer unless he/she explicitly chooses otherwise. Behavioural science literature gives significant evidence on its immense impact on consumer choices.<sup>84</sup> One of the examples is a study by Johnson and Goldstein in which they examined the consent rate for organ donation across different European countries. They compared countries where consent needs to be explicit and countries where the consent is presumed (donators need to actively opt-out). In Denmark, where an explicit consent is required about 4.5 % of people consent to be organ donors, whereas in

74 S. BENARTZI, R. THALER, "Risk aversion or Myopia? Choices in Repeated Gambles and Retirement Investments", *Management Science*, 1999, Vol. 45, No. 3, pp. 364-381. Tapia and Yermo notice, however, that this can prove a problem of lack of knowledge to solve complex portfolio optimisation decisions and not necessarily insufficient cognitive ability (W. TAPIA, J. YERMO, "Implications of Behavioural Economics for Mandatory Individual Account Pension Systems", OECD Working Papers on Insurance and Private Pension Systems, 2007, No. 11, p. 8).

75 I. SIMONSON, A. TVERSKY, "Choice in Context: Tradeoff Contrast and Extremeness Aversion", *Journal of Marketing Research*, 1992, Vol. 29, No. 3, pp. 281-295.

76 Loss aversion bias describes the fact that "reductions in wealth, relative to the current reference point, are weighted much more heavily than increases in wealth. Roughly speaking, losses are weighted about twice as much as gains." (S. BENARTZI, R. THALER, "Risk Aversion or Myopia? Choices in Repeated Gambles and Retirement Investments", *Management Science*, 1999, Vol. 45, No. 3, pp. 364-381).

77 E. AVGOULEAS, "Reforming Investor Protection Regulation: The Impact of Cognitive Biases", in M. FAURE and F. STEPHEN (eds), *Essays in the Law and Economics of Regulation in honour of Anthony Ogus*, Intersentia, Antwerpen, 2008, p. 12.

78 The Board of the International Organization of Securities Commissions, "The Application of Behavioural Insights to Retail Investor Protection", number FR05/2019, 2019, available on <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD626.pdf>, (accessed 9 February 2021), p. 36.

79 Idem.

80 OECD, "Behavioural Insights and Public Policy: Lessons from Around the World", 2017, OECD Publishing, p. 13.

81 Ibid, p. 17.

82 See, for example, a new project of the OECD (project still in progress) on "Organizational behaviour: understanding how organizations can be 'nudged' with a focus on creating a culture of safety in the hydrocarbon sector" (not published yet) (<https://www.oecd.org/gov/regulatory-policy/behavioural-insights.htm>).

83 Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on Consumer Rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council, OJ L 304, 22 November 2011, p. 64-88.

84 See numerous examples in: C.R. SUNSTEIN, "Deciding by default", *University of Pennsylvania Law Review*, 2013, Vol. 162, No. 1, p. 4 or N.C. SMITH, D.G. GOLDSTEIN, E.J. JOHNSON, "Smart Defaults: From Hidden Persuaders To Adaptive Helpers", *INSEAD Business School Research Paper*, No. 2009/03/ISIC.

Austria, where consent is presumed by default, the rate is 99.98%.<sup>85</sup>

In view of numerous studies on default rules, the European legislator decided to limit the use of default options in consumer contracts. The EU Consumer Rights Directive bans the use of pre-ticked boxes for online sales to avoid consumers purchasing additional services or extra products without explicit consent. The objective is to avoid situations where consumers are defaulted into additional options such as insurance or car rental when buying online airline tickets or into meals when buying accommodation.<sup>86</sup> Another provision in the EU Consumer Rights Directive that is informed by behavioural research is the cooling-off period during which customers are allowed to withdraw from a contract. The introduction thereof was influenced by behavioural findings on “inconsistent preferences, the influence of mood on decision making, and consumer responses to sales techniques”.<sup>87</sup>

Evidence on the impact of default rules was also used by the European Commission in its prominent abuse-of-dominant-position case against Microsoft. Specifically, the US software company had automatically tied its web browser ‘Internet Explorer’ to its ‘Windows’ operating system.<sup>88</sup> As a result of the case, Microsoft was obliged to make add a ‘choice screen’ that enables users “to choose in an informed and unbiased manner which web browser(s) they want to install”.<sup>89</sup>

Following these groundbreaking uses of behavioural science in EU policy, numerous other behaviourally informed initiatives were launched in various policy areas such as taxation, health, sustainability, cybersecurity, gender equality, and the environment.

