

NOISE IN OPEN NORMS: AN UNDERESTIMATED RISK TO LEGAL CERTAINTY AND EQUALITY

Jessie Pool, Niek Strohmaier, Jan Adriaanse and Marc Broekema

INTRODUCTION

In creating laws that are just and effective, lawmakers must navigate the tension between drafting laws that are, on the one hand, precise enough to provide clear rules and guidance, and, on the other hand, flexible enough to make them adaptable and future-proof. Open norms – legal provisions that leave room for interpretation – are designed to provide this flexibility, allowing the law to be adapted to a wide range of circumstances. However, what seems like a strength can also be a significant flaw. When open norms are left too vague, they invite inconsistency, arbitrariness, and, ultimately, inequality and uncertainty (e.g. Wiarda, 1988).

This chapter argues that concerns about open norms are more serious than often recognised and deserve more attention from lawmakers. Central to this analysis is the concept of ‘noise’ – unwanted variability in decision-making – which has gained prominence following the publication of the book *Noise* in 2021 (Kahneman et al., 2021).

As a demonstration of how noise affects the application of open norms and how it creates legal uncertainty and inequality, this chapter presents empirical findings from a study conducted on bankruptcy trustees’ decision making. This group of legal professionals is faced with a very open norm when it comes to weighing societal interest in dealing with bankrupt companies, and this context therefore serves as a good illustration of how noise arises in practice. Overall, the chapter aims to inform lawmakers about the risks of using open norms and answers the following research question:

How can empirical insights from noise in bankruptcy trustees’ decision-making enhance the law-making process for open norms?

The chapter ultimately calls for legislative reforms that incorporate behavioural insights, thereby advancing a so-called ‘jurisprudence of consequences’, in which

lawmakers use empirical insights to assess and anticipate the real-world effects of laws and regulations. By systematically analysing how legal norms function in practice, rather than relying solely on abstract legal reasoning, lawmakers can design more effective and equitable legal frameworks. This evidence-based approach helps ensure that laws not only align with their intended objectives but also mitigate unintended consequences, such as inconsistent or unpredictable decision-making. In the context of open norms, incorporating empirical insights can provide guidance on how to structure legal provisions to reduce variability, promote fairness and enhance trust in the legal system.

The chapter begins with the analytical framework (Section 2), which (i) explains how open norms emerged in the Netherlands and outlines their advantages and disadvantages, and (ii) introduces the concept of ‘noise’, using empirical findings on noise in the context of legal decision-making. Next, we present our own research on noise in the decisions of bankruptcy trustees, illustrating the significant variability and how it can be empirically measured (Section 3). Finally, we end this chapter with a general discussion and offer recommendations for legislators to mitigate noise: increasing awareness through education and training, using noise measurements to guide norm development, and promoting decision hygiene strategies to reduce bias and noise in legal processes (Sections 4 and 5).

2 ANALYTICAL FRAMEWORK

2.1 *The Emergence and Definition of Open Norms in the Netherlands*

Open norms have increasingly been incorporated into Dutch legislation throughout the 20th century, particularly with the introduction of the new Civil Code (Hartkamp, 1981; Wiarda, 1988). Before the term ‘open norm’ became prevalent, and prior to the introduction of the new Civil Code, the terminology used included vague norms, abstract norms, blank norms and undefined norms.

The principle of reasonableness and fairness is the most obvious example of an open norm, manifesting across various areas of law (Timmerman, 2023). In civil law, one can also consider the duty of care and reasonable attribution in tort law (Hartlief, 2002; Hoekstra, 2023). In administrative law, duties of care (Ippel et al., 2023; Van Ommeren, 2012b, para. 5.4) and the general principles of proper administration (Huisman & Jak, 2022) are prominent examples.

It is clear that open norms are omnipresent in Dutch law. But what exactly constitutes an open norm? The legislature itself never concretely defined the term ‘open norm’, although numerous authors have attempted to provide useful definitions. For instance, Nan (2011) defined an open norm as “any norm where there is more than negligible uncertainty regarding its content, applicability, or consequences for those subject to it”. Van Klink (1998) described open norms

as “norms that grant the judge significant interpretative freedom due to their indeterminacy, generality, and/or abstraction”. Van Lochem (2019) characterised an open norm as “a norm formulated so generally that it requires further interpretation before it can apply to specific facts”.

For the purpose of this chapter, we consider the specific definition or degree of openness of a norm to be of lesser importance. Our primary concern is with norms that grant norm addressees – such as judges, administrators, governmental bodies, regulators and citizens – discretionary power in interpreting and applying these norms.

2.2 *The Benefits and Drawbacks of Open Norms*

A significant advantage attributed to open norms is their broader applicability, which is thought to reduce the volume of regulations and thus lessen regulatory pressure (Van Lochem, 2019, p. 34). The ability to provide tailored solutions is also cited as a key benefit of open norms. While legal equality is highly valued, it may sometimes be necessary, for the sake of justice, to differentiate between similar cases (Tollenaar, 2008). The more rigid and defined a norm is, the less flexibility there is for differentiation and customisation. Its flexibility also allows open norms to adapt more easily to societal developments. The interpretation of an open norm can align with changing perspectives on what is considered just and desirable, whereas a narrowly defined closed norm would require continuous amendments to keep up with prevailing views (Pool, 2022b).

However, these advantages of open norms represent only one side of the coin. The drawbacks of open norms have been discussed extensively, notably by Barendrecht (1992), who provides a comprehensive list in his dissertation. His list includes concerns related to judges’ lack of democratic legitimacy for their de facto lawmaking role (see also Van Lochem, 2019, p. 43), and excessive judicial freedom, which Barendrecht finds problematic in part because judges will inadvertently incorporate their personal opinions into their decisions.

