

# Regulating Uncertainty: On the Regulation of Human Behavior and its Interpretation by the Court of Justice of the European Union

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## Abstract

More often than not, laws are meant to regulate human behavior. However, human beings' reactions to such regulations are to a large degree uncertain and one can only try to predict them. In that regard, the neighboring field of behavioral economics might provide relevant and necessary insights for effective regulation. However, the Court of Justice of the European Union might, should, or ought to rely on such findings when interpreting European Union (EU) secondary law, to give such rules the most effective meaning by limiting possible infringements on individuals' fundamental rights. Built on an assessment of the *Market in Financial Instruments Directive II* (MiFID II), as part of European capital markets law, and with references to consumer protection law, the Taxonomy Regulation, and other European legal acts, this paper, first of all, demonstrates that not only the European legislator but also the Court can, in most situations, rely on behavioral economic findings. Although human behavior as well as results stemming from experimental research are to a certain degree uncertain, concepts developed in behavioral economics describe human behavior better than concepts implying (fully) rational behavior. In addition, obstacles – stemming from both the field of behavioral economics and legal methodology – that arise when applying these experimental findings to interpreting EU secondary law will be summarized and ideas to counter those obstacles are presented. The overall objective of this paper is to further a discussion on how to best incorporate findings from the field of behavioral economics into legal methodology. For this, the paper references, among others, European capital markets law but strives to abstract and generalize key aspects to facilitate a broader reception and discussion.

## A. Introduction

### I. Overview and Research Agenda

The purpose of this paper is to demonstrate that not only the European legislator<sup>1</sup> but also the Court of Justice of the European Union (the CJEU or the Court) can or ought to, in many instances, rely on behavioral economic findings when interpreting European Union (EU) legislative acts. This is because, through many such regulations, the EU intends to regulate human behavior even as human beings' reactions to such regulation are to a large degree uncertain.

To demonstrate how and under which circumstances the CJEU may build its interpretation of EU law (also) on findings from the neighboring field of behavioral economics, I will first exemplify some regulatory acts through which the EU tries to influence human behavior (A. II) and clarify the notion of uncertainty in law and economics (A. III).

It appears that the EU often relies on information requirements as a tool of its regulatory toolbox.<sup>2</sup> Examples can be found, *inter alia*, in consumer protection law (e.g., Arts 5(1) or 6(7) of Directive 2011/83/EU<sup>3</sup>), data protection law (e.g., Arts 4(11), 6(1)(a), 12–14 of the *General Data Protection Regulation* [GDPR]<sup>4</sup>), EU environmental law (e.g., Arts 5–8 of Regulation (EU) 2020/852 [Taxonomy Regulation]<sup>5</sup>), and European capital markets law (e.g., Arts 24 and 25 of the *Market in Financial Instruments Directive II* [MiFID II]<sup>6</sup>). Two main aspects led me to build this paper on an assessment of Arts 24 and 25 MiFID II without neglecting other important provisions in EU secondary law. First, information requirements in European capital markets law are currently also utilized to achieve further objectives in EU law, in particular to support and accelerate ecological transformation. Second, these information requirements are meant to directly influence the contractual relationship between investment firms and individual investors while not limiting the latter group but, in principle, including all possible contracting parties (i.e., retail clients, professional clients, and eligible counterparties<sup>7</sup>). This allows to assess the ideas summarized in this

1 This general term includes all kinds of legislative processes enshrined in Arts 288–299 of the *Treaty on the Functioning of the European Union*.

2 See at note 30 below.

3 EP and Council Directive 2011/83/EU, OJ 2011 L 304/ 64 [Directive 2011/83/EU].

4 EP and Council Regulation (EU) 2016/679, OJ 2016 L 119/1 [GDPR].

5 EP and Council Regulation (EU) 2020/852, OJ 2020 L 198/13 [Taxonomy Regulation].

6 EP and Council Directive 2014/65/EU, OJ 2014 L 173/349 [MiFID II].

7 See also notes 21–23 below.

paper with a broad focus. Nonetheless, the assessments and results outlined here seek to be generalizable to allow a broader reception and discussion in various other fields of EU (secondary) law.

Consequently, this paper progresses by examining the legitimacy of applying behavioral economic findings in EU law (B) and establishing the CJEU's competence to build on such findings (C). Since findings stemming from empirical research about human behavior are, however, to some degree uncertain, this paper also outlines obstacles to applying such findings in EU law, both stemming from the field of behavioral economics (D. I) and the field of legal methodology (D. II) while offering possible paths to countering such obstacles (D. III). These discussions are followed by concluding observations (E).

## II. Regulating Human Behavior

In many instances, the law is meant to regulate human behavior directly through orders and prohibitions, or indirectly by setting incentives or establishing restrictions.<sup>8</sup> This is true for EU law, *inter alia*, in the areas of consumer protection,<sup>9</sup> capital markets,<sup>10</sup> environmental protection,<sup>11</sup> and corporate sustainability in supply chain management.<sup>12</sup>

As part of EU capital markets law, the MiFID II<sup>13</sup> was enacted, following a lengthy consultation process,<sup>14</sup> in 2014. The objective was to revise its predecessor

8 See also R. B. Korobkin & T. S. Ulen, 'Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics', 88 *California Law Review* (2000) 4, 1051, 1143 and, including a focus on a regulation's evaluation, C. Coglianese, 'Measuring Regulatory Performance: Evaluating the Impact of Regulation and Regulatory Policy' (2012), 9–10, available at [https://web.archive.org/2012-08-10/207894-1\\_coglianese%20web.pdf](https://web.archive.org/2012-08-10/207894-1_coglianese%20web.pdf) (last visited 10 October 2024).

9 See only Directive 2011/83/EU, *supra* note 3.

10 See mainly MiFID II, *supra* note 6; EP and Council Regulation (EU) No 596/2014, OJ 2014 L 173/1 [MAR].

11 See the various regulations and directives planned by the European Commission, European Commission, 'The European Green Deal: Communication From the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions', COM(2019) 640 final.

12 See only the currently discussed proposal: European Commission, 'Proposal for a Directive of the European Parliament and of the Council on Corporate Sustainability Due Diligence and Amending Directive (EU) 2019/1937', COM(2022) 71 final.

13 MiFID II, *supra* note 6.

14 See only The High-Level Group on Financial Supervision in the EU, 'Report of the High Level Group on Financial Supervision in the EU, Chaired by Jacques de Larosière' (2009), available at [https://ec.europa.eu/economy\\_finance/publications/pages/](https://ec.europa.eu/economy_finance/publications/pages/)

after the financial crisis of 2007.<sup>15</sup> The European Commission summarized its objectives as “[...] to further the integration, competitiveness, and efficiency of EU financial markets.”<sup>16</sup> For this, the Commission proposed additional rules on transparency and regulations dealing with conflict of interests. The Commission also extended the directive’s scope to include all organized trading venues—i.e., regulated markets, multilateral trading facilities (MTFs), and organized trading facilities (OTFs)—to provide a level playing field for derivatives and other instruments too.<sup>17</sup>

Although MiFID II is a directive addressed to the EU Member States, which leaves them the choice of form and methods to implement the binding results (see Art. 288(3) of the *Treaty of the Functioning of the European Union* [TFEU]<sup>18</sup>), the directive remains relevant when interpreting the relevant national laws.<sup>19</sup> Furthermore, the Member States may be restricted to legislate more broadly or narrowly than the directive stipulates, subject to its degree of harmonization—a matter left for other essays to determine.<sup>20</sup>

Arts 24 and 25 MiFID II, which form the central investor protection provisions, probably have the widest scope of application. They might become relevant not only regarding investment firms but also investors, including retail investors. In essence, and without going into the provisions’ details, they regulate which pieces of information investment firms must provide to (potential)

publication14527\_en.pdf (last visited 25 February 2009), paras 38–39; the summary by European Commission, ‘Proposal for a Directive of the European Parliament and of the Council on Markets in Financial Instruments Repealing Directive 2004/39/EC of the European Parliament and of the Council (Recast)’, COM(2011) 656 final, 3–4 [European Commission, ‘COM(2011) 656 final’].

- 15 See only S. J. Kasper, ‘Harmonisierungsgrad der Bestimmungen zum Anlegerschutz Nach der MiFID II: Teil I’, 75 *Wertpapier-Mitteilungen* (2021) 2, 60, 60–61 [Kasper, ‘Harmonisierungsgrad MiFID II: Teil I’].
- 16 European Commission, ‘COM(2011) 656 final’, *supra* note 14.
- 17 See only the overview and explanation by *ibid.*, 4–11.
- 18 *Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union*, OJ 2012 C 326/47 [TEU and TFEU].
- 19 *Jean Noël Royer*, C-48/75, Judgment of 8 April 1976, ECLI:EU:C:1976:57, paras 69, 73.
- 20 Regarding the degree of harmonization, and arguing that MiFID II is a fully harmonizing directive, see only Kasper, ‘Harmonisierungsgrad MiFID II: Teil I’, *supra* note 15; S. J. Kasper, ‘Harmonisierungsgrad der Bestimmungen zum Anlegerschutz Nach der MiFID II: Teil II’, 75 *Wertpapier-Mitteilungen* (2021) 3, 101 [Kasper, ‘Harmonisierungsgrad MiFID II: Teil II’] with further references.

investors—i.e., retail clients,<sup>21</sup> professional clients,<sup>22</sup> or eligible counterparties<sup>23</sup>—when providing investment services, i.e., portfolio management<sup>24</sup> or investment advice,<sup>25</sup> investment advice on an independent basis,<sup>26</sup> other investment services,<sup>27</sup> or execution only services<sup>28</sup>. The information provided to clients in accordance with Arts 24 and 25 MiFID II is meant to enable clients to make informed choices.<sup>29</sup>

For this, MiFID II, together with its supplementary regulation, i.e., Delegated Regulation (EU) 2017/565<sup>30</sup>, requires a plethora of information that needs to be provided to (potential) clients and investors. From my point of view, the most essential points of information are those concerning the investment firm and its offered services (see Art. 24(4)(1)(1) MiFID II and Arts 47–48 Delegated Regulation (EU) 2017/565).<sup>31</sup> This is so because, based on this information, (potential) clients decide what kind of services they want to make use of. Consequently, such information and the decision made because of it will influence the further relationship between the investor and investment firm. Furthermore, the information has to be provided in good time (see Art. 24(4)(1)(1) MiFID II and Art. 46(1),(2) Delegated Regulation (EU) 2017/565), which should be interpreted as a point in time at which the (potential) client is still mostly unaffected by the investment firm, has not yet invested much time, and might still feel free to make decisions.<sup>32</sup> After the (potential) client had made an initial decision with regard to an investment firm and a type of service, further information, *inter alia*, regarding potentially suitable investment products, costs, and charges (see Art. 24(4)(1),(2) MiFID II), as well as potentially unresolved conflicts of interest must be provided.