## 4.2 Procrastination and status quo bias

Behavioural science studies show that people have a tendency toward inertia and often take the path of ‘least resistance’.<sup>90</sup> They prefer to stick with the *status quo* instead of making an active choice. An experiment conducted by Madrian and Shea proved, for example, that participation in a savings plan is significantly higher when enrolment was automatic.<sup>91</sup> Choi et al. find a similar result.<sup>92</sup> Their study showed that in companies where employees are automatically enrolled in the pension plan (meaning that they would have to explicitly opt out if they do not want to be enrolled), employees overwhelmingly accept the default, including suggested savings rates and default investments.<sup>93</sup> In contrast, in the absence of automatic enrolment a typical employee takes over a year to sign up for a retirement saving plan.<sup>94</sup> Since people tend to procrastinate and stick with the *status quo*, once they are already enrolled in a pension plan, only a small fraction decides to opt out.<sup>95</sup>

These and other behavioural findings were at the root of pension reform in a number of countries including the United States, Australia, New Zealand, and Italy.<sup>96</sup> From October 2012, an automatic enrolment system was introduced in the United Kingdom.<sup>97</sup> Instead of employees having to actively decide to sign up for a pension scheme (opt in), they were automatically enrolled into workplace pension schemes. They were, however, still free to opt out if they wanted to. The evaluation made by the Department for Work and Pensions (DWP) in 2019 revealed that the number of employees participating in a workplace pension scheme increased from 10.7 million (55%) in 2012 to 18.7 million (87%) in 2018.<sup>98</sup> The annual total amount saved on behalf of employees increased from 2017 by £7 billion and

85 E.J. JOHNSON, D. GOLDSTEIN, "Do defaults Save lives?", *Science*, 2003, Vol. 302, table on p. 1338.

86 P. LUNN, "Regulatory policy and Behavioural Economics: Under the microscope", OECD publishing, 2014, p. 15.

87 Ibid, pp. 32-33.

88 European Commission, "Web browser choice for European Consumers", available on: [https://ec.europa.eu/competition/consumers/web\\_browsers\\_choice\\_en.html](https://ec.europa.eu/competition/consumers/web_browsers_choice_en.html) (accessed 22 February 2021).

89 European Commission, "Antitrust: Commission fines Microsoft for non-compliance with browser choice commitments", Press Release, 6 March 2013, available on: [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_13\\_196](https://ec.europa.eu/commission/presscorner/detail/en/IP_13_196) (accessed 22 February 2021).

90 J.J. CHOI, D. LAIBSON, B.C. MADRIAN, A. METRICK, "Defined Contribution Pensions: Plan Rules, Participant Decisions, and the Path of Least Resistance", *Tax Policy and the Economy*, 2002, vol. 16, pp. 67-113.

91 B.C. MADRIAN, D.F. SHEA, "The Power of Suggestion: Inertia in 401 (k) Participation and Savings Behaviour", *Quarterly Journal of Economics*, vol. 116 (4), 2001, pp. 1149-1187.

92 J.J. CHOI, D. LAIBSON, B.C. MADRIAN, A. METRICK, "Defined Contribution Pensions: Plan Rules, Participant Decisions, and the Path of Least Resistance", *Tax Policy and the Economy*, 2002, vol. 16, pp. 67-113.

93 Ibid.

94 Ibid.

95 See: R.H. THALER, S. BENARTZI, "Save More Tomorrow: Using Behavioural Economics to Increase Employee Saving", *Journal of Political Economy*, 2004, Vol. 112, No. 1, pp. 164-187. See also: op. cit., footnote 73.

96 P. LUNN, "Regulatory policy and Behavioural Economics: Under the microscope", OECD publishing, 2014, p. 34.

97 UK Department for Work & Pensions, "Automatic Enrolment Evaluation Report 2019", 2020, Research no. 76, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/883289/automatic-enrolment-evaluation-report-2019.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/883289/automatic-enrolment-evaluation-report-2019.pdf) (accessed 22 February 2021).