Given the scope and goal of this chapter, we will focus primarily on issues related to legal uncertainty and legal inequality. Legal uncertainty due to open norms was already addressed by Wiarda (1988, pp. 77-82), who stated:

The first consideration concerns the dangers of arbitrariness and legal uncertainty inherent in any form of jurisprudence, stemming from the unpredictability of decisions made by judges not bound by fixed and universally known norms.

Regarding legal inequality, Barendrecht asserted that because a wide range of decisions can be justified in any given case, there is a tendency for “decisions in comparable cases to vary significantly” (1992, p. 76).

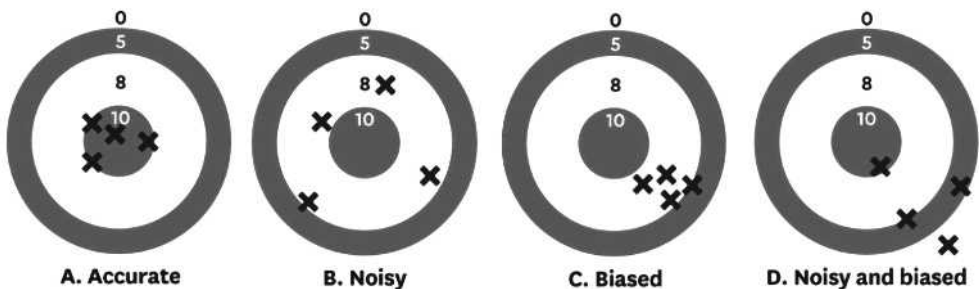
Although it is widely acknowledged that open norms can cause legal uncertainty and inequality, the scale of these problems remains underexplored, thus giving rise to the risk of not being taken seriously enough. In the following paragraph, we will provide a behavioural science perspective on arbitrariness in the interpretation of open norms, aiming to clarify the *magnitude* of the issues of legal uncertainty and inequality.

2.3 *Noise: A Behavioural Science Perspective on Variability in Open Norms*

In legal literature, we speak mainly of the risk of arbitrariness when the use of (open) norms can lead to widely differing interpretations, while in behavioural sciences, the term ‘noise’ is used (Kahneman et al., 2021). Both phenomena, arbitrariness and noise, refer to the same issue, namely the unwanted variability in judgments and decisions that should, ideally, be uniform. It is important to note that noise is not the same as *bias*, a psychological phenomenon that is also receiving increasing attention within the legal domain (See e.g., Guthrie et al., 2000, 2007; Strohmaier, 2020; Strohmaier et al., 2021). While biases refer to unconscious prejudices or cognitive errors in judgment and decision-making that often result in a certain systematic deviation in a particular direction – think, for example, of prejudices leading to in-group bias (favourable judgments towards one’s own group) – noise refers to variability without any systematic pattern; judgments that can go in any direction.

The distinction between bias and noise is further illustrated in Figure 1. Here, it can be seen that bias involves a systematic deviation from the ideal (the bullseye), while this systematicity is absent in noise. In legal judgments, there is often no such thing as an ‘accurate’ or ideal judgment. However, this does not make the problem of noise any less significant. Even without the possibility of an accurate judgment or a correct decision, a high degree of variability poses a problem as it leads to legal uncertainty and inequality.

Figure 1 Visualisation of the Difference between Bias and Noise (Kahneman et al., 2016)

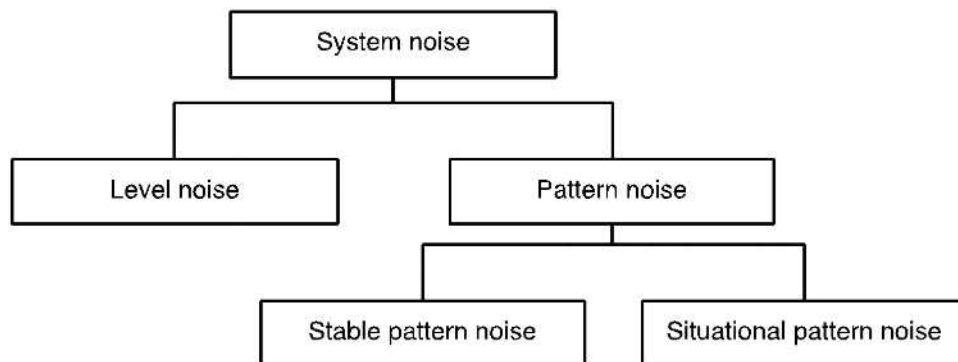


The issue of noise within the legal domain and its consequential challenges has been discussed for decades. For example, it was American federal judge Marvin Frankel who drew attention to the topic as early as in the seventies of the previous century. Based on his own observations, Frankel strongly believed that the outcome of a case depends primarily on the judge assigned to it rather than the facts of the case. To test his intuition, he commissioned a study in 1974, the conclusion of which was “absence of consensus is the norm” (Partridge & Eldridge, 1974. See also Clancy et al., 1981; Van Koppen & Ten Kate, 1984). In one of the cases presented to participants in that study involving a robbery, the participating judges’ verdicts ranged from 30 days’ to 5 years’ imprisonment. How is it possible for those tasked with interpreting and applying legal norms to differ so significantly in their judgments while having access to the same information? The following sections address this question.

2.3.1 *Sources of Noise*

The total amount of noise in a particular system (also known as system noise), such as the total noise in the interpretation of a specific open norm, can be divided into noise *between* assessors (level noise) and noise *within* assessors (pattern noise). The latter can then be further divided into ‘stable pattern noise’ and ‘situational pattern noise’. The relationship between these different sources of noise is shown in Figure 2.

Figure 2 Visualisation of the Different Components of System Noise



2.3.2 *Level Noise*

When averaging a number of decisions or judgments by a range of different assessors, one assessor will on average judge or decide differently from the next. This is essentially what constitutes level noise: variation between assessors when looking at their judgments and decisions in the aggregate.