In addition to providing the above-mentioned information, and as from its date of application, Art. 6(2)(2) of Regulation (EU) 2019/2088<sup>33</sup> requires

21 Art. 4(11) MiFID II, *supra* note 6.

22 Art. 5(12) MiFID II, *supra* note 6.

23 Art. 30 MiFID II, *supra* note 6.

24 Arts 24(8), 25(2) MiFID II, *supra* note 6.

25 Arts 24(4), 25(2) MiFID II, *supra* note 6.

26 Art. 24(4)(1)(a)(i)–(ii), (7) MiFID II, *supra* note 6.

27 Art. 25(3)(1) MiFID II, *supra* note 6.

28 Art. 25(4) MiFID II, *supra* note 6.

29 This is expressly stated in Art. 24(5) MiFID II and also referred to in Recitals 74 and 81 to MiFID II, *supra* note 6.

30 Commission Delegated Regulation (EU) 2017/565, OJ 2017 L 87/1.

31 A more detailed analysis of this example must be left for another essay.

32 See below in section B. I.

33 Regulation (EU) 2019/2088, OJ 2019 L 317/1 [Regulation (EU) 2019/2088].

investment firms – by referencing the purported Taxonomy Regulation<sup>34</sup> – to also disclose to their clients sustainability-related information regarding their investments.<sup>35</sup> The Commission amended<sup>36</sup> the Taxonomy Regulation and its supplementary Regulation<sup>37</sup> without objection in the scrutiny phase’s given timeframe (July 11, 2022) by the European Parliament and the Council according to Regulation (EU) 182/2011.<sup>38</sup> One of the objectives of the amendment was to also include nuclear power and natural gas as green technologies, at least for a transitory period. The Taxonomy Regulation and its supplementary Regulation were initially enacted to establish criteria for an investment to qualify as “environmentally sustainable”<sup>39</sup>. The underlying purpose is to “reorient capital flows towards sustainable investment in order to achieve sustainable and inclusive growth.”<sup>40</sup>

Besides the MiFID II and Taxonomy Regulation and without going into these or further regulations details, the EU arguably also builds on human behavior to protect a proper functioning of the internal market (e.g., Art. 1 of Directive 2011/83/EU<sup>41</sup>), to protect natural persons’ personal data while guaranteeing the free movement of such data (e.g., Art. 1 GDPR<sup>42</sup>), or to fight market abuse practices (e.g., Art. 1 MAR<sup>43</sup>). As such, the term “clear and comprehensible” (see Arts 5(1) and 6(1) of Directive 2011/83/EU), the notion of the “consumer” (Art. 6(7) of Directive 2011/83/EU),<sup>44</sup> the notion of the “investor” as a reasonable investor (Art. 7(4) MAR and Recital 14),<sup>45</sup> the

34 Taxonomy Regulation, *supra* note 5.

35 See also Recital 33 of Regulation (EU) 2019/2088, *supra* note 33.

36 Commission Delegated Regulation (EU) 2022/1214, OJ 2022 L 188/1. The amended Commission Delegated Regulation takes effect on 1 January 2023, see Art. 3 of the Commission Delegated Regulation (EU) 2022/1214. For details on the context, consultations, and legal elements, see Commission Delegated Regulation (EU) .../..., C(2022) 631/3, available at [ec.europa.eu/finance/docs/level-2-measures/taxonomy-regulation-delegated-act-2022-631\\_en.pdf](https://ec.europa.eu/finance/docs/level-2-measures/taxonomy-regulation-delegated-act-2022-631_en.pdf) (last visited 8 October 2024).

37 Commission Delegated Regulation (EU) 2021/2139, OJ 2021 L 442/1.

38 EP and Council Regulation (EU) No 182/2011, OJ 2011 L 55/13.

39 Art. 1(1) of the Taxonomy Regulation, *supra* note 5.

40 Recital 6 of the *ibid.*

41 Directive 2011/83/EU, *supra* note 3.

42 GDPR, *supra* note 4.

43 MAR, *supra* note 10.

44 This is especially in light of the consequences enshrined in Art. 10 of Directive 2011/83/EU, *supra* note 3.

45 See for a summary of the debate only M. Ventoruzzo & S. Mock (eds), *Market Abuse Regulation*, 2nd ed. (2022), chapter B.7 paras 76–79; C. Kumpan & R. Misterek, ‘Artikel 7 Insiderinformationen’, in E. Schwark & D. Zimmer (eds), *Kapitalmarktrechts-Kommentar*,



information requirements stemming from Arts 4(11), 5(1)(a), 12–14 GDPR for lawful consent (see Art. 6(1)(a) GDPR)<sup>46</sup>, and many other notions, terms, and undefined or vague formulations might require an interpretation in line with behavioral economic findings.<sup>47</sup>

In summary, the EU legislator decided to use wide-ranging information as a tool to enable (potential) clients and contracting partners to make informed decisions about investments or data disclosures, to incentivize them to direct their investments toward environmentally sustainable causes, to refrain from exploiting insider information, and to exercise their right to withdraw from distance or off-premises contracts. These examples demonstrate that the European legislator uses, *inter alia*, frames<sup>48</sup> and transparency through information<sup>49</sup> to incentivize market actors to support its legislative (normative) objectives. With this approach, the European legislator relies on (predicted) compliance by market actors and trusts them to make informed decisions when provided with relevant information. The following question then arises: Under which assumptions of human behavior does the European legislator choose its regulatory tools and can it trust that humans will act accordingly?

This leads to the field of behavioral economics in law, which is closely linked to uncertainty in law (A. III) and which will be discussed in more detail in a later section (B. I). From the outset of this paper, it is necessary to clarify that the ideas presented herein have been formed by an assessment of Arts 24 and 25 MiFID II and its supplementary pieces of legislation. However, I strive

5th ed. (2020), paras. 128–142. On the interpretation of the adverb “reasonably” as referring on common experience, see *Markus Gell v. Daimler AG*, C-19/11, Judgment of 28 June 2012, ECLI:EU:C:2012:397, paras 44–45.

46 On information requirements for a lawful consent, see only *Bundesverband der Verbraucherzentralen und Verbraucherverbände – Verbraucherzentrale Bundesverband e.V. v. Planet49 GmbH*, C-673/17, Judgment of 1 October 2019, ECLI:EU:C:2019:801, paras 46, 79-81.

47 In particular regarding the interpretation of the reasonable investor (see Art. 7(4) MAR, *supra* note 10) in light of behavioral economic findings, see only H. Fleischer, ‘Ad-hoc-Publizität beim Einvernehmlichen Vorzeitigen Ausscheiden de Vorstandsvorsitzenden: Der DaimlerChrysler-Musterentscheid des OLG Stuttgart’, 10 *Neue Zeitschrift für Gesellschaftsrecht* (2007) 11, 401, 405; K. Langenbacher, ‘In Brüssel Nichts Neues? – Der „Verständige Anleger“ in der Marktmissbrauchsverordnung’, *Die Aktiengesellschaft* (2016) 12, 417, 420.

48 On the concept, see only A. Tversky & D. Kahneman, ‘The Framing of Decisions and the Psychology of Choice’, 211 *Science* (1981) 4481, 453.

49 See especially Art. 24 and 25 MiFID II, *supra* note 6.

to abstract and generalize the presented concepts and ideas to allow for a wider application in EU law.

### III. Uncertainty in Law

In economics, there is a strict differentiation between risk and uncertainty.<sup>50</sup> Whereas risk refers to situations in which decision makers know about the (possible) decision outcomes and their probabilities (quantifiability),<sup>51</sup> uncertainty refers to those situations in which such information is unavailable.<sup>52</sup>

The concept of uncertainty is also not unknown to legal methodology.<sup>53</sup> Whenever the legislator regulates in a field for which needed knowledge and

50 F. H. Knight, *Risk, Uncertainty and Profit* (1921), 19–20 and Chapter VII; T. Richards, *Investing Psychology: The Effects of Behavioral Finance on Investment Choice and Bias* (2014), 12; A. Tversky & D. Kahneman, ‘Advances in Prospect Theory: Cumulative Representation of Uncertainty’, 5 *Journal of Risk and Uncertainty* (1992) 4, 297, 303 [Tversky & Kahneman, ‘Advances in Prospect’]. With a focus on ambiguity (i.e., “uncertainty about probability, created by missing information that is relevant”), see C. F. Camerer & M. Weber, ‘Recent Developments in Modeling Preferences: Uncertainty and Ambiguity’, 5 *Journal of Risk and Uncertainty* (1992) 4, 325, 330.

51 Examples are coin tosses, lotteries, and dice games.

52 K. F. Park & Z. Shapira, ‘Risk and Uncertainty’, in M. Augier & D. J. Teece (eds), *The Palgrave Encyclopedia of Strategic Management* (2020). For a broader discussion of the notion, see also S. C. Dow, *Foundations for New Economic Thinking: A Collection of Essays* (2012), 72–82.