98 Ibid.

reached £90 billion in 2018.<sup>99</sup> What is more, the majority of employees viewed automatic enrolment as a good thing for them personally.<sup>100</sup>

### 4.3 Behavioural convergence

It is well known that people are strongly influenced by the behaviour of others (behavioural convergence) and that they want to conform to norms.<sup>101</sup> Drawing on the insights about the social norms, the UK Behavioural Insights Team in cooperation with Her Majesty's Revenue & Customs conducted a trial to examine how to improve the collection of overdue taxes.<sup>102</sup> Different reminder letters were sent to taxpayers: the control group received a traditional threatening letter mentioning the consequences in case of non-payment, whereas the other group received a tailored letter indicating that most people in the area paid their taxes on time. The second letter referring to social norms resulted in substantial increases in tax repayments when compared to the control group. Interestingly, the trial revealed that the more specific and targeted the letter, the better effect it achieved. If people were told that most Britons paid their taxes on time, repayment increased by 5%, whereas when people were told that others in their town paid taxes on time, repayment increased by 15.5%.<sup>103</sup>

## 5 Applying behavioural insights into financial regulation

### 5.1 Should we intervene, and if so, how?

Evidence provided by behavioural science shows striking differences between real human nature and the assumptions underlying current EU regulation. Before we consider in detail *how* the incorporation of behavioural insights can empower investors, we first need to analyse *whether* it is the right way to enhance investor protections.

This paper argues that the incorporation of psychological aspects into financial regulation is necessary to render certain policies effective. Assumptions about the human nature that stand behind present financial regulation are not relevant in various specific settings. Cognitive psychology

allows to incorporate more realistic picture of human nature and, therefore, helps to improve the design and implementation of outcome-oriented policies (see Section 5.1.1). What is more, behavioural insights can be used to influence the choices of individuals without constraining those choices. Advocates of behavioural science stand for the use of the concept of libertarian paternalism ('nudges'). The idea is to make better decisions more likely due to the changes in the choice architecture and not by reason of using traditional paternalistic tools such as bans, taxes and subsidies (see Section 5.1.2).

#### 5.1.1 Behavioural science supports the delivery of evidence-based policies

A distinctive feature of behavioural science is its use of methodology incorporated from experimental psychology.<sup>104</sup> Contrary to the deductive method used in neoclassical economics, experimental psychology uses inductive scientific methods.<sup>105</sup> In other words, behavioural science derives its concepts from experiments and observed data (i.e., assumptions have empirical support).<sup>106</sup> Rachlinski compares psychology to natural sciences, such as chemistry and biology, where scientists build their theories based on existing data.<sup>107</sup> This stands in contrast with traditional economics, which deduces theories mostly from axiomatic assumptions (e.g., about how humans behave). Thanks to the methods based on laboratory and field experiments, behavioural science supports the delivery of *evidence-based policies* and can help to improve the design and implementation of *outcome-oriented policies*.

The empirical methodologies used in behavioural sciences can be successfully used to examine the effectiveness of a planned intervention (i.e., *ex-ante assessment*) or to evaluate the effectiveness of already existing policies (i.e., *ex-post evaluation*). For example, the UK BIT is running Randomised Controlled Trials (RCTs) to test the effectiveness of policy interventions (testing includes both a comparison of the effectiveness of old-versus-new policies as well as different variations of said policy). RCTs is a "time-limited introduction of an intervention into the real world"<sup>108</sup> and relies

99 Ibid.

100 Ibid.

101 For instance, on herding which is one of the forms of convergent social behaviour see: R.M. RAAFAT, N. CHATER, C. FRITH, "Herding in Humans", *Trends in Cognitive Sciences*, 2009, Vol. 13, No. 10, pp. 420-428.

102 UK Behavioural Insights Team, "Applying Behavioural Insights to Reduce Fraud, Error and Debt", 2012, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/60539/BIT\\_FraudErrorDebt\\_accessible.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/60539/BIT_FraudErrorDebt_accessible.pdf) (accessed 22 February 2021).

103 Ibid, see table on page 23: "Trial Using social norms to increase tax debt payments."

104 R. SHILLER, "Behavioural Economics and Institutional Innovation", *Southern Economic Journal*, 2005, Vol. 72, No. 2, p. 269.

105 P. LUNN, "Regulatory policy and Behavioural Economics: Under the microscope", OECD publishing, 2014, p. 19.

106 J.J. RACHLINSKI, "The Psychological Foundations of Behavioural Law and Economics", *University of Illinois Law Review*, 2011, Vol. 2011, No. 5, p. 1687.