In the context of legal decision-making, the existence of level noise among judges has been convincingly demonstrated. For example, a study that analysed

2,200 court decisions showed that on average, Republican judges in the United States handed out 7 months longer prison sentences than Democratic judges, meaning that one source of level noise may be found in differences between assessors in political orientation (Schanzenbach & Tiller, 2008. See also Arora, 2018; Cohen & Yang, 2019; Epstein & Knight, 2013; Shamena & Patrick, 2015).

Another example of level noise concerns research on asylum application decisions in the USA. This comprehensive study analysed more than 400,000 decisions and, for example, demonstrated that Colombian asylum applicants in the US federal immigration court had a 5% chance of success with one judge versus an 85% chance with another (Ramji-Nogales et al., 2007).

The most recent and perhaps most comprehensive study on the topic, using machine learning, analysed six million decisions by immigration judges in the USA. This study concluded that 58.5% of the variation in rulings can be explained by extra-legal factors, such as personal characteristics of the judge (Raman et al., 2022). Indeed, the reason for the existence of level noise (i.e. why people judge differently in the aggregate) can largely be found in differences between assessors in terms of personal backgrounds, political views, personalities, norms and values, prejudices, etc. (for further examples of level noise, see Boyd, 2013; Fox & van Sickel, 2000).

2.3.3 *Pattern Noise*

Noise can also arise from factors within assessors because they themselves are not always consistent. This form of noise, called pattern noise, refers to the fact that an assessor may judge differently as a result of (conscious or unconscious) personal preferences and biases and properties of what is being judged (and, especially, the interaction between them) or by irrelevant situational factors. Pattern noise can arise from two different sub-types of this form of noise: stable pattern noise and situational pattern noise.

By stable pattern noise, one should think of a certain stable pattern of biases. For example, again in the context of judicial decision-making, a generally very lenient judge may exercise much more strictness in a particular type of cases or a judge who, because of his more socialist background, is extra strict in tax fraud cases or a judge who is particularly harsh towards those who commit theft or violence towards the elderly. Further, research showed that female judges were more likely to approve the request for protection of (female) victims of domestic violence than male judges, and this effect was particularly visible among older female judges and primarily when their workload was high (Vallbé & Ramírez-Folch, 2023). Also, research on the role of age in legal decision-making found that younger judges seem less inclined than their older colleagues to rule in favour of the plaintiff in age discrimination cases (Manning et al., 2004). In short, because of the idiosyncrasies of judges, they do not judge uniformly in every case, and the pattern of judgments is also different for each judge.

Situational pattern noise should be thought of as irrelevant situational (and thus temporal) factors that affect the judgment of assessors. In the context of judicial decision-making, one might think of a judge's mood on a particular day, the weather, a defendant's birthday, etc. These examples may seem somewhat ridiculous, but there is empirical evidence that such factors can, in fact, influence judicial judgments. For instance, a study of 4.8 million legal judgments in France over a 12-year period found that judgments were less harsh when it was the defendant's birthday (Chen & Philippe, 2023). Other research found that when judges in the USA were in a bad mood because their local football team had unexpectedly lost over the weekend, they ruled more harshly (longer sentences) on the Monday after the weekend and that this effect also trickled down into the following days (Chen & Loecher, 2022; Eren & Mocan, 2018). For a win or an already anticipated loss, this relationship was not found.

2.3.4 *Interim Conclusion Regarding Noise*

This paragraph has explained that the total amount of noise – system noise – when using an open norm arises from level noise (one assessor is not the other), stable pattern noise (idiosyncratic patterns of an assessor, including personal biases) and situational pattern noise (irrelevant factors of temporary nature). The empirical evidence on these sources of noise is substantial. Political preferences, biases, mood, weather, suspects' birthdays and many other factors can automatically and unconsciously influence judgments, and the literature reviewed hitherto is far from exhaustive. The sum of the various sources of noise means that once there is some room for discretion on the part of the assessor, the degree of noise in the system can be severe and should not be underestimated.

To demonstrate the severity of noise following from the use of open norms and, furthermore, to demonstrate that the issue of noise is not confined to judges outside the Netherlands but that it also affects other norm addressees within the Netherlands, we will discuss our own research on noise among bankruptcy trustees in the following paragraph. An additional aim of the next paragraph is to illustrate how lawmakers and legal practitioners can measure noise through a 'noise audit'. The upcoming section will first outline the legal context surrounding the role of a trustee in bankruptcy and then discuss the methodology and results of the noise audit.

3 NOISE AUDIT: BANKRUPTCY TRUSTEES AND THEIR TASK TO BALANCE INTERESTS OF STAKEHOLDERS

3.1 *The Role of the Bankruptcy Trustee in Bankruptcy Proceedings*

Each year, thousands of companies unable to meet their debt obligations are declared bankrupt in the Netherlands. To effectively manage the resolution of

these bankruptcies, a bankruptcy trustee is appointed (Art. 68 Dutch Bankruptcy Act). The trustee's primary role is to oversee and liquidate the bankrupt estate.

The guiding principle for Dutch trustees is to act in the best interest of the joint creditors. However, during the liquidation process, trustees often encounter various conflicting interests (Pool, 2022b). For example, when considering the possibility of a business' continuation, a trustee may face two potential buyers: one may offer a higher purchase price, while the other, despite offering less, may commit to retaining more employees. While it might seem that the trustee should select the highest bidder based on the principle of prioritising creditor interests, this is not always the case. The Supreme Court has ruled in multiple decisions that trustees can consider all relevant interests during the bankruptcy process and that societal concerns, such as employment, may even take precedence over the interests of individual creditors.¹ As a result, trustees have considerable discretion in regard to how they weigh these competing interests.