53 For a general discussion and with a definition of legal uncertainty as “[a] situation that obtains when the rule that is relevant to a given act or transaction is said by informed attorneys to have an expected official outcome at or near the 0.5 level of predictability”, see A. D’Amato, ‘Legal Uncertainty’, 71 *California Law Review* (1983) 1, 1, 2, regarding strategies for reducing legal uncertainty pp. 45–55 *et passim*. Referring to risk vs. uncertainty, unambiguous vs. ambiguous probability, precise/sharp vs. vague probability, and epistemic reliability in the realm of tort reform, see M. A. Geistfeld, ‘Legal Ambiguity, Liability Insurance, and Tort Reform’, 60 *DePaul Law Review* (2011) 2, 539, 541. Differentiating between idiosyncratic (diversifiable) and systematic (non-diversifiable) legal uncertainty as well as with references to D. M. Trubek, ‘Max Weber on Law and the Rise of Capitalism’ *Wisconsin Law Review* (1972) 3, 720, 741 and others, see J. Lee, D. Schoenherr & J. Starmans, ‘The Economics of Legal Uncertainty’, *SSRN Electronic Journal* (2023), 1–6 with further references. With a focus on (managing legal) risk rather than (scientific) uncertainty, see R. Baldwin, ‘Introduction – Risk: The Legal Contribution’, in R. Baldwin (ed.), *Law and Uncertainty* (1997), 1, 17–19. On contact risk and uncertainty, including the costs of uncertainty, see D. Shannon, ‘Contract Risk and Uncertainty Management’, in V. A. Suveiu (ed.), *Routledge Handbook of Risk Management and the Law* (2023), 144, *passim*. On the terms ambiguity and vagueness (rather than uncertainty) in legal interpretation, see R. Poscher, ‘Ambiguity and Vagueness in Legal

information is unavailable, we grant the legislator a margin of judgment or discretion, also with regard to infringements on human rights, for example, COVID-related regulations. Furthermore, also in terms of the means of regulation, we allow the legislator to exercise discretion to the extent that the chosen means are not *per se* ineffective or there are means available that might render the same result by less rights-intrusive means. Legal rules also need to comply with the general legal doctrine of legal certainty, which requires “that those subject to the law must know what the law is so as to be able to plan their actions accordingly.”<sup>54</sup> Moreover, we allow the administrative wider discretion whenever their assessment is necessary to cope with the situation at hand, whereas only the courts can control the exercise of discretion as to any abuse of discretion or power.<sup>55</sup>

Whenever the legislator aims at regulating or incentivizing human behavior, a regulation’s effects are *per se* uncertain (to a certain extent), since individuals, both in and outside of democratic societies, are still free to choose their actions and behavior and will do so.<sup>56</sup> Nonetheless, findings in the field of behavioral economics suggest that human behavior is predictable, though only to a certain degree. This allows legislators to use such research findings for regulatory purposes. However, also the competent courts, which in EU law is primarily the CJEU, might be advised or even obliged to rely on such findings when interpreting EU secondary law (C).

The question that I must exclude from the scope of this paper is whether judges themselves can decide free from influence by political or philosophical opinions, regardless of their heritage, career, or other personal characteristics, and whether rules of thumb will often influence their decisions.<sup>57</sup> The scope

Interpretation’, in P. M. Tiersma & L. Solan (eds), *The Oxford Handbook of Language and Law* (2012), 128. On the ambiguities of statutes and legal decisions made by way of judgments, see W. Farnsworth, D. F. Guzior & A. Malani, ‘Ambiguity About Ambiguity: An Empirical Inquiry Into Legal Interpretation’, 2 *Journal of Legal Analysis* (2010) 1, 257, paras. 1–2, 4, 63–65.

54 T. Tridimas, *The General Principles of EU Law*, 2nd ed. (2007), 242, with a focus on foreseeability pp. 265–266.

55 For a systematic overview of various forms of discretion, although with a focus on the US legal system, see only H. L. A. Hart, ‘Discretion’, 127 *Harvard Law Review* (2013) 2, 652, 655; with a focus on EU administrative law, see P. Craig, *EU Administrative Law*, 2nd ed. (2012), 549–589.

56 See also, generalizing from patent law, K. C. Mullally, ‘Legal (Un)Certainty, Legal Process, and Patent Law’, 43 *Loyola of Los Angeles Law Review* (2010) 3, 1109, 1116, 1158.

57 For a discussion of those influences, see only C. K. Winter, ‘The Value of Behavioral Economics for EU Judicial Decision-Making’, 21 *German Law Journal* (2020) 2, 240,

will further be limited to the interpretation of secondary EU law by the CJEU, although the concepts of nudging and behaviorally informed legislation (B. I. 2) will be summarized to set the scene.

Since it is not possible to discuss theories and findings from behavioral economics in detail in this paper, only the essential ideas will be presented, referring readers to their most important parameters. Furthermore, this paper is meant to assess the research question broadly to facilitate stakeholders drawing their conclusions in individual cases.

## B. Legitimacy of Applying Behavioral Economics in EU Law

This section aims to outline not only a number of fundamental findings in the field of behavioral economics (B. I. 1) and their relevance for legislative purposes (B. I. 2) but also the limitations for applying these findings that are linked to the idea of (democratic) legitimacy (B. II).

### I. Behavioral Economics in EU Law

The EU legislator usually does not outline its theoretical understanding of how the addressees will behave or on which behavior it builds its regulation.<sup>58</sup> This leaves room for interpretation. Since human behavior is not the lawyer's primary research focus, research findings from other fields must be applied. These are primarily the fields of economic and psychological research. The findings from those fields and actual human behavior *vis-à-vis* regulatory concepts are informative for assessing a regulation's effects. In that regard, the following arguments are built on the self-styled bathtub model, stemming from social theory.<sup>59</sup>

240–242 *et passim* with additional references.

58 See only the discussion about the interpretation of a “reasonable investor” (Art. 7(4) MAR, *supra* note 10) described in and at note 45 above, the notion of the consumer (Art. 6(7) of Directive 2011/83/EU, *supra* note 3), or what kind of client—i.e. fully informed, rationally deciding, reasonable, average, etc.—is meant by Arts 24 and 25 MiFID II, *supra* note 6.

59 J. S. Coleman, ‘Micro Foundations and Macrosocial Theory’, in S. Lindenberg, J. S. Coleman & S. Nowak (eds), *Approaches to Social Theory* (1986), 345. For a more modern recent discussion, see C. A. Dunlop & C. M. Radaelli, ‘Learning in the Bath-Tub: The Micro and Macro Dimensions of the Causal Relationship Between Learning and Policy Change’, 36 *Policy and Society* (2017) 2, 304.

Traditionally, psychologists and economists described a human behavioral model in which actors strived to maximize their individual utility; this was termed the *homo oeconomicus* model.<sup>60</sup> The underlying idea was the purported resourceful, evaluating, maximizing individual who would always decide (perfectly) rationally (*rational choice theory*).<sup>61</sup>

However, humans do not behave perfectly rationally. For example, New Year's resolutions are made and then broken within the first few hours or days of the new year; more or more eadditional or more expensive goods are purchased simply because of their visibility or availability in a store or online market, or a person's competence is evaluated based on their attractiveness.

In the field of capital markets law, it is evidenced that individuals do not process all relevant information completely and that they (often) assess information regardless of its relevance for an actual investment decision at hand.<sup>62</sup> Without presenting the individual findings, the following subsection (1) summarizes the concept of bounded rationality and introduces the prospect theory. The second subsection demonstrates how such concepts can be and are used in (EU) legislation (2).

## 1. Bounded Rationality and Prospect Theory

Building on prior research,<sup>63</sup> Herbert Alexander Simon developed his theory of bounded rationality<sup>64</sup> in which he acknowledged that individuals usually lack (complete) information, are not capable of processing all information (computational capacity), and that their decisions are subject to time constraints.<sup>65</sup> With these and further empirically proven findings, he modified the above-mentioned *homo oeconomicus* model.<sup>66</sup>

60 See on the development from *homo oeconomicus* to a more realistic approach, R. H. Thaler, 'From Homo Economicus to Homo Sapiens', 14 *Journal of Economic Perspectives* (2000) 1, 133.

61 Korobkin & Ulen, *supra* note 8, 1055–1059, 1060–1066.

62 See only A. Shleifer & L. H. Summers, 'The Noise Trader Approach to Finance', 4 *Journal of Economic Perspectives* (1990) 2, 19, 24–25 with further references and the (general) assessment by Korobkin & Ulen, *supra* note 8; E. Burton & S. Shah, *Behavioral Finance: Understanding the Social, Cognitive, and Economic Debates* (2013).

63 Knight, *supra* note 50.

64 See only R. Selten, 'What Is Bounded Rationality?', in G. Gigerenzer & R. Selten (eds), *Bounded Rationality* (2001), 13.

65 H. A. Simon, *Models of Man, Social and Rational: Mathematical Essays on Rational Human Behavior in a Social Setting*, 4th ed. (1957), 256 (under the term 'approximate rationality').