107 Ibid.

108 The International Organization of Securities Commissions, "The Application of Behavioural Insights to Retail Investor Protection",



on a comparison of the intervention designed for a randomly assigned group with the situation of a group experiencing a *status-quo* condition.<sup>109</sup> In other words, RCTs examine whether the intervention is more beneficial than the *status quo*.

Empirical analysis provides needed evidence as to the effectiveness of a particular regulation as well as the necessity of certain regulatory burdens. It can also inform decisions on how to translate prescriptions into practice in order to achieve regulatory objectives. For instance, in recent years, in view of the evidence that complexity can be detrimental for consumers, policymakers have moved to simplify product information, but the evidence on the success of such simplification is mixed. Therefore, to ensure that disclosure meets the objectives of the specific policy and that the benefits outweigh the inconveniences (e.g., additional costs imposed on financial intermediaries), it could be beneficial to apply methods from behavioural economics. Specifically, the effectiveness of disclosure requirements could be pre-tested in market-specific experiments or assessed in controlled trials.<sup>110</sup>

### 5.1.2 Libertarian paternalism

A core principle of any liberal civil society is the principle of private autonomy.<sup>111</sup> In the context of current financial regulation, that principle is manifest and reflects the notion that, as Professor Louis Loss once observed, every investor “has the right to make a fool of himself”.<sup>112</sup> Opponents of behavioural sciences claim that incorporating behavioural insights into financial regulation and policy could lead to excessive intervention in

financial markets, putting the principle of private autonomy at risk.<sup>113</sup>

Behavioural-science advocates, on the other hand, note that incorporating behavioural insights does not require a shift away from traditional economic paradigms. Rather, they argue that it is more about giving policymakers a new perspective as well as a new tool in their existing toolbox. Specifically, rectifying the undesirable effects of the biases demonstrated by behavioural science does not mean that regulation must be more restrictive or heavily paternalistic. To apply behavioural science in policy, behavioural economics scholars propose a form of a “soft paternalism”, which Professors Richard Thaler and Cass Sunstein called “*libertarian paternalism*”.<sup>114</sup> Later, after their popular book published in 2008 entitled “*Nudge: Improving Decisions about Health, Wealth and Happiness*”, their concept was popularised as ‘nudge theory’.<sup>115</sup> Such soft paternalism is intended to direct individuals without constraining their choices. The objective is to lead people towards better choices without imposing regulation that limits those choices, such as bans and caps.<sup>116</sup> A good illustration of libertarian paternalism are default rules. They can “nudge” people’s choices in a specific direction (e.g., induce people to save for their retirement through automatic enrolment into pension scheme), but does not involve any sort of coercion, as people are still free to opt out.

Camerer, et al., adopted a similar approach. They suggested that, to overcome the detrimental impact of cognitive biases, regulatory responses should be targeted at those who are “behaviourally challenged” without restricting choices or affecting

Report number FR05/2019, 2019, p.26, <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD626.pdf> (accessed 22 February 2021).

109 The introduction of the control group guarantees that the effect is achieved due to the intervention and not because of external factors (L. HAYNES, O. SERVICE, B. GOLDACRE, D. TORGERSON, “Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials”, The UK Behavioural Insights Team, 2013, <https://www.bi.team/publications/test-learn-adapt-developing-public-policy-with-randomised-controlled-trials/>) (accessed 22 February 2021).

110 P. LUNN, “Regulatory policy and Behavioural Economics: Under the microscope”, OECD publishing, 2014, p. 10.

111 L. KLÖHN, “Preventing Excessive Retail Investor Trading under MiFID: A Behavioural Law & Economics Perspective”, *European Business Organization Law Review*, vol. 10, 2009, p. 448.

112 L. LOSS, “The Protection of Investors I: The Role of Government”, *South African Law Journal*, 1963, Vol. 80, No. 1, pp. 53-69. In a similar vein, J.S. MILL claims that “The only purpose for which power can be rightfully exercised over any member of a civilised community, against his will, is to prevent harm to others. [...] In the part, which merely concerns himself, his independence is, of right, absolute. Over himself, over his own body and mind, the individual is sovereign” (J.S. MILL, *On Liberty*, 1975, ed. D. SPITZ, New York: W.W. NORTON, pp. 10-11, cited by M.D. WHITE, “Overview of Behavioural Economics and Policy”, in: S. ABDUKADIROV (Ed.), *Nudge Theory in Action. Behavioural Design in Policy and Markets*, Palgrave MacMillan, 2016).