The ambiguity surrounding the expectations from lawmakers regarding how these interests should be prioritised creates a vague norm for trustees. Terms like 'taking into account' and 'significant societal interests' lack clear definitions, creating uncertainty regarding how the interests of creditors and other (societal) interests should be balanced in practice. This open-ended nature of the trustee's responsibilities can lead to significant variability in decision-making, which can disadvantage creditors and other stakeholders (Pool, 2022a). These parties often find themselves uncertain about the process and how the outcomes will be influenced by the individual trustee's judgment. Until recently, the actual extent of this variability has been difficult to quantify. While it is possible that trustees have different interpretations of their roles and the societal interests they value, they may still arrive at similar decisions in specific cases. This raises the question of whether the bankruptcy process is truly as dependent on individual trustee discretion as it seems.

To empirically investigate the extent to which trustees exhibit differing judgments and considerations of interests in specific cases – and to evaluate the level of noise in the system – we recently conducted a study measuring this variability among trustees. The following sections will present the findings of this investigation.

1. For examples of landmark cases, see: Dutch Supreme Court 24 February 1995, ECLI:NL:HR:1995:ZC1643, para. 3.5, *NJ* 1996/472 (Sigmacon II); Dutch Supreme Court 19 April 1996, ECLI:NL:HR:1996:ZC2047, para. 3.5.2, *NJ* 1996/727 (Maclou), Dutch Supreme Court 19 December 2003, ECLI:NL:HR:2003:AN7817, para. 3.5, *NJ* 2004/293 (Curatoren Mobell/Interplan).

3.2 *A Noise Audit among Bankruptcy Trustees*

3.2.1 *What Is a Noise Audit?*

In response to the lack of clarity on how to balance the interests of creditors and other stakeholders in bankruptcy proceedings, our research team has conducted several studies to explore the presence of noise among bankruptcy trustees through what is called noise audits (Adriaanse et al., 2023; Pool et al., 2023). In these audits, we present a single case to a group of decision makers (in this case, trustees) to examine how uniform their decisions are (Kahneman et al., 2021, appendix A). Greater variance in their decisions indicate a higher level of noise.

It is important that the case used in a noise measurement is credible and relevant to the experiences of the participants (Kahneman et al., 2021, p. 381). Therefore, in one of the studies, we created a scenario in which a trustee had to choose between the interests of the joint creditors and the interests of the employees. This scenario is commonly discussed in the literature, and employees' interests are explicitly mentioned by the Dutch Supreme Court as a societal interest that bankruptcy trustees should take into account.

Using a simplified case in a noise audit is both acceptable and beneficial. Since more complex cases typically allow for a wider range of interpretations, one can argue that if we can detect noise in a simple case, even more noise would be observed in a complex case, as there are more factors that could influence decision-making (Kahneman et al., 2021, p. 382).

3.2.2 *Sample, Procedure and Materials*

We conducted a noise audit among members and fellows of INSOLAD, the Dutch association of insolvency lawyers, which includes the majority of Dutch bankruptcy trustees ($N = 200$). At the time the survey was conducted, INSOLAD had 739 members and fellows, meaning the response rate was 27%. Of the respondents, 78% indicated that they were currently working as a trustee. Although not all members and fellows have worked (or are currently working) as trustees, the study refers to them as trustees since participants were required to adopt the role of a trustee. The average age of the respondents was 49.8 years ($SD = 9.9$), and they had an average of 22.1 years ($SD = 22.6$) of professional experience. In terms of gender, 81% of respondents were male, 17.5% were female, and 1.5% preferred not to disclose their gender.

Participants were presented with a case, consisting of roughly 500 words, concerning a bankrupt company, for which the trustee needed to assess the feasibility of a business continuation. The case provided a description of a company that recently went bankrupt as well as the dilemma the trustee dealing with this bankruptcy now faces, which was deciding between prioritising the interests of creditors and those of the company's employees.

Participants were asked to adopt the perspective of the trustee tasked with deciding between two options:

1. Business continuation: This option would allow the company to continue operating, thereby retaining all employees. However, the downside would be that the bankruptcy creditors would receive only 25% of their claims instead of 40% in the event of liquidation, indicating a preference for societal interests.
2. Liquidation: In this scenario, creditors would receive 40% of their claims (compared to 25% in a business continuation scenario), but the company would cease operations, resulting in job losses, loss of revenue for suppliers, and financial distress for the family that operated the business, thus prioritising the interests of the creditors.

What participants were unaware of was that there were two variations of this case. Half of the participants encountered a scenario in which the hypothetical company was a 'sympathetic business' (the recreational park 'The Green Wijk'), established by the reputable Wijk family. Conversely, the alternative version characterised the company as an 'unsympathetic business' (the adhesive manufacturer VLACO), founded by the notorious Vlasbom family. The purpose of creating these two distinct cases was to investigate (for exploratory reasons in addition to investigating noise) whether this legally irrelevant factor – sympathy for the business – would influence the decision-making process. All other aspects of the case, such as the number of employees who would lose their jobs, the accrued debt, available candidates for a business continuation, and the payout difference for creditors, remained identical in both variations.

Participants were asked to indicate their inclination towards either business continuation or liquidation on a 7-point Likert scale, where 1 represented 'Strongly in favour of business continuation' and 7 indicated 'Strongly in favour of liquidation'. Choosing liquidation meant that the respondent prioritised the interests of the creditors, whereas opting for business continuation indicated they valued societal interests more highly. After making their choice, respondents were asked to explain their reasoning.

Next, to check whether the 'manipulation' of the company's profile (sympathetic vs. unsympathetic) worked, participants were asked to indicate on a 7-point Likert scale what their impression was of the bankrupt company, ranging from 'not at all sympathetic' (1) to 'very sympathetic' (7).

Finally, to understand what variables may be related to trustees' decision-making, we measured participants' sleep quality and quantity, as well as their 'intellectual humility', using a validated scale consisting of twelve items, such as 'When I think about the limits of my knowledge, I feel uncomfortable' and 'I find it hard to admit when one of my convictions turns out to be untrue' (Haggard et al., 2018). Prior research has demonstrated a connection between the amount of sleep judges had and the punishment they assigned (Cho et al., 2016). Moreover, in

psychology, increasing attention is paid to the concept of intellectual humility, and it has been shown to be related to a reduction in political ‘myside bias’ (Bowes et al., 2022), more prosocial behaviour, less dogmatism, etc. (Porter et al., 2022). No concrete hypotheses were formulated for how such prior research may translate into bankruptcy trustees’ decision-making. These variables were included in the design for exploratory reasons only.