66 See in and at note 60 above.

Daniel Kahneman and Amos Tversky then built on this bounded rationality model and developed their empirically proven<sup>67</sup> *prospect theory*, which describes how individuals make decisions.<sup>68</sup> Superficially, the *prospect theory* is founded upon four assumptions that all contradict the *homo oeconomicus* model: Individuals are reference-dependent, have nonlinear preferences, are risk-seeking, and are loss-averse.<sup>69</sup>

In this process of aligning the psychological and economic model of how individuals make decisions in the real world, a plethora of individual heuristics and biases have been discovered that cannot all be named, let alone summarized in this paper. Yet, the literature provides summaries.<sup>70</sup>

The above-mentioned<sup>71</sup> examples demonstrate hyperbolic discounting<sup>72</sup>, which is based on a different evaluation of incidents in the near and distant future (New Year's resolutions), the availability heuristic<sup>73</sup> (the purchase of additional or more expensive goods), and the halo heuristic<sup>74</sup> (individual's competence measured by their attractiveness). Furthermore, individuals are often overwhelmed by the sheer quantity of information they receive, which might lead to a state of information overload.<sup>75</sup> In that state, one of the following can occur: Individuals can no longer process new information or they lose their ability to

67 See only with further references Burton & Shah, *supra* note 62, 98.

68 A. Tversky & D. Kahneman, 'Prospect Theory: An Analysis of Decision under Risk', 47 *Econometrica* (1979) 2, 263.

69 Tversky & Kahneman, 'Advances in Prospect', *supra* note 50, 298.

70 For an overview that is not all-encompassing, see only B. Fischhoff, 'Heuristics and Biases in Application', in T. Gilovich, D. Griffin & D. Kahneman (eds), *Heuristics and Biases*, 14th ed. (2013), 730. A shorter summary with a special focus on using behavioral insights in administrative law is presented by A. Alemanno & A. Spina, 'Nudging Legally: On the Checks and Balances of Behavioral Regulation', 12 *International Journal of Constitutional Law* (2014) 2, 429, 434.

71 See at note 62 above.

72 S. Frederick, G. F. Loewenstein & T. O'Donoghue, 'Time Discounting and Time Preference: A Critical Review', 40 *Journal of Economic Literature* (2002) 2, 351, 360–362, 366–367.

73 A. Tversky & D. Kahneman, 'Judgment Under Uncertainty: Heuristics and Biases', 185 *Science* (1974) 4157, 1124, 1127.

74 First described by F. L. Wells, 'A Statistical Study of Literary Merit', *Archives of Psychology* (1907) 7, 5.

75 See only M. J. Eppler & J. Mengis, 'The Concept of Information Overload: A Review of Literature From Organization Science, Accounting, Marketing, MIS, and Related Disciplines', 20 *The Information Society* (2004) 5, 325, 326 which also refer to related notions, such as cognitive overload, sensory overload, communication overload, knowledge overload, and information fatigue syndrome.

differentiate between highly relevant, less relevant, and irrelevant information, or they experience that their decision-making abilities are negatively affected.<sup>76</sup> The focus of this paper will not be on the discussion of further heuristics and biases that might affect individuals' decision-making abilities.<sup>77</sup>

Generally,<sup>78</sup> behavioral biases apply to all humans, regardless of their age, profession, literacy, and other factors.<sup>79</sup> This goes contrary to common intuitions, since people expect experts to behave more rationally – if not completely rational – compared to laypeople. Although experts sometimes behave more rationally, even their behavior can be better described as non-rational, which leaves them closer to laypeople's behavior than to behavior that the *homo oeconomicus* model describes.

These findings are, however, not to be understood as guaranteeing that every individual will behave in the same way; in other words, an individual's behavior in a specific situation cannot be predicted.<sup>80</sup> However, one can ignore this uncertainty as to how an individual person will react to a regulation if a sufficient number of individuals will act as predicted.

Consequently, a large number of findings in behavioral economics can be described as robust, i.e., – superficially – they could be demonstrated in

76 On the negative consequences of information overload, see only J. Jacoby, D. E. Speller & C. A. Kohn, 'Brand Choice as a Function of Information Load', 11 *Journal of Marketing Research* (1974) 1, 63, 63–69; N. Cowan, 'The Magical Number 4 in Short-Term Memory: A Reconsideration of Mental Storage Capacity', 24 *Behavioral and Brain Sciences* (2001) 1, 87; Eppler & Mengis, *supra* note 75, 326, 328; T. W. Jackson & P. Farzaneh, 'Theory-Based Model of Factors Affecting Information Overload', 32 *International Journal of Information Management* (2012) 6, 523; P. G. Roetzel, 'Information Overload in the Information Age: A Review of the Literature From Business Administration, Business Psychology, and Related Disciplines With a Bibliometric Approach and Framework Development', 12 *Business Research* (2019) 2, 479, 483. With proof that information overload affects experts and laypeople, see only T. A. Paredes, 'Blinded by the Light: Information Overload and its Consequences for Securities Regulation', 81 *Washington University Law Review (formerly Washington University Law Quarterly)* (2003) 2, 417, 484 *et passim*.

77 See also references to relevant literature in note 70 above.

78 A number of biases tend to be less distorting for certain professional backgrounds, although they do not disappear completely.

79 See, among others, and with further references only K. Daniel, D. Hirshleifer & S. H. Teoh, 'Investor Psychology in Capital Markets: Evidence and Policy Implications', 49 *Journal of Monetary Economics* (2002) 1, 139, 177; W. F. M. de Bondt & R. H. Thaler, 'Do Analysts Overreact?', in Gilovich, Griffin & Kahneman, *supra* note 70, 678, 678; Winter, *supra* note 57, 248.

80 See only Alemanno & Spina, *supra* note 70, 432.

many individual empirical studies to influence the decision-making process of individuals. Their existence is therefore proven beyond doubt, and yet still a certain level of uncertainty persists.<sup>81</sup> Possible obstacles to the legal methodology that arise from this uncertainty will be discussed in a later subsection (D).

## 2. Nudging and Behaviorally Informed Legislation

If it can be shown that certain heuristics and biases influence the decision-making process, why should legislators not use these findings to incentivize individuals to take better or at least better-informed decisions? This is, vaguely, the question and idea underlying the concepts of nudging<sup>82</sup> and behaviorally informed legislation.<sup>83</sup> Nudging, which is inspired by libertarian paternalism,<sup>84</sup> aims to alter the individual's behavior without limiting the choice set by policymakers organizing the "context, process, and environment in which individuals make decisions"<sup>85</sup>.<sup>86</sup> Policymakers can thus aptly be described as "choice architects".<sup>87</sup> Behaviorally informed regulation might include the method of nudging but can also use – detailedly described – disclosure requirements, default rules, and simplification.<sup>88</sup> Those approaches must be understood as influencing the run-up to the actual decision making. In their details, both concepts might overlap. In any case, both concepts raise similar legal and legitimacy questions, as discussed in the following section (II).

To operationalize the findings from behavioral economics for the legislature and administration, many States as well as the EU have formed self-

81 See only *ibid.*

82 See only A. van Aaken, 'Constitutional Limits to Paternalistic Nudging: A Proportionality Assessment', in A. Kemmerer *et al.* (eds), *Choice Architecture in Democracies* (2016), 161, 161–167 [Van Aaken, 'Constitutional Limits'].

83 Alemanno & Spina, *supra* note 70; M. Baggio *et al.*, 'The Evolution of Behaviourally Informed Policy-Making in the EU', 28 *Journal of European Public Policy* (2021) 5, 658, 660.

84 See on its roots, R. H. Thaler & C. R. Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness* (2008), 1–16. See also van Aaken, 'Constitutional Limits', *supra* note 82, 167–171; A. van Aaken, 'Judge the Nudge: In Search of the Legal Limits of Paternalistic Nudging in the EU', in A. Alemanno & A.-L. Sibony (eds), *Nudge and the Law* (2015), 83.

85 Alemanno & Spina, *supra* note 70, 438.

86 See fundamentally on nudging, Thaler & Sunstein, *supra* note 84, 6. With a focus on policy tools, see van Aaken, 'Constitutional Limits', *supra* note 82, 171–182.

87 Alemanno & Spina, *supra* note 70, 438.

88 See only *ibid.*, 438–439.



styled nudging units or, as the EU's unit is named, Competence Centers on Behavioral Insights<sup>89</sup>.

A (purposeful?) example of relying on behavioral insights in EU law is the withdrawal right in consumer law, now enshrined, *inter alia*, in Art. 9 of Directive 2011/83/EU.<sup>90</sup> It enables consumers to rectify an intuitive decision within a fixed period. Such rights can counterbalance, among others, purchases caused by the halo heuristic. Another example, the effects of which have yet to be seen, is the Taxonomy Regulation and its effects in conjunction with information obligations in European capital markets law. This example allows to label specific financial instruments as “environmentally sustainable”, thereby incentivizing investments in such instruments without limiting the investor’s free choice.<sup>91</sup> In addition, investment firms are obliged to inform (potential) investors whether an investment is “environmentally sustainable” (Arts 5–8 Taxonomy Regulation). Even if a financial product might not be covered by the specific regulations enshrined in the Taxonomy Regulation and Regulation (EU) 2019/2088, the provided information should at least read: “The investments underlying this financial product do not take into account the EU criteria for environmentally sustainable economic activities.” (Art. 7 Taxonomy Regulation).<sup>92</sup>

Arguably, information requirements laid down in Arts 24 and 25 MiFID II could also be regarded as building on findings from the field of behavioral economics. However, the mere requirement to disclose a large quantity of information should not be understood as effectively building on such insights. Yet first good efforts can be detected in, for example, Art. 44(2) and (3) of the Delegated Regulation 2017/565, which detail requirements for the presentation of information (font sizes, necessary data for informative comparisons, etc.).

Similarly, the obligation to label a button with the words “order with obligation to pay” (Art. 8(2)(2) of Directive 2011/83/EU) when a distance contract is concluded by electronic means may be influenced by behavioral

89 European Commission, ‘Competence Centre on Behavioural Insights’ (2011), available at [knowledge4policy.ec.europa.eu/behavioural-insights\\_en](https://knowledge4policy.ec.europa.eu/behavioural-insights_en) (last visited 8 October 2024).

90 Directive 2011/83/EU, *supra* note 3. Another example may be Arts 6 and 7 of EP and Council Directive 2005/29/EC, OJ 2005 L 149/22 [Unfair Commercial Practices Directive], which regulate misleading commercial practices as also including “factually correct” information which can nonetheless mislead the average consumer by way of its presentation.