113 It is worth noting that private parties, especially marketers and advertisers, already use behavioural insights to manipulate customers to increase their profits. As legal scholar, M.D. WHITE writes, “if government nudges are to be characterised as manipulative, subverting people’s rational faculties to obtain a desired result, private companies maybe the masters at the practice.” (M.D. WHITE, “Overview of Behavioural Economics and Policy”, in: S. ABDUKADIROV (ed.), *Nudge Theory in Action. Behavioural Design in Policy and Markets*, Palgrave MacMillan, 2016, p. 28). It is therefore worth considering if policymakers should respond to such manipulation by, for example, banning pre-ticked boxes in the Consumer Rights Directive, which would actually help to defend against private company misuse of behavioural sciences.

114 R. THALER, C. SUNSTEIN, “Libertarian Paternalism”, *American Economic Review*, 2003, Vol. 93, No. 2, pp. 175-179.

115 R. THALER, C. SUNSTEIN, *Nudge: improving decisions about health, wealth, and happiness*, New Haven, Conn: Yale University Press, 2008.

116 P. LUNN, “Regulatory policy and Behavioural Economics”, OECD Publishing, 2014, p. 9.

decisions of rational actors,<sup>117</sup> calling such regulation “asymmetric paternalism”.<sup>118</sup>

## 5.2 A comprehensive regulatory reform or targeted interventions?

Cognitive psychology does not offer a unified theory about human behaviour. On the contrary, biases identified by behavioural economists are varied and often situation-specific. For this reason, it is not clear how to translate behavioural-science paradigms into clear policy prescriptions. As behavioural science does not offer one overarching principle (such as, the rational choice theory), we cannot simply translate laboratory and experimental results into broad normative conclusions. In fact, the specificity of behavioural research precludes any attempt at a wholesale reform of financial regulation; rather, it speaks to targeted interventions. Reasons for such approach are numerous.

First, biases are studied in a *specific, controlled environment* and, therefore, behavioural patterns are predicated on certain specific conditions and, thus, cannot be generalised. Second, many decisions involve multiple heuristics and biases that may produce *contradictory effects* such that their effects

may cancel each other out. One example of that is the conflicting interaction between overconfidence and loss-aversion.<sup>119</sup> Third, people are affected by biases to a different extent.<sup>120</sup> Studies show that sophistication and expertise may modify the impact of biases (professionals are normally subject to less severe negative consequences).<sup>121</sup>

In addition, biases are *context-dependent* meaning that certain behavioural phenomena identified in certain specific conditions do not persist in other circumstances and that their impact changes depending on the setting.<sup>122</sup> An example is the *endowment effect*, which refers to the tendency of an individual to assign higher value to an object she owns than to the one she does not.<sup>123</sup> In other words, ownership of an item influences an individual's valuation of it.<sup>124</sup> Interestingly, the endowment effect is stronger when people believe their entitlement is the result of their performance rather than luck.<sup>125</sup> The impact of the endowment effect is also more significant when an item is difficult to replace (e.g., tickets to a sold-out event or works of art) and lower or non-existent if a substitute is available at a lower price or when goods are purchased for resale rather than use.<sup>126</sup> Other experiments revealed that people do not manifest the endowment effect

117 E. AVGOULEAS, "Reforming Investor Protection Regulation: The Impact of Cognitive Biases", in M. FAURE and F. STEPHEN (eds), *Essays in the Law and Economics of Regulation in honour of Anthony Ogus*, Intersentia, Antwerpen, 2008.

118 C. CAMERER, S. ISSACHAROFF, G. LOEWENSTEIN, T. O'DONOGHUE, R. MATTHEW, "Regulation for Conservatives: Behavioural Economics and the Case for Asymmetric Paternalism", *University of Pennsylvania Law Review*, 2003, Vol. 151, No. 3, pp. 1211-1254. According to these authors, "regulation is asymmetrically paternalistic, if it creates large benefits for those who make errors, while imposing little or no harm on those who are fully rational", p. 1212.

119 Overconfident investors tend to trade too often, while loss aversion "leads investors to trade less adopting a more long-term outlook." (op. cit., footnote 1, p. 17).

120 On individual differences in cognition, see: J.J. RACHLINSKI, "Cognitive Errors, Individual Differences, and Paternalism", *University of Chicago Law Review*, 2006, Vol. 73, No. 1, pp. 207-229.