3.3 *Result of the Noise Audit among Bankruptcy Trustees*

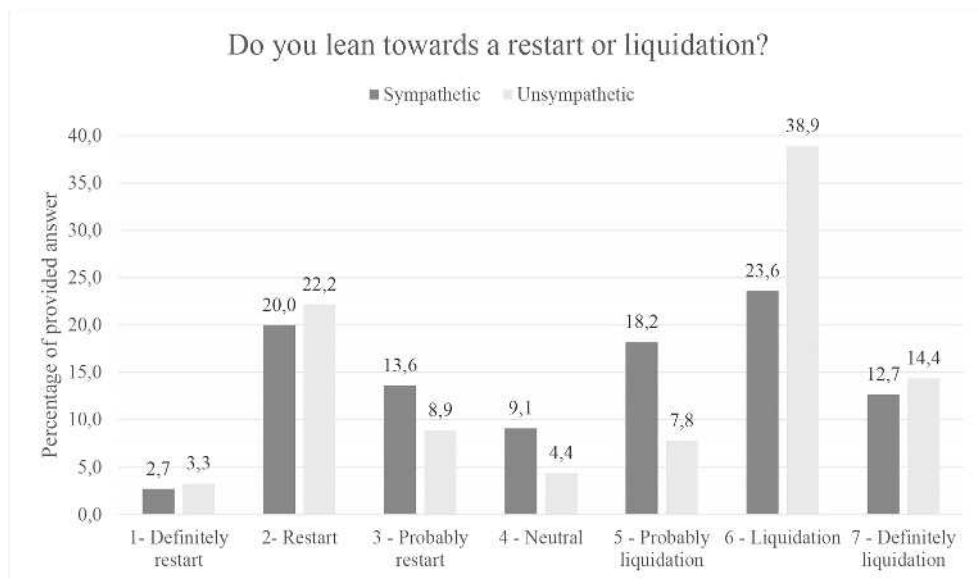
3.3.1 *Degree of Noise*

The manipulation check showed that participants who read the version of the case with the ‘sympathetic company’ indeed considered this company to be more sympathetic ($M = 5.43$, $SD = 1.04$) than those who read the case with the ‘unsympathetic company’ ($M = 3.88$, $SD = 0.97$), $F(1, 198) = 117.32$, $p < 0.001$, $\eta_p^2 = 0.37$, meaning that the manipulation of the company’s moral profile was successful.

Both groups of participants showed a slight preference for liquidation (combined: $M = 4.52$, $SD = 1.88$), indicating that they prioritise the interests of the creditors (Mode = 6). Among the participants who were presented the sympathetic case, 54.5% scored above 4 on the scale (the midpoint), suggesting that more than half lean towards liquidation and would act in the interests of the creditors. For those who viewed the unsympathetic case, this percentage increased to 61.1%, indicating a slightly stronger inclination towards liquidation (and thus favouring the interests of the creditors) compared to those responding to the sympathetic case, but this difference did not reach statistical significance, $t = -0.88$, $p = 0.17$.

The most noteworthy observation for the purposes of this chapter is the substantial variation in responses for both cases. Figure 3 clearly illustrates that the answers from respondents vary widely, revealing considerable noise among trustees.

Figure 3 **Answers on the Key Dependent Variable (Preference for Business Continuation/Restart or Liquidation) Separated by Group (Sympathetic Business vs. Unsympathetic Business)**



3.3.2 Sources of Noise among Bankruptcy Trustees

To gain further insight into the potential sources of the observed noise, we asked respondents to explain how they arrived at their decisions. Analysis of the responses to this open-ended question, conducted via ATLAS.ti, revealed a division among the respondents. One group believed that the interests of the creditors were paramount because the trustee has to act in the interest of the collective creditors. Members of this group often indicated in their explanations that the 15% difference in payouts to creditors was too big to allow the societal interest to prevail. In contrast, the other group that chose that the societal interest in maintaining business continuity took precedence over the interests of the collective creditors. Notably, respondents in this latter group often considered a 15% difference in payout to be negligible. Thus, the choice between a business continuation and liquidation appears to be influenced by the trustees' understanding of their role and their perception of the magnitude of the estate shortfall.

To investigate whether the participants' preference for business continuation or liquidation correlated with any of the other variables included in this study, we ran correlation analyses of which the results can be found in Table 1. As can be seen in the table, participants' age significantly correlated with the preference for business continuation or liquidation such that younger participants were more

inclined to favour liquidation. No significant correlations were found between the participants' preference and sleep quantity, sleep quality, or their intellectual humility. When looking at the correlations separately for the participants in the sympathetic and unsympathetic cases, as in Table 2, a few noteworthy correlations appear. For those who read the version of the case with the sympathetic company, their perception of the moral profile of the company (sympathetic or not) correlated with their preference for business continuation or liquidation in such a way that these participants were more inclined to liquidate the company at the expense of societal concerns the more they perceived the company to be unsympathetic. Furthermore, the correlation between age and preference only reached statistical significance for participants in the unsympathetic version of the case.