91 See at note 34 above.

92 A more detailed assessment must be left for future assessments.

economic findings.<sup>93</sup> Overall, applying findings from behavioral economics is debated in various legal fields which cannot be outlined altogether in this paper.<sup>94</sup>

## II. (Democratic) Legitimacy

Having established that humans do not behave (completely) rationally and that legislators and the administration can use findings from behavioral economics, among others, to enact laws that build on those findings, the question arises whether or under which circumstances the European legislator may use tools such as nudging and behaviorally informed legislation (1). Furthermore, and (partly) derived from that assessment, I discuss the limitations for the CJEU to use findings from behavioral economics in its judgments (2). In a later section, I outline five scenarios in which the CJEU might be advised or even obliged to build on such findings in its judgments (C).

At the outset, it is important to clarify the notion of legitimacy that is applied in this paper. Legitimacy, as it is understood in this paper, stems from the field of political science and can be divided into input, output, and throughput legitimacy.<sup>95</sup> Input legitimacy asks whether political decisions are legitimate, i.e.,

93 For a more detailed assessment of, among others, Directive 2011/83/EU, see only G. Helleringer & A.-L. Sibony, 'European Consumer Protection Through the Behavioral Lens', 23 *Columbia Journal of European Law* (2017) 3, 607, 625–628 *et passim*.

94 See only and without claiming a comprehensive overview G. Spindler, 'Behavioural Finance and Investor Protection Regulations', 34 *Journal of Consumer Policy* (2011) 3, 315; W. H. van Boom, 'Price Intransparency, Consumer Decision Making and European Consumer Law', 34 *Journal of Consumer Policy* (2011) 3, 359; A.-F. Lefevre & M. Chapman, 'OECD Working Papers on Finance, Insurance and Private Pensions' (2017), available at <https://www.oecd-ilibrary.org/docserver/0c8685b2-en.pdf> (last visited 8 October 2024); N. Chater, S. Huck & R. Inderst, 'Consumer Decision-Making in Retail Investment Services: A Behavioural Economics Perspective' (2010), available at [https://www.dectech.co.uk/behavioural\\_science/public\\_research/dectech\\_research\\_ec.pdf](https://www.dectech.co.uk/behavioural_science/public_research/dectech_research_ec.pdf) (last visited December 2024); each with additional references and with a US-focus: I. Baum, J. Beldowski & D. Solomon, 'Regulation of Information About Unfolding Events in Securities Markets: A Behavioral Economics Perspective', in K. Mathis & A. Tor (eds), *Law and Economics of Regulation* (2021), 101; J. Canals-Cerda & R. Roman, 'Climate Change and Consumer Finance: A Very Brief Literature Review' (2021), *Discussion Papers (Federal Reserve Bank of Philadelphia)*, available at <https://www.philadelphiafed.org/-/media/frbp/assets/consumer-finance/discussion-papers/dp21-04.pdf> (last visited 8 October 2024); P. Tufano, 'Consumer Finance', 1 *Annual Review of Financial Economics* (2009), 227; J. J. Xiao, *Handbook of Consumer Finance Research* (2016).

95 See with further references to all three aspects of legitimacy K. Purnhagen, 'Why do we Need Responsive Regulation and Behavioural Research in EU Internal Market Law?', in

whether the political decisions reflect the will of the people, their real demands. Output legitimacy asks whether the political decisions effectively promote common welfare, which is mostly equated with the concept of efficiency<sup>96</sup>. Throughput legitimacy focuses on the process between input and output.<sup>97</sup>

Since this paper's purpose is a legal analysis,<sup>98</sup> the following sections will primarily focus on aspects of input and output legitimacy and, in more detail, on democratic legitimacy<sup>99</sup>, the observance of fundamental rights enshrined in the EU's Charter of Fundamental Rights (CFR)<sup>100</sup>, and justiciability as an aspect of the rule of law.<sup>101</sup>

## 1. Limits for the European Legislator

Despite an arguable democratic deficit in the election of representatives and the composition of EU legislative institutions,<sup>102</sup> the EU is a democratic supranational organization with a democratically organized legislative process.<sup>103</sup> The European legislator can therefore, *prima facie*, be trusted to act according to the will of the people. If its regulations build effectively on behavioral economic

K. Mathis (ed.), *European Perspectives on Behavioural Law and Economics* (2015), 51, 53.

96 This concept is derived from economic research and builds on research by Vilfredo Pareto (V. Pareto, *Cours d'Économie Politique* (1897)) as well as Nicholas Kaldor and John Hicks (N. Kaldor, 'Welfare Propositions of Economics and Interpersonal Comparisons of Utility', 49 *The Economic Journal* (1939) 195, 549; J. R. Hicks, 'The Foundations of Welfare Economics', 49 *The Economic Journal* (1939) 196, 696). For a focus on tool-efficiency, see with further references the overview by B. Morgan & K. Yeung, *An Introduction to Law and Regulation: Text and Materials* (2007), 116–132.

97 See, on all three aspects, Purnhagen, *supra* note 95, 53.

98 For references to philosophical or ethical analyses, see Alemanno & Spina, *supra* note 70, 431 in note 8.

99 See only M. Allen, 'Democratic Legitimacy', in D. K. Chatterjee (ed.), *Encyclopedia of Global Justice* (2011), 242 with further references.

100 *Charter of Fundamental Rights of the European Union*, OJ 2012 C 326/391 (EU).

101 *Parti Écologiste "Les Verts" v. European Parliament*, C-294/83, Judgment of 23 April 1986, ECLI:EU:C:1986:166, para. 23. See also M. Klamert & B. Schima, 'Article 19 TEU', in M. Kellerbauer, M. Klamert & J. Tomkin (eds), *The EU Treaties and the Charter of Fundamental Rights* (2019), 172, para. 24 [Klamert & Schima, 'Article 19 TEU'].

102 See, on a positive note *vis-à-vis* the discussion, S. Malinov, 'The Democratic Deficit of the EU: Breaking the Spell of a False Analogy', 20 *European View* (2021) 2, 226. See also M. Hailbronner, 'Beyond Legitimacy: Europe's Crisis of Constitutional Democracy', in M. A. Graber, S. Levinson & M. V. Tushnet (eds), *Constitutional Democracy in Crisis?* (2018), 277, 292 *et passim*, who establishes a clear distinction between issues of legitimacy and constitutional problems.

103 See also Art. 2 TEU, *supra* note 18 and Arts 288-292 TFEU, *supra* note 18.

findings, they will, in many instances, lead to cost-efficient<sup>104</sup> and effective rules that the addressees will (voluntarily) follow. Due to its democratic legitimization, the European legislator is in principle free to enact legal rules and regulations as it deems fit.

The regulations must, however, comply with the EU Treaties, namely the *Treaty on the European Union* (TEU), the *Treaty on the Functioning of the European Union* (TFEU), and the CFR,<sup>105</sup> including the limitations enshrined in these Treaties. The most important limitations stem from the EU's limited competence (see Arts 4–5 TEU), the four freedoms of the internal market (see Arts 45 et seqq. TFEU), and the fundamental rights enshrined in the CFR.

For this paper, I assume that the European legislator is, in principle, competent to legislate on the particular subject matter.<sup>106</sup> With regard to Arts 24 and 25 MiFID II, the European legislator is competent in terms of Art. 53(1) TFEU to legislate harmonizing rules. The Taxonomy Regulation, MAR, and Directive 2011/83/EU are based on Art. 114 TFEU. The GDPR is based on Art. 16 TFEU.

If the Commission, European Parliament, and the Council base regulations on behavioral economic findings, it is generally likely that those regulations are less intrusive and cost-efficient,<sup>107</sup> with an (indirect) positive effect on fundamental freedoms. Legislating a right to withdrawal for consumers, for example, is likely to facilitate cross-border purchases since they become (almost) risk-free for the consumer.<sup>108</sup> Furthermore, and apart from any discussion on the normative decision to incentivize sustainable investments, such incentives are likely to be more effective if they are based on a regulatory concept that builds on a realistic understanding of how individuals make decisions.

Nonetheless, it is noteworthy that every duty to inform comes with costs for the parties obliged to produce and for the parties who are envisaged to process

104 Cost-efficiency, as a concept, stems from the methodology of economic theories in law and asks which regulation (or interpretation of a rule) causes the least costs (including personnel and financial resources) in a society. On economic analysis of law, see only R. A. Posner, *Economic Analysis of Law*, 9th ed. (2014), § 1.2 *et passim*.

105 Arts 6(1)(1) and 19(1) TEU, *supra* note 18. See only P. Craig & G. de Búrca, *EU Law: Text, Cases, and Materials*, 7th ed. (2020), 582–583 [Craig & de Búrca, *EU Law*].

106 For an introduction to the EU's competences, see R. Schütze, *European Constitutional Law*, 3rd ed. (2021), 237–247.

107 Alemanno & Spina, *supra* note 70, 437.

108 Similarly, the EU limits unfair commercial practices to “which by deceiving the consumer prevent him from making an informed and thus efficient choice.”, Recital 14 of the Unfair Commercial Practices Directive, *supra* note 90.

such information. The normative decision of whether or not to regulate duties to inform must therefore be closely monitored and assessed to determine whether such duties constitute an efficient means to regulate. However, this aspect falls outside the ambit of this paper and must therefore be left to another assessment. This paper therefore focuses on the fundamental rights enshrined in the CFR, with which the EU legislator must comply as per Art. 51(1)(1) CFR.

Using nudging or behaviorally informed techniques when legislating might infringe, in particular, on Arts 7, 8, 11(1), or 15 CFR. Art. 7 CFR protects private life aspects, including personal autonomy, as understood by the European Court of Human Rights by virtue of Art. 52(3) CFR.<sup>109</sup> Nudging especially, i.e., directly influencing the presentation of choices, is a tool that is used to incentivize individuals to decide in a certain way. The essence of nudging is therefore the utilization – arguably also the exploitation – of decision situations in which, for example, a default option leads to a higher number of, arguably, “right” choices.