121 For example, J.R. AGNEW and L.R. SZYKMAN found that "low-knowledge individuals opt for the default allocation more often than high-knowledge individuals" (J.R. AGNEW and L.R. SZYKMAN, "Asset Allocation and Information Overload: The influence of Information Display, Asset Choice, and investor Experience", *The Journal of Behavioural Finance*, 2005, Vol. 6, No. 2, p. 57).

122 For an extensive explanation of how the impact of biases (such as the endowment effect, over optimism and fairness) is changing depending on the settings see: J. ARLEN, "Comment: The Future of Behavioural Economic Analysis of Law", *Vanderbilt Law Review*, 1998, Vol. 51, No.6, pp. 1765-1788. On the endowment effect, which is well demonstrated in the context of individual decision-making, but does not persist in the corporate context, see: J. ARLEN, M. SPITZER, E. TALLEY, "Endowment Effects within Corporate Agency Relationships", *The Journal of Legal Studies*, 2002, Vol. 31, No. 1, pp. 1-37.

123 The endowment effect explains the differences between an individual's willingness to pay (WTP) for a good and her willingness to accept (WTA) to part with that same good. Namely, the maximum amount a non-owner would be willing to pay (WTP) is often significantly less than the minimum amount she would be willing to accept (WTA) to give up that same object if she owned it. On the endowment effect, see: D. KAHNEMAN, J.L. KNETSCH, R.H. THALER, "Experimental Tests of the Endowment Effect and the Coase Theorem", *The Journal of Political Economy*, 1990, Vol. 98, No. 6, pp. 1325-1348. See also: R. THALER, "Toward a Positive Theory of Consumer Choice", *Journal of Economic Behaviour and Organization*, 1980, Vol. 1, No. 1, pp. 39-60.

124 J. ARLEN, M. SPITZER, E. TALLEY, "Endowment Effects within Corporate Agency Relationships", *Journal of Legal Studies*, 2002, Vol. 31, No. 1, pp. 1-37.

125 This is because of the source-dependence effect, which is strictly connected to the endowment effect; it suggests that people value objects differently depending on how they obtained those objects (i.e., due to skill or luck). For studies on this subject, see: G. LOEWENSTEIN, S. ISSACHAROFF, "Source Dependence in the Valuation of Objects", *Journal of Behavioural Decision Making*, 1994, Vol. 7, No. 3, pp. 157-168.

126 D. KAHNEMAN et al.'s experiments showed that the value that an individual assigns to a good increased as soon as the individual was given the object. This was confirmed in numerous experimental settings, using a variety of items such as mugs, pens, binoculars, and chocolate bars. The under-trading for these goods was due to reluctance to part with entitlements (endowment effect). Interestingly, no endowment effect was observed in the markets for money tokens, which implies that an owner is not reluctant to resell an item that she holds specially with the purpose of reselling and/or which is easily replaceable. (D. KAHNEMAN, J.L. KNETSCH, R.H. THALER, "Experimental Tests of the Endowment Effect and the Coase Theorem", *The Journal of Political Economy*, 1990, Vol. 98, No. 6, pp. 1325-1348).

within business agency relationships that resemble employer-employee relationships.<sup>127</sup>

In view of such varying results, it is hard to imagine the design of normative prescriptions that, by their very nature, tend to be broad and general, as they aim to embrace large populations in different situations and environments. In contrast, results based on context-specific experimental research can be valuable for specific legal questions or targeted interventions. Certainly, the absence of a unified theory means that legal scholars have to find new and perhaps even more complex ways to apply behavioural sciences to different policies, but that should not be a reason for rejecting findings derived from cognitive psychology. Even if behavioural insights are not easy to translate into policy rules, they remain valuable, as they can render specific policies more effective. As some scholars put it, it is better to create "a collection of situation-specific mini-theories useful in the analysis of discrete legal problems"<sup>128</sup> than to stick to one, universally applicable theory that does not reflect reality.

## Conclusion

The aim of law is not just to create rules but it seeks to achieve certain objectives (such as investor protection). Those objectives cannot be attained if social and economic behaviour is misunderstood. Legal rules can constitute an effective tool to encourage socially desirable behaviour (and to discourage undesirable behaviour) only if the behaviour is accurately understood. Numerous studies conducted by behavioural economists have proved that the tenets of the rational choice theory do not, in fact, reflect true human nature.