Table 1 Correlations between All Measured Variables for the Entire Sample (So Not Split by Group Based on the Version of the Case; $N = 200$)

	Continuation vs. Liquidation	Sympathy for Company	Age	Sleep Quality	Sleep Quantity	Intellectual Humility
Continuation vs. liquidation	-	-0.11	-0.17*	0.04	0.11	0.04
Sympathy for company		-	-0.11	-0.03	-0.04	0.03
Age			-	0.18*	-0.02	-0.05
Sleep quality				-	0.28*	0.03
Sleep quantity					-	0.07
Intellectual humility						-

Significant correlations are denoted with * ($p < 0.05$)

Table 2 Correlations between All Measured Variables, Split by the Two Groups with Different Versions of the Case (S = sympathetic company, $N = 110$; U = unsympathetic company, $N = 90$)

	Continuation vs. Liquidation		Sympathy for Company		Age		Sleep Quality		Sleep Quantity		Intellectual Humility	
	S	U	S	U	S	U	S	U	S	U	S	U
Continuation vs. liquidation	-	-	-0.19*	0.05	-0.13	-0.22*	0.02	0.07	0.05	0.16	-0.02	0.12
Sympathy for company			-	-	-0.16	-0.09	-0.07	-0.08	0.08	0.01	-0.05	0.01
Age					-	-	0.21*	0.15	-0.00	-0.05	-0.02	-0.07
Sleep quality							-	-	0.40*	0.16	0.01	0.03
Sleep quantity									-	-	-0.03	0.20
Intellectual humility											-	-

Significant correlations are denoted with * ($p < 0.05$)

Given the degree of discretion that trustees have in balancing interests, the presence of noise among trustees is not surprising. The extent of this noise, however, is substantial, especially considering that the societal interest discussed in the noise audit case (i.e. retaining employment) is deemed so significant by the Dutch Supreme Court that trustees are required to take it into account. Additionally, it is surprising that irrelevant factors such as moral judgments about the company seem to influence the trustees' decision-making process.

4 DISCUSSION OF THE MAIN FINDINGS, LIMITATION, AND NORMATIVE IMPLICATIONS

4.1 *Main Findings*

Based on the results, we can conclude that whether societal interests are considered, and if so, which ones, depends on the trustee handling the bankruptcy. The discretion granted to trustees contributes to substantial legal inequality and uncertainty. Creditors who happen to encounter a trustee who deems a particular interest sufficiently important may receive considerably lower payouts than in the case where a trustee does not find that societal interest compelling enough.

Furthermore, it is unclear in advance which trustee will consider which interest, leaving creditors unable to anticipate the outcome.

While numerous authors have highlighted the risks associated with this unpredictability, the vast majority advocate for maintaining trustees' discretion. When calls are made to clarify the norm, it is not due to the resulting legal uncertainty and inequality in the system. The prevailing thought is that the unique nature of each bankruptcy makes it impossible to establish further guidelines for trustees. We believe this argument indicates that the extent of noise has not yet been fully recognised. Moreover, it is, in fact, possible to mitigate the risk of noise, which will be discussed in the following paragraphs.

4.2 *Limitations*

Some limitations of the empirical study addressed in paragraph 3 should be discussed. First, a limitation of any experimental study is that fictitious materials are used in an artificial setting. The question therefore arises to what the extent the findings about how bankruptcy trustees make decisions in practice can be generalised. Second, we presented the participants with a single case. It therefore remains an open question as to what the degree of noise might be when using a different case with different facts. Based on these two limitations, one could argue that the degree of noise observed in the study is overstated and that the level of noise found in legal practice does not warrant any real concern. Alternatively, one could argue that the degree of noise will be significantly worse in legal practice as the number of variables that decision makers are exposed to in real life and that may affect their judgment is infinite, resulting in a higher degree of noise than one could measure in an experiment. Based on the numerous studies that have demonstrated substantial noise in a range of contexts (some of which are discussed in this chapter), we consider it a safer bet that the degree of noise observed in our study underestimates the degree of noise in legal practice rather than that it is an overestimation.

4.3 *Implications: Reducing Noise*

We hope this chapter contributes to raising awareness of the phenomenon of noise, and thus the issues of legal inequality and uncertainty associated with open norms. Ideally, this increased awareness will motivate efforts to reduce the level of noise. This final paragraph will provide some suggestions in this regard. It should be noted that the primary aim of this chapter is to introduce the phenomenon of 'noise' and to draw attention to the significant and underestimated level of noise resulting from open norms. Therefore, the goal is not to directly elaborate on solutions for reducing noise, as this would require a second chapter in terms of the required text and research. Another point to consider is that it is unlikely that noise

can be entirely reduced to zero. As long as the addressees of the norms are human beings, a certain degree of subjectivity and thus noise will always exist.

4.3.1 *Awareness of Psychological Processes in (Legal) Decision-making*

Although it may sound like a cliché, if legislators and norm addressees are not aware of the (legally irrelevant) factors that can unconsciously influence decision-making and judgment, little will change. Practice shows that people often believe they are not susceptible to unconscious psychological factors such as biases (Olthuis, 2024). This is especially true for legal professionals. Too many legal practitioners maintain the illusion that, due to their education and/or experience, they are less (or not at all) susceptible to processes that stem largely from millions of years of evolution. This mindset (the illusion of infallibility) is also evident among trustees and insolvency law professionals, as discussed in Section 3. We endorse the importance of acquiring knowledge from the behavioural sciences and hope that this chapter can contribute to that.

Interestingly, some attention is paid within the legal field to biases such as tunnel vision among judges but hardly any is devoted to the notion of noise. One possible explanation for this is that decisions influenced by bias can sometimes be retrospectively identified as ‘wrong’; for example when it later turns out that a defendant was wrongfully convicted. The individual cases where errors have been made due to biases are thus tangible. In contrast, noise cannot be pinpointed in a single instance, making it somewhat abstract and elusive. In case of noise, there is not necessarily any wrong decision having been made. The norm addressee simply uses the discretion granted to them in good faith, and whether another decision maker would have arrived at a different judgment will always remain unknown. As a result, noise is largely invisible.

This invisibility means that noise often remains unaddressed in discussions, and, therefore, efforts to limit noise are non-existent. We hope that this chapter regarding the risk of noise will contribute to the necessary awareness and advise the legislature and legal practitioners to educate themselves through training and courses.