A perfect example is the prohibition of a purported opt-out clause in Art. 22 of Directive 2011/83/EU for additional payment options in consumer contracts. This rule infringes on companies’ right to freedom of contract (see Art. 15 CFR<sup>110</sup>) but protects the personal autonomy of consumers. In other fields, opt-out, or for that matter opt-in, clauses could also have the opposite effect.

Nudges and behaviorally informed rules can also infringe on Art. 11(1) CFR when those rules are designed to influence the opinion-forming process.<sup>111</sup> In that regard, there can be a fine line between acceptable and unacceptable use of information. Again, a regulation might come into conflict with other rights of the CFR, in this instance Art. 15 CFR, if companies are obliged to produce and transmit certain amounts of information or frame them in a specific way, for example, by using pictorial warnings such as those on tobacco packaging (see Art. 9 of Directive 2014/40/EU).<sup>112</sup> Companies’ right to freedom of contract is thereby infringed for the public interest good of public health. Similar considerations apply when it comes to the font sizes and way of presentation required by Art. 44 Delegated Regulation 2017/565 as described above.<sup>113</sup>

109 T. Lock, ‘Article 7 CFR’, in Kellerbauer, Klamert & Tomkin, *supra* note 101, 2115, para. 5 [Lock ‘Article 7 CFR’].

110 See, with further references, *Lidl GmbH & Co. KG v. Freistaat Sachsen*, C-134/15, Judgment of 30 June 2016, ECLI:EU:C:2016:498, para. 28.

111 See also Alemanno & Spina, *supra* note 70, 445–446.

112 EP and Council Directive 2014/40/EU, OJ 2014 L 127/1.

113 See at the end of section B. I. 2 above.

Lastly, Art. 7 CFR, in conjunction with Art. 8 CFR, can be understood as enshrining a right to privacy and might become relevant.<sup>114</sup> Particularly, if data will be used to personalize the information that is presented to an individual, the use of such data might infringe on an individual's interest in (and right to) data protection. In this regard, the use of cookies to display personalized advertising could be regarded as a field worth considering for behaviorally influenced legislation.<sup>115</sup> Regarding capital market law, personalized information might lead to a more direct address of the individual client, which might facilitate the processing of information.<sup>116</sup> At the same time, such personal information could potentially also be exploited to further the sale of investment products.

Considering the possible infringements described above, one should note that not every infringement is prohibited under the CFR. Instead, Art. 52(1) CFR allows infringements if they are provided by law, preserve the essence of the right, and are proportionate.<sup>117</sup> Especially if multiple rights come into conflict, as was shown, *inter alia*, by the prohibition of an opt-out clause in consumer contracts, all affected rights must be considered in a proportionality assessment and be balanced. The European legislator therefore must define the regulation's legitimate objective and assess the suitability, necessity, as well as the proportionality *strictu sensu* of the tools applied.<sup>118</sup>

Furthermore, it is a (common) fallacy—known as *status quo* bias<sup>119</sup>—to assume that only (positive) legislation, which might be influenced by behavioral economic findings, would set a default. Not regulating sets the default as it is

114 Lock, 'Article 7 CFR', *supra* note 109, paras.x 5–7; Alemanno & Spina, *supra* note 70, 447–448.

115 See the research project 'Vectors of Data Disclosure', which is funded by the Bavarian Research Institute for Digital Transformation, available at [https://www.uni-passau.de/en/research/research-projects-and-special-funding/project-details/research\\_project/vektoren-der-datenpreisgabe](https://www.uni-passau.de/en/research/research-projects-and-special-funding/project-details/research_project/vektoren-der-datenpreisgabe) (last visited 8 October 2024).

116 See only I. Koller, '§ 63 WpHG', in H.-D. Assmann, U. H. Schneider & P. O. Mühlbert (eds), *Wertpapierhandelsrecht*, 7<sup>th</sup> ed. (2019), para. 66; P. Hacker, *Verhaltensökonomik und Normativität: Die Grenzen des Informationsmodells im Privatrecht und Seine Alternativen* (2017), 739.

117 T. Lock, 'Article 52 CFR', in Kellerbauer, Klamert & Tomkin, *supra* note 101, 2248 [Lock, 'Article 52 CFR'].

118 See also van Aaken, 'Constitutional Limits', *supra* note 82, 185–194; Lock, 'Article 52 CFR', *supra* note 117, paras 10–19.

119 W. Samuelson & R. Zeckhauser, 'Status Quo Bias in Decision Making', 1 *Journal of Risk and Uncertainty* (1988) 1, 7.

known to the market without considering potentially adverse effects, let alone market failures.<sup>120</sup>

In conclusion, the European legislator is, in principle and within its competencies, free to apply behavioral economic findings to its regulations if it conducts a diligent proportionality assessment. Thereby, its discretion must be particularly wide when social policy choices have to be made,<sup>121</sup> which is usually the case when applying behaviorally informed methods of legislation.

## 2. Limits for the Court of Justice of the European Union

Since the Court is entrusted in Art. 19(1) TEU with ensuring “that in the interpretation and application of the Treaties the law is observed”, it is fair to state that a control mechanism for the European legislator’s acts is established.<sup>122</sup> Despite the ambiguous formulation, it appears to be generally accepted that “law” in this context refers to the Treaties as well as secondary EU law, general principles of EU law, and all other acts of the EU.<sup>123</sup>

When the CJEU reviews secondary EU law (e.g., regarding a possible annulment), it must allow the European legislator (wide) discretion with regard to the application of behavioral economic findings, particularly when social policy questions are an issue.<sup>124</sup> This is a consequence of the separation of powers within the EU and corresponds to the legitimacy idea that the (more) directly elected representatives decide on policy questions. Besides, also the CJEU is bound by the Treaties and therefore comments made in the previous section need no repetition but apply *mutatis mutandis*. Following this, the subsequent section will summarize five scenarios in which the CJEU might, might not, or might even be obliged to rely on findings from the field of behavioral economics in its interpretation.

120 This is also known under the term ‘no neutral defaults’, see only Alemanno & Spina, *supra* note 70, 450.

121 *United Kingdom of Great Britain and Northern Ireland v. Council of the European Union*, C-84/94, Judgment of 12 November 1996, ECLI:EU:C:1996:431, para. 58.

122 See also the annulment procedure in Art. 263 TFEU, *supra* note 18.

123 See only Klamert & Schima, ‘Article 19 TEU’, *supra* note 101, 172, paras 8–9.

124 See above in and at note 121.

## C. Competence of the Court of Justice of the European Union to Build on Behavioral Economic Findings

Having established the limitations for applying nudging and behaviorally informed legislation that originates from the Treaties, this section assesses under which circumstances and by which methodological means the CJEU may, may not, or ought to interpret secondary EU law in light of behavioral economic findings.<sup>125</sup>

Unlike the Statute of the International Court of Justice,<sup>126</sup> the Statute of the CJEU<sup>127</sup> does not contain a provision on the sources for the interpretation of EU law. The Court therefore had to establish its methodology for the interpretation of EU law, as also outlined in the landmark case of *van Gend en Loos*, and consistently continued from that point onward to focus on “the spirit, the general scheme and the wording of the Treaty”<sup>128</sup>. Thereby, the “real intention” of the author of a piece of legislation in all its language versions, including the “aim he seeks to achieve”, must be considered.<sup>129</sup>

This allows to differentiate five scenarios, which are discussed in more detail in subsequent subsections (I–V), followed by an overall assessment (VI). These scenarios are:

- 1.) The text of an EU legislative act refers directly to behavioral economic findings or its overall concept(s).
- 2.) Concepts of behavioral economics underly an EU legislative act as evidenced by its preparatory documents or overall assessment.
- 3.) The relevant EU legislative act is meant to regulate or incentivize individuals’ behavior and either the text or the expressed<sup>130</sup> purpose refers to “efficiency” or “efficacy”.

125 This applies particularly to preliminary reference proceedings under Art. 167 TFEU, *supra* note 18.

126 Art. 38 of the ICJ-Statute, *Charter of the United Nations and Statute of the International Court of Justice*, 26 June 1945, 1 UNTS XVI.

127 Protocol (No 3) on the Statute of the Court of Justice of the European Union, OJ 2016 C 202/210.

128 *NV Algemene Transport- en Expeditie Onderneming van Gend & Loos v. Netherlands Inland Revenue Administration*, C-26/62, Judgment of 5 February 1963, ECLI:EU:C:1963:1, p. 13.

129 See only *Erich Stauder v. City of Ulm - Sozialamt*, C-29/69, Judgment of 12 November 1969, ECLI:EU:C:1969:57, para. 3.

130 This is usually done within the recitals that precede the legal articles or becomes apparent through the legislative process and the preparatory documents. In the latter situation, caution is advised since the only purposes that become relevant for the interpretation of



4.) In neither the preparatory documents nor the legislative act's text can a reference to (behavioral) economic ideas or concepts be found, although human behavior ought to be regulated.

5.) The EU legislative act entails an explicit prohibition to build on (behavioral) economics or to interpret the act according to such findings.

## I. Direct Reference to Behavioral Economic Findings

In the first scenario, the CJEU will have to apply behavioral economic findings within its interpretation because the competent legislator itself has made direct reference to them. After all, the objective of behaviorally informed regulations is to have “effective, low-cost, choice-preserving approaches to societal problems”.<sup>131</sup>

Furthermore, also from a legitimacy-focused point of view, the CJEU would be well advised to follow the legislator in its approach. As of this writing, no such European legal act can readily be identified.

However, the following question remains: Which findings out of the plethora of findings must be applied? Moreover, an obstacle might arise when various equally fitting findings might lead to different interpretative results. Both questions will be discussed in more detail below (D).

## II. Concepts of Behavioral Economics Underly an EU Legislative Act

Should the text of a European legislative act not, *expressis verbis*, refer to behavioral economics, such concepts might nonetheless underly the particular regulation. Whether that is the case must, of course, be determined by means of classic legal methodology, i.e., interpreting the legal act, with a focus on the wording, historical influences, systematic, and *telos* that underly the regulation.