Thus, the impact of psychological factors cannot be ignored, as such factors can have tremendous effects on the economy. For instance, some scholars

suggest that certain behavioural aspects were a root cause of the housing market bubble and its collapse in the US and the UK. During the credit expansion decade of 1997-2007, mortgage borrowers depended too heavily on prevailing low interest rates and excessive availability of credit (anchoring bias<sup>129</sup> and availability heuristics).<sup>130</sup> They were also too confident that rising house prices were going to continue indefinitely (overconfidence bias).<sup>131</sup> Finally, borrowers rushed to acquire properties without taking into account their financial situation (mental accounting bias).<sup>132</sup>

Market mechanisms alone will not eliminate irrational behaviour and, contrary to what is claimed by some traditional economists, market participants do not always learn from prior mistakes. In fact, a number of experiments show that certain biases cannot be eliminated through experience or training. For instance, Kahneman, Knetsch and Thaler, in a series of experiments on endowment effect, proved that, even though full feedback was provided at the end of each trial, endowment effect and loss-aversion persisted.<sup>133</sup> Their findings support the "view of endowment effects and loss aversion as fundamental characteristics of preferences".<sup>134</sup>

A growing body of evidence from behavioural science shows that "even well-informed and numerate consumers may exhibit systematic departures from welfare-maximising behaviour".<sup>135</sup> As behavioural criteria are not taken into account, investors may not be afforded the protection they actually need. Hence, one of the challenges that today's policymakers face is how to devise legal measures to counter the negative impact of cognitive biases. For instance, let us consider the evidence on overconfidence, which comes along with the phenomenon of over-optimism and wishful thinking.<sup>136</sup> Studies show that an overconfident

127 J. ARLEN, M. SPITZER, E. TALLER, "Endowment Effects within Corporate Agency Relationships", *Journal of Legal Studies*, 2002, Vol. 31, No. 1, pp. 1-37.

128 R.B. KOROBKIN, T.S. ULEN, "Law and Behavioural Science: Removing the Rationality Assumption from Law and Economics", *California Law Review*, Vol. 88, No. 4, 2000, pp. 1051-1144.

129 "Anchoring bias" means the situation in which "people make estimates by starting from an initial value that is adjusted to yield the final answer." (*Op. cit.*, footnote 38, p. 1128). Anchoring bias was documented in D. KAHNEMAN and A. TVERSKY's famous experiment in which participants were asked to estimate the number of African countries in the United Nations. When participants were asked to compare their answers to 65, their estimates were much higher than when they were asked to compare their answers to 10 (*Op. cit.*, footnote 38, p. 1128).

130 According to availability heuristics, "individuals tend to judge the probability of an event according to its availability in memory" (*op. cit.*, footnote 27, p. 29).

131 E. AVGOULEAS, "Reforming Investor Protection Regulation: The Impact of Cognitive Biases", in M. FAURE and F. STEPHEN (eds), *Essays in the Law and Economics of Regulation in honour of Anthony Ogus*, Intersentia, Antwerpen, 2008, p. 11.

132 E. AVGOULEAS, "Reforming Investor Protection Regulation: The Impact of Cognitive Biases", in M. FAURE and F. STEPHEN (eds), *Essays in the Law and Economics of Regulation in honour of Anthony Ogus*, Intersentia, Antwerpen, 2008, p. 12.

133 Authors indicated that the robustness of the obtained results "reduces the risk that the outcome is produced by an experimental artefact" and that the endowment effect persists in genuine market settings. (D. KAHNEMAN, J. KNETSCH, R. THALER, "Experimental Tests of the Endowment Effect and the Coase Theorem", *Journal of Political Economy*, 1990, Vol. 98, No. 6, pp. 1325-1348).

134 Ibid.

135 N. CHATER, S. HUCK, R. INDERST, "Consumer Decision-making in Retail Investment Services: A Behavioural Economics Perspective", Report to the European Commission/ SANCO, 2010, p. 3.

136 Self-confidence relates to the precision about own knowledge, skills, and expertise, as well as unrealistic self-perception (F.G.

investor with confirmation bias<sup>137</sup> routinely makes several proven systematic mistakes: he trades too often, takes excessive risks, and fails to exit the market at the right time.<sup>138</sup> A number of studies also prove that investors who trade too often earn much less than those who trade less frequently.<sup>139</sup> At present, there is no measure that could counter this phenomenon.