4.3.2 *Normalising ‘Decision Hygiene’*

Once awareness around noise has been raised and people are motivated to reduce noise, one method to do so may be to pay more attention to the decision-making process itself (Kahneman et al., 2012). Regardless of how open a norm is and how much noise it generates, it is advisable to make decisions considering so-called *decision hygiene*. This phenomenon relates to making decisions based on specific rules and protocols. This can include appointing a ‘devil’s advocate’, using a ‘bias checklist’, anonymising and filtering documents, and aggregating individual judgments to utilise the ‘wisdom of the crowd’. These are just a few examples, and which technique is most meaningful should be assessed based on the decision-

making context, such as who the norm addressee is and whether a decision is made by an individual or a group. Decision hygiene is particularly important in situations where a group makes decisions collectively, as group decision-making can exacerbate the problem of noise (Sunstein, 1999). To reduce noise, it may therefore be beneficial to consider not only how to further specify norms but also whether noise can be diminished by implementing decision hygiene interventions among decision makers.

5 CONCLUDING

In this chapter, we have introduced the reader to the phenomenon of ‘noise’, specifically as a risk associated with the use of open norms. The problem of noise is not new; it is frequently discussed in legal literature. However, we believe that the extent of noise and the resulting legal uncertainty and inequality are grossly underestimated by legal professionals and legal scholars alike. To strengthen this statement, we have provided examples from empirical research, particularly from the behavioural sciences, regarding the various forms of noise in legal decision-making.

We have also demonstrated how noise can be measured by reporting our own research among bankruptcy trustees. This noise audit shows that when the legislature provides little guidance, the interpretation and application of the norm can vary significantly. Solving the problem of noise is easier said than done, unfortunately. We believe the goal should not necessarily be to eliminate noise entirely, as this is virtually impossible given that decision-making is inherently a human endeavour and will remain so for the foreseeable future. However, this does not mean that the legislature cannot take any measures to reduce noise. We recommend several measures to reduce noise, starting with raising awareness, which we hope this chapter will contribute to. Unless the issue is recognised, there will be little urgency in addressing it. Promoting behavioural science courses and training can help increase the required awareness. Finally, we recommend adopting decision hygiene practices to reduce bias and noise, especially in group decision-making. We hope this chapter highlights the underestimated impact of noise on legal uncertainty and inequality in legal decision-making. Overall, we hope that the reader of this chapter has come to view legal uncertainty and inequality resulting from noise in open norms as a problem that deserves more attention and weight in the creation and evaluation of legislation.

REFERENCES

- Adriaanse, J. A. A., Strohmaier, N., Pool, J. M. W., & Broekema, M. J. R. (2023). De maatschappelijke taak van de curator in sociaalpsychologisch perspectief: een empirisch onderzoek naar ‘ruis’ bij belangenafwegingen in faillissementen. In E. J. van Opendijk et al. (Eds.), *De Taak van de Curator. INSOLAD Jaarboek 2023* (pp. 3-27). Wolters Kluwer.

- Arora, A. (2018). *Too tough on crime? The impact of prosecutor politics on incarceration*. American Economic Association.
- Barendrecht, J. M. (1992). *Recht als model van rechtvaardigheid: Beschouwingen over vage en scherpe normen, over binding aan het recht en over rechtsvorming*. Kluwer.
- Bowes, S. M., Costello, T. H., Lee, C., McElroy-Heltzel, S., Davis D. E., & Lilienfeld, S. O. (2022). Stepping outside the echo chamber: Is intellectual humility associated with less political myside bias?, *Personality and Social Psychology Bulletin*, 48(1), 150-164.
- Boyd, C. L. (2013). She'll settle it? *Journal of Law and Courts*, 1(2), 193-219.
- Chen, D. L., & Loecher, M. (2025). Mood and the malleability of moral reasoning: the impact of irrelevant factors on judicial decisions. *Journal of Behavioral and Experimental Economics*, 116, 102364, 1-11.
- Chen, D. L., & Philippe, A. (2023). Clash of norms: Judicial leniency on defendant birthdays. *Journal of Economic Behavior & Organization*, 211, 324-344.
- Cho, K., Barnes, C. M., & Guanara, C. L. (2016). Sleepy punishers are harsh punishers: Daylight saving time and legal sentences. *Psychological Science*, 28(2), 242-247.
- Clancy, K., Bartolomeo, J., Richardson, D., & Wellford, C. (1981). Sentence decision-making: The logic of sentence decisions and the extent and sources of sentence disparity. *Journal of Criminal Law & Criminology*, 72, 524.
- Cohen, A., & Yang, C. S. (2019). Judicial politics and sentencing decisions. *American Economic Journal: Economic Policy*, 11(1), 160-191.
- Epstein, L., & Knight, J. (2013). Reconsidering judicial preferences. *Annual Review of Political Science*, 16, 11-31.
- Eren, O., & Mocan, N. (2018). Emotional judges and unlucky juveniles. *American Economic Journal: Applied Economics*, 10(3), 171-205.
- Fox, R., & van Sickel, R. (2000). Gender dynamics and judicial behavior in trial courts: An exploratory study. *Justice System Journal*, 21(3), 261-280.
- Guthrie, C., Rachlinski, J. J., & Wistrich, A. J. (2000). Inside the judicial mind. *Cornell Law Review*, 86(4), 777-830.
- Guthrie, C., Rachlinski, J. J., & Wistrich, A. J. (2007). Blinking on the bench: How judges decide cases. *Cornell Law Review*, 93(1), 1-43.
- Haggard, M., Rowatt, W. C., Leman, J. C., Meagher, B., Moore, C., Fergus, T., & Howard-Snyder, D. (2018). Finding middle ground between intellectual arrogance and intellectual servility: Development and assessment of the limitations-owning intellectual humility scale. *Personality and Individual Differences*, 124, 184-193.
- Hartkamp, A. S. (1981). Open normen (in het bijzonder de redelijkheid en billijkheid) in het nieuw BW. *Weekblad voor Privaatrecht, Notariaat en Registratie*, 213.
- Hartlief, T. (2002). Open normen in het schadevergoedingsrecht: de artikelen 6:98, 99 en 101 BW. *Weekblad voor Privaatrecht, Notariaat en Registratie*.
- Hoekstra, C. (2023). Maatschappelijke normvorming en de ongeschreven zorgvuldigheidsnorm: Een gezichtspuntencatalogus. *Weekblad voor Privaatrecht, Notariaat en Registratie*, 7419, 539-552.
- Huisman, P., & Jak, N. (2022). Algemene beginselen van behoorlijk bestuur en privaatrechtelijke rechtspersonen: Handvatten voor de rechtsontwikkeling door de burgerlijke rechter. *Nederlands Tijdschrift voor Burgerlijk Recht*, 6, 183-194.
- Ippel, M. H., Scheltema, M., & Zuurmond, A. (2023). *Zorgplichten in het bestuursrecht. Preadviezen VAR*. BJu.
- Kahneman, D., Rosenfield, J., Gandhi, R., & Blaser, A. (2016). Noise: How to overcome the high, hidden cost of inconsistent decision making. *Harvard Business Review*. <https://hbr.org/2016/10/noise>.
- Kahneman, D., Sibony, O., & Sunstein, C. R. (2021). *Noise: A Flaw in Human Judgment*. William Collins.
- Manning, K. L., Carroll, B. A., & Carp, R. A. (2004). Does age matter? Judicial decision making in age discrimination cases. *Social Science Quarterly*, 85(1), 1-18.
- Nan, J. S. (2011). *Het Lex-Certa Beginsel* (Dissertation, Amsterdam UvA). Sdu.