Should such an interpretation establish that behavioral economic concepts must be applied, the CJEU must comply as well. Consequently, this scenario is largely comparable to the first scenario, although the reference to behavioral economics might only be indirect.

In current European law, one can understand the Taxonomy Regulation in conjunction with Regulation (EU) 2019/2088 as constituting an example of

the final legislative act are those that the legislative organs have accepted in their final readings.

131 Alemanno & Spina, *supra* note 70, 430.

this scenario. This is so, since the European legislator's objective is to incentivize investors to direct their funds toward sustainable investments by means of labeling such (desired) investments as "green". However, it is necessary to concede that even this rather recent regulation builds only very indirectly on behavioral economic ideas.

### III. Regulation of Human Behavior and Reference to Efficiency or Efficacy

In the third scenario, the terms efficiency and efficacy would have to be interpreted in line with the understanding the European legislator has applied when drafting and enacting the relevant regulation. At this point, it is important to stress that efficiency usually only refers to the method that must be applied but does not outline the precise objective that shall be achieved efficiently. The CJEU would therefore have to prudently establish the concrete<sup>132</sup> objectives and purposes that underly the relevant regulation.

Subsequently, the Court would have to demonstrate that those objectives include or rely on findings from the field of behavioral economics. The Court would have to apply such findings only as a final step to provide an effective or efficient interpretation of the relevant legal rule. Importantly, a rule that is not effective can never be efficient because such a rule would only produce costs (e.g., workload, claims, expenses) without having the intended effect.<sup>133</sup>

With the MiFID II, the European legislator pursues a total of four specific objectives: providing a more harmonized set of financial regulations,<sup>134</sup> improving investor protection,<sup>135</sup> improving the functioning of financial markets,<sup>136</sup> and safeguarding the efficiency of the financial market.<sup>137</sup> Notably, all four objectives can be combined to efficiently provide a more harmonized set of financial regulations that improves investor protection and the overall

132 Those objects must be narrower than a mere reference to a *high level of harmonization* or the *realization of the internal market*, since those are too broad.

133 On that argument, see Kaldor, *supra* note 96; Hicks, *supra* note 96 and note 96 above.

134 Recital 6 to MiFID II, *supra* note 6.

135 Recitals 3, 4, 7, 37, 39, 42, 58, 70, 74, 77, 80, 86, 87, 97, 104, 133, 151, 154, 155, 156, 164, and 29, 45, 51, 52, 54, 57, 82, 84, 109, 144, 166 to MiFID II, *supra* note 6.

136 See only Recitals 4, 11, 13, 63, 67, 108, 113, 125, 154, 155, 160, and 164 to MiFID II, *supra* note 6.

137 See only Recitals 13 and 164 to MiFID II, *supra* note 6.

functioning of the financial market.<sup>138</sup> Thus, it is fair to suggest that the CJEU is required to rely on behavioral economic findings when interpreting Arts 24 and 25 MiFID II since those provisions affect investment firms and investors directly.<sup>139</sup>

#### IV. No Reference to (Behavioral) Economic Concepts

The most complicated scenario is the fourth, since the European legislator did not express in the text or the preparatory documents any standpoint on the applicability of behavioral economic or (simple) economic findings. Instead, it would be the CJEU itself that would avail itself of these concepts to facilitate its interpretation.

Had the application of behavioral economic findings been accepted as a general principle of EU law, the Court would have to apply them.<sup>140</sup> As of yet, the European legislator has not, as far as I am informed, formally integrated behavioral economic findings into its legislative process.<sup>141</sup> Currently, a legal basis for accepting behavioral economic findings as general principles of EU law is therefore lacking.

Nonetheless, one could make the argument that efficient and cost-effective interpretations of the law serve the legitimacy of a regulation.<sup>142</sup> Consequently, the CJEU would be diligent and cognizant of the individuals' fundamental rights and the concept of limited resources (in terms of financial means, workload, attentiveness, etc.) when it interprets regulations, which ought to affect human behavior, in line with behavioral economic findings. Against the background of the already discussed legitimacy question, the Court could thus prevent legal rules from disproportionately infringing on individuals' rights.

However, one could argue that the CJEU may not apply behavioral economic findings to the interpretation if there is no linking point in the text or preparatory documents.<sup>143</sup> This is true, particularly since applying behavioral

138 See only Kasper, 'Harmonisierungsgrad MiFID II – Teil II', *supra* note 20, 104–105 *et passim* with further references.

139 Details of such interpretation must be reserved for future publications.

140 See above at note 123.

141 See only Alemanno & Spina, *supra* note 70, 440.

142 Purnhagen, *supra* note 95, 52.

143 That the Court nonetheless rendered decisions that contradicted or went beyond an act's text, was demonstrated by S. Brittain, 'Justifying the Teleological Methodology of the European Court of Justice: A Rebuttal', 55 *Irish Jurist* (2016), 134.

economic findings to the interpretation of legal acts is still (highly) disputed<sup>144</sup> and not practiced in the Member States.

Nonetheless, in this paper, it is argued that the CJEU – in the absence of an explicit prohibition in the text of the EU legislative act – is free, if not obliged, to use behavioral economic ideas. Its principal function is to interpret EU legislative acts in accordance with the Treaties and to give them effective meaning.<sup>145</sup> If the CJEU would not rely on behavioral economic findings, it would still, even if only implicitly, build its arguments on another concept of human behavior. That concept would most likely be the (fully) rational individual as it was described and (at least partially) refuted above.<sup>146</sup>

Therefore, and in line with the CJEU's concept of an autonomous interpretation of European law, it can and should build arguments on the basis of behavioral economic findings.

## V. Prohibition to Build on (Behavioral) Economics

The fifth scenario considers expressed prohibitions in building on (behavioral) economics when interpreting EU secondary law. These might be prohibitions *expressis verbis* in the form that the legislator has formulated a rule on interpretative means that excludes certain means of interpretation or they might be prohibitions through interpretation. The latter will usually mean that the legislator's intention becomes clear through interpretation, in that it intended the rule to be interpreted in a certain way only. In that instance, the means of interpretation are limited to the means as outlined in the particular legal act or supported by general legal methodology.

This scenario is expected to be relatively rare since the EU legislator is bound by Art. 51 CFR to produce effective rules that only infringe on the individuals' fundamental rights to the extent necessary to achieve the intended objective. Put differently: Why should the EU legislator prohibit an effective interpretation by applying behavioral economic findings? A question not

144 See only D. Hirshleifer, 'Investor Psychology and Asset Pricing', 56 *The Journal of Finance* (2001) 4, 1533, 1535.

145 Art. 19(1)(1) TEU, *supra* note 18 and its interpretation by Klamert & Schima, 'Article 19 TEU', *supra* note 101, para. 13; Craig & de Búrca, *EU Law*, *supra* note 105, 95 and in the Court's interpretation of the *effet utile* principle, see only, among others, *Camera Care Limited v. Commission of the European Communities*, C-792/79 R, Order of 17 January 1980, ECLI:EU:C:1980:18, para. 17.

146 See section B. I. 1.

discussed in this paper that is linked to this is, under which circumstances could the European legislator deny the application of behavioral economic findings?

## VI. Assessment

Having established the scenarios in which the CJEU is allowed to or must rely on behavioral economic findings, two final questions remain: What is the methodology underlying the interpretation and which findings must the Court choose?

From a legal methodology point of view, and under the assumption that the Court will continue the well-established interpretation of legal norms in accordance with their wording, history, systematic, and *telos*, behavioral economic findings best fit in the teleological interpretation.<sup>147</sup> This is because the purpose of a piece of legislation and its presumed effects are to be established, assessed, and transferred into an interpretation of the relevant norm.

A more challenging question pertains to which findings from the extensive field of behavioral economics must be applied. First, it must be reiterated that not every heuristic and bias will occur in every situation. The findings that will have to be favored are therefore those that demonstrate a situational connection. In that respect, the European legislator's hints in the legislative documents must be privileged. Second, not every finding has proved to be equally robust; hence, in principle, only robust findings should be considered. Third, it is for the CJEU to explain and justify why it applies a particular finding to its interpretation. As long as the legislator has not laid down any guidelines, this is within the Court's competence.

Finally, it is important to remember that no research finding is absolutely certain. Instead, uncertainty is part of a legislative and interpretative process. The Court should therefore apply findings from the field of behavioral economics even if those findings have not been proven in every circumstance. The alternative – i.e., not applying behavioral economic findings to the interpretation of the law – would mean that the Court will continue to discount how individuals actually behave. This would not only discredit the findings in the field of behavioral economics but would also pose the question of the legitimacy of the Court's decisions when it disregards the real world. Nonetheless, there are various

<sup>147</sup> See above at note 128 and in general only N. Fennelly, 'Legal Interpretation at the European Court of Justice', 20 *Fordham International Law Journal* (1996) 3, 656, 664–668.

obstacles when applying behavioral economic findings in EU law, and those obstacles are the subject of the next section (D).

## D. Obstacles to Applying Behavioral Economics in EU Law

When applying behavioral economic theories in law, one will encounter obstacles. I will address a number of these obstacles in the following subsections, without claiming that the list is exhaustive. In general, obstacles might originate from the theories, concepts, and current state of behavioral economics (I) or from the legal methodology when applying behavioral economic theories (II). However, legal methodology is not without remedies when it comes to countering these obstacles (III).