Some scholars promote a protective measure that would require intermediaries to monitor the number of financial transactions and the risk being taken by a client.<sup>140</sup> When clients trade too often with little success or take excessive risks over a longer period, such intermediaries would be obliged to warn that individual about the dangers of his trading approach.<sup>141</sup> Other researchers suggest that, in addition to examining the suitability and appropriateness of a financial product for a specific client, policymakers should also consider creating tools for testing one's own behavioural traits, such as overconfidence or risk attitude.<sup>142</sup> Financial intermediaries could be obliged to make a test using psychological insights to define clients' behavioural profile and evaluate their level of risk aversion, in order to render the principle of know-your-client more effective.<sup>143</sup>

Another example is information disclosure. Evidence provided by behavioural scientists proves that, even though information is *necessary* to protect investors, it is *not sufficient* and must be supplemented by other measures based on psychological studies. On the one hand, there is *information asymmetry*; on the other, there is *bounded rationality*. Simplification may not be sufficient to ensure correct risk perception and unbiased investment choices because investors are also influenced by framing effects. The way information is presented can have a significant impact on financial decisions.

While present financial regulation offers a framework for investor protection, adding behavioural science to the mix will help develop a "more nuanced understanding of behaviour for use by legal policymakers".<sup>144</sup> Financial regulation can profit not only from behavioural findings on human decision-making, but also from its empirical approach, which opens up new possibilities for integrating experimentation and controlled trials into policy design. Thus, insights from behavioural science can help to fine-tune financial regulation to improve its effectiveness. It can also respond to questions on how to translate prescriptions into practice to achieve specific policy objectives.

SPINDLER, "Behavioural Finance and Investor Protection Regulations", *Journal of Consumer Policy*, 2011, Vol. 34, No. 3, p.322). For the experiments on overconfidence see: S. LICHTENSTEIN, B. FISCHHOFF, "Do those who know more also know more about how much they know?", *Organizational Behaviour and Human Performance*, 1977, Vol. 20, No. 20, pp. 165-166.

137 The self-attribution bias refers to one's own tendency to attribute success to their own skills and effort but attribute failures to external factors, such as third parties, bad luck, or task difficulties (D.T. MILLER, M. ROSS, "Self-Serving Bias in Attribution of Causality: Fact or Fiction?", *Psychological Bulletin*, 1975, Vol. 82, No. 2, pp. 213-225. See also: B.R. SCHLENKER, R.S. MILLER, "Egocentrism in Groups: Self-Serving Biases or Logical Information Processing?", *Journal of Personality and Social Psychology*, 1977, Vol. 35, No. 10, pp. 755-764).

138 L. KLÖHN, "Preventing Excessive Retail Investor Trading under MiFID: A Behavioural Law & Economics Perspective", *European Business Organization Law Review*, 2009, Vol. 10, No. 3, p. 448.

139 On the matter of excessive trading, see: B. BARBER, T. ODEAN, "Trading is Hazardous to your Wealth: The Common stock Investment Performance of Individual Investors", *Journal of Finance*, 2000, Vol. 55, No. 2, pp. 773-806. B. BARBER and T. ODEAN concluded that "empirical research supports the view that overconfidence leads to excessive trading". They also found that investors who traded frequently earned 11.4% net return, while those who traded infrequently earned 18.5%.

140 L. KLÖHN, "Preventing Excessive Retail Investor Trading under MiFID: A Behavioural Law & Economics Perspective", *European Business Organization Law Review*, 2009, Vol. 10, No. 3, p. 448.

141 Ibid.

142 For example, M.K.H. LAW argues that in addition to traditional risk disclosure (which he defines as financial risk disclosure), we should consider imposing a behavioural risk disclosure to protect investors from cognitive and psychological biases. For details see: M.K.H. LAW, "Behavioural Risk Disclosure and Retail Investor Protection: Reflections on the Lehman Brothers Minibonds Crisis", *Hong Kong Law Journal*, 2010, Vol. 40, No. 1, pp. 15-42.

143 Disclosure documents would have to be prepared in a few different formats, each adapted to a specific group of investors.

144 R.B. KOROBKIN, T.S. ULEN, "Law and Behavioural Science: Removing the Rationality Assumption from Law and Economics", *California Law Review*, Vol. 88, No. 4, 2000, pp. 1051-1144.

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