- Olthuis, E. H. (2024). *The human element in judicial decision-making: The role of personal attitudes* (Thesis, fully internal, Universiteit van Amsterdam).
- Partridge, A., & Eldridge, W. B. (1974). *The Second Circuit sentencing study: A report to the judges of the Second Circuit*. Federal Judicial Center.
- Pool, J. M. W., Pluut, H., & Vriesendorp, R. D. (2023). Wanneer prevaleren maatschappelijke belangen boven de belangen van de gezamenlijke schuldeisers? Een experimenteel onderzoek naar belangenafwegingen van curatoren. *Tijdschrift voor Insolventierecht*, 2023(6), 274-292.
- Pool, J. M. W. (2022a). *De rol van de curator bij de aanpak van onregelmatigheden: Een empirisch-juridisch onderzoek naar de rol van de curator in de praktijk bij de aanpak van onregelmatigheden voor en tijdens faillissement* (Dissertation, Institute of Private Law, Faculty of Law, Leiden University). Meijers-reeks nr. MI-392. <https://hdl.handle.net/1887/3464369>.
- Pool, J. M. W. (2022b). Maatschappelijk verantwoord vereffenen: belangenpluralisme bij de maatschappelijke taakuitoefening van de curator. *Tijdschrift voor Insolventierecht*, (2022/20), 134-140.
- Porter, T., Elnakouri, A., Meyers, E. A., Shibayama, T., Jayawickreme, E., & Grossmann, I. (2022). Predictors and consequences of intellectual humility. *Nature Reviews Psychology*, 1(9), 524-536.
- Raman, V., Vera, C., & Manna, C. J. (2022). Bias, consistency, and partisanship in US asylum cases: A machine learning analysis of extraneous factors in immigration court decisions. In *Proceedings of the 2nd ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization* (pp. 1-14).
- Ramji-Nogales, J., Schoenholtz, A. I., & Schrag, P. G. (2007). Refugee roulette: Disparities in asylum adjudication. *Stanford Law Review*, 60(2), 295-412.
- Schanzenbach, M. M., & Tiller, E. H. (2008). Reviewing the sentencing guidelines: Judicial politics, empirical evidence, and reform. *The University of Chicago Law Review*, 75(2), 715-760.
- Shamena Anwar, Patrick Bayer, Randi Hjalmarsson, Politics in the Courtroom: Political Ideology and Jury Decision Making, *Journal of the European Economic Association*, Volume 17, Issue 3, June 2019, Pages 834-875, <https://doi.org/10.1093/jeea/jvy013>.
- Strohmaier, N., Pluut, H., van den Bos, K., Adriaanse, J. A. A., & Vriesendorp, R. D. (2021). Hindsight bias and outcome bias in judging directors' liability and the role of free will beliefs. *Journal of Applied Social Psychology*, 51(3), 141-158.
- Strohmaier, N. (2020). *Making sense of business failure: A social psychological perspective on financial and legal judgments in the context of insolvency* (Doctoral dissertation, Leiden University).
- Sunstein, C. R. (1999). *The law of group polarization*. John M. Olin Law & Economics Working Paper No. 91.
- Timmerman, V. (2023). Artikel 2:8 BW, zorgplichten en de rol van de rechter, *Ondernemingsrecht* 2023/48.
- Vallbé, J. J., & Ramírez-Folch, C. (2023). The effect of judges' gender on decisions regarding intimate-partner violence. *Journal of Empirical Legal Studies*. Volume 20, Issue 3, p. 641-668.
- Van Klink, B. (1998). *De wet als symbool: Over wettelijke communicatie en de Wet gelijke behandeling van mannen en vrouwen bij de arbeid* (Dissertation, Tilburg University).
- Van Koppen, P. J., & Ten Kate, J. (1984). Individual differences in judicial behavior: Personal characteristics and private law decision-making. *Law & Society Review*, 18(2), 225-247.
- Van Lochem, J. Ph., *Open normen in het huurrecht. Ruimte versus rechtszekerheid* (Recht en Praktijk nr. VG11) (diss. Utrecht), Deventer: Wolters Kluwer 2019.
- Wiarda G. J., *Drie typen van rechtsvinding*, Tjeenk Willink: Zwolle 1988.