### I. Obstacles Stemming from Behavioral Economics

Whenever one wishes to build legal arguments on findings from the field of behavioral economics, it becomes necessary to follow multiple steps to justify reliance on a particular theory or concept. Apart from the question of whether applying any concepts from the field of behavioral economics is justified in terms of legitimacy, the concept under consideration needs to be well-proven in economics and applicable to the legal field and to the group of people (e.g., laypeople or experts) at hand.<sup>148</sup>

However, every finding in the field of experimental economics, including psychology and behavioral economics, is in itself uncertain to a varying degree.<sup>149</sup> This is partly due to the methodology underlying experimental economics, which is based on the concept of methodological individualism,<sup>150</sup> and it is partly because experiments cannot be conducted with every single individual to whom the research question might be relevant, nor can experiments be conducted with a focus on every single real-world application in and for which the findings might

148 See also G. Spindler & L. Klöhn, 'Korreferat zu Markus Rehberg', in T. Eger & H.-B. Schäfer (eds), *Ökonomische Analyse der Europäischen Zivilrechtsentwicklung* (2007), 355, 358.

149 See only M. Sarstedt & E. Mooi, *A Concise Guide to Market Research: The Process, Data, and Methods Using IBM SPSS Statistics* (2019), 157.

150 J. Agassi, 'Methodological Individualism', 11 *The British Journal of Sociology* (1960) 3, 244, *passim* with references. For a more critical assessment, see R. Neck, 'Methodological Individualism: Still a Useful Methodology for the Social Sciences?', 49 *Atlantic Economic Journal* (2021) 4, 349.

become relevant.<sup>151</sup> Instead, researchers have to choose a setting (or scenario) and a variety of participants that are representative of the situation and affected population for which the experiment is conducted. Moreover, even within these experiments not every individual will behave in the same way or because of the same rationale. It is for this reason that findings in experimental economics usually only read that there might be, subject to an inevitable failure rate, a correlation or causality<sup>152</sup> between an independent variable (such as additional information provided in the form of well-structured overviews) and a dependent variable (such as the individual's understanding of a subject matter).

Furthermore, observations must be translatable to real-world applications outside the laboratory to become relevant for a legal analysis. In empirical research, this is summarized by the term external validity.<sup>153</sup>

As a rule of thumb, it can be summarized that for transferring the findings of an experiment to real-world applications, such as the interpretation of EU secondary law, any experimental design fits better the more representative the participants<sup>154</sup> and the closer the scenario chosen are to a real-world scenario. Moreover, possible limitations that are outlined in a published study should be clearly explained to allow, not only but also, legal experts to evaluate the fit of an experiment and its results for their purposes.

Another obstacle stems from the plethora of possible influences that might affect human behavior and their interactions with each other. Whereas unsystematic errors, or noise,<sup>155</sup> can be explained relatively well by means of

151 On population and sampling, see only Sarstedt & Mooi, *supra* note 149, 38–43; on sample sizes, see *ibid.*, 43.

152 Correlation refers to a relationship between two variables in which “it can merely be observed that the increase of one variable is accompanied by an increase or decrease of the other variable.”, J. Weimann & J. Brosig-Koch, *Methods in Experimental Economics: An Introduction* (2019), 249. Causality, by contrast, means “that the value of one variable causes a change in the value of another variable.”, *ibid.* Whether a correlation or causality can be proven by an experiment largely depends on its design, which must be assessed in every individual case. See *ibid.*

153 Sometimes the term economical validity is used interchangeably, which, however, focuses on the comparability between the situation in an experiment and the relevant real-world situation. See only T. Richards, *supra* note 50, 182; C. A. Studebaker *et al.*, ‘Studying Pretrial Publicity Effects: New Methods for Improving Ecological Validity and Testing External Validity’, 26 *Law and Human Behavior* (2002) 1, 19, 21.

154 With a focus on finding a representative sample size, which can be relatively small, without committing a systematic error or bias, see only Sarstedt & Mooi, *supra* note 149, 39, 43.

155 With a focus on the terminology, see F. Black, ‘Noise’, 41 *The Journal of Finance* (1986) 3, 528. From the world of popular sciences, see only D. Kahneman, O. Sibony & C. R.

experimental methodology, interactions between various biases within-person are, in many instances, yet to be examined.

A third obstacle stems from the relevance of emotions for and their effects on cognitive biases. These aspects do not form part of this paper, although it appears relevant for future research – not only but also with regard to the purported affect heuristic.<sup>156</sup>

## II. Obstacles in Legal Methodology

From the legal methodology point of view, applying behavioral economic findings also meets several challenges. First, legal researchers need a methodology to discover and scrutinize relevant concepts, theories, and findings before they can build legal arguments upon them. This need is closely linked to an overarching need for (general) literacy regarding (behavioral) economics and the relevant methodology. Although legal researchers cannot be required to scrutinize findings from neighboring research fields to the same extent as experts in those fields, they nonetheless need a basic command of the neighboring field's methodology.

Furthermore, also legal researchers need to acknowledge that life as well as their research findings are uncertain, at least to a certain degree. Although this appears to be a truism, one ought to remember that statements are usually made against the background of current debates, are influenced by recently read articles or held discussions (availability heuristic<sup>157</sup>), and that statements do not stand alone but in the context in which they were made. In the next moment, the same statement might be proven false, misleading, or outdated. That is the crux of the research that is based on existing findings and develops new ideas.

The third obstacle in legal methodology, which coincides with the third aspect mentioned in the last subsection, has to do with emotions in legal methodology and their relevance for interpreting legal rules. These aspects fall

Sunstein, *Noise: A Flaw in Human Judgment* (2021).

156 G. F. Loewenstein & J. S. Lerner, 'The Role of Affect in Decision Making', in R. J. Davidson, K. R. Scherer & H. H. Goldsmith (eds), *Handbook of Affective Sciences* (2003), 619; P. Slovic *et al.*, 'The Affect Heuristic', in Gilovich, Griffin & Kahneman, *supra* note 70, 397; S. A. Bandes & J. A. Blumenthal, 'Emotion and the Law', 8 *Annual Review of Law and Social Science* (2012) 1, 161, 166–167. With a focus on the terminology debate concerning affects, emotions, and feelings, see only P. R. Kleinginna, Jr. & A. M. Kleinginna, 'A Categorized List of Emotion Definitions, With Suggestions for a Consensual Definition', 5 *Motivation and Emotion* (1981) 4, 345, *passim*.

157 A. Tversky & D. Kahneman, 'Availability: A Heuristic for Judging Frequency and Probability', 5 *Cognitive Psychology* (1973) 2, 207.



outside the ambit of this paper; they might, however, be a research area suitable for other papers.<sup>158</sup>

### III. Countering These Obstacles in Legal Methodology

The question arises whether and how legal methodology can counter the obstacles described above.

A rather obvious aspect is further education in neighboring research fields. For those professionals who are asked on an almost daily basis to interpret legal rules meant to regulate human behavior, a basic understanding of the relevant concepts and research methodology can be necessary and relevant. Such an endeavor appears to be a long-term goal. Therefore, and in the meantime, a network of experts in behavioral economics could advise not only policymakers and legislators as described above but also judges and administrative officials.

Moreover, further interdisciplinary and multidisciplinary research should be pursued to build bridges between the neighboring disciplines and to facilitate more holistic research findings that could, at least partly, substitute the aforementioned network of experts by providing well-founded research.

Within legal methodology, findings from the field of behavioral economics should form a constant focus when interpreting legal rules that ought to regulate human behavior. In that regard, one should be reminded that also today, arguments are, at least implicitly, built upon an understanding and concept of human behavior. This concept will, however, most likely be similar to the idea of a (fully) rationally acting individual. As has been demonstrated, that concept is further from the truth than many of us would probably like to acknowledge.

By including behavioral economic findings in the teleological interpretation of EU secondary law, the legal profession can move closer to bestowing upon legal rules the power and effect the European legislator intended them to have.

Taken together, uncertainty is an element interwoven not only with behavioral economics but also with the law. Accepting this, and progressively trying to cope with uncertainty in law also through the interpretation of legal rules, will not only build the basis for more effective legal rules but will also facilitate a higher degree of legitimacy among the European population.

158 See also B. Lange, 'The Emotional Dimension in Legal Regulation', 29 *Journal of Law and Society* (2002) 1, 197; with a focus on the impact of emotions in different fields but decision theory, see H. Conway & J. Stannard (eds), *Emotional Dynamics of Law and Legal Discourse* (2016); H. Conway & J. Stannard, 'Contextualising Law and Emotions: Past Narratives and Future Directions', in H. Conway & J. Stannard (eds), *Emotional Dynamics of Law and Legal Discourse* (2016), 1.

Furthermore, the European legislator could make use of concepts like regulatory sandboxes to take initial small steps in testing new regulatory regimes. If a multidisciplinary research group was to closely monitor such steps, every iteration is likely to produce better knowledge on which future regulations should be based.

## E. Concluding Observations

This paper has reiterated that individuals do not behave (completely) rationally. Their decision-making process is influenced by heuristics and biases instead. Concepts of behaviorally informed legislation, including the idea of nudging, have therefore been developed in legal theory.

That these concepts cannot be applied boundlessly in EU law might be a truism. However, we have discussed here which limitations apply and that not only the European legislator but also the Court is bound by them. Furthermore, five scenarios in which the CJEU can or ought to rely on findings from the field of behavioral economics were presented. Notably, only in sporadic cases would the CJEU be prohibited from relying on such findings. In the majority of cases in which human behavior is regulated, the Court would even be obliged to consider the field of behavioral economics.

This is true, especially against the background of (democratic) legitimacy. Giving an effective meaning to legal rules is, after all, one of the Court's key functions. However, it has also been established that behavioral economic findings should not be applied to every legal act. Furthermore, it has been demonstrated that disregarding such findings poses a legitimacy question for the Court, since its judgments are in danger of losing the linkage with the addressees of legal acts.

Finally, a non-exhaustive list of obstacles stemming both from the field of behavioral economics and law has been discussed. It appears that most of these obstacles are linked to a better understanding of the relevant neighboring academic field and its implementation in legal methodology. Moreover, legal researchers should be cognizant when implicitly relying on assumptions about human behavior. Applying findings from the field of behavioral economics has the potential to move the legal interpretation of rules closer to real-world applications. Apart from resolving normative disputes, this, in turn, has the potential to increase the acceptance of legal rules among EU citizens, too.