Noises Off: Towards Greater Consistency in International Arbitration Awards

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'Noise' is the unjustified and unwanted variance in a set of judgments over comparable issues. Together with bias, Noise is a driver of error in decision-making. As argued by the authors of the bestseller 'Noise: A Flaw in Human Judgment', every set of judgments or decisions (in legal proceedings or otherwise) evidence statistical 'Noise', and more of it than is commonly believed. Such variance has corrosive, if often concealed, consequences in terms of fairness, efficiency and legitimacy. In this article we demonstrate that there is likely to be substantial Noise in international arbitration proceedings, which is driven by features inherent to the arbitral process (though further features also help mitigate it). We present our Noise Audit and identify examples of Noise in publicly-available awards. We conclude with a number of recommendations to minimize Noise, in order to forge a pathway towards greater consistency in international arbitration.

Keywords: International Arbitration, Consistency, Noise, Variance, Psychology, Dispute-Resolution, Empirical, Interest Rates, Country Risk

1 INTRODUCTION

International arbitration is not a perfect process.[1] In recent years arbitration practitioners, and the wider world more generally, have been increasingly vocal in their criticism of the system and its participants.[2] These criticisms make no

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1 Memorably, international arbitration was considered by one corporate counsel to be the 'least worst option', only used 'because the alternatives were so much worse': *see* Michael McIlwrath, *Quoted in* David Hechler, Law.Com: Corporate Counsel, *We Can Work It Out*, www.law.com/jsp/cc/PubArticleCC.jsp?id=1202437871408 (accessed 1 Feb. 2010).

2 *See* e.g., the debates about the alleged 'formalization' of international arbitration, as recounted in L. Trakman & H. Montgomery, *The 'Judicialization' of International Commercial Arbitration: Pitfall or Virtue?*,

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distinction between investor state dispute settlement (ISDS)[3] and commercial arbitration, with both fields variously impugned for lack of transparency; errors; perceived arbitrator bias; cost of proceedings, and challenges in ensuring payment of awards.[4] A frequent complaint attaches to alleged inconsistencies between awards,[5] and particularly of publicly-available ISDS awards (the limited availability of commercial awards may help to conceal their flaws).

Indeed, on the eve of an award being handed down, most counsel in arbitral proceedings have had the experience of advising their clients that the result could go 'either way'. More accurately, however, on any given question (including the overall outcome of a case), an award could go 'any way'. A consequence of the range of legal issues, the discretion tribunals have in many (if not most) matters, together with the diversity of legal and cultural backgrounds involved, is that an arbitral decision is difficult to predict and, sometimes, may surprise everyone concerned.

In this context, much has been made of the issue of bias, overt or implicit, in international arbitration, and of how such bias can result in inconsistent or surprising awards.[6] Little to no attention has been given to the situation in which decision-makers who would be expected to reach similar conclusions, given similar facts and parties, end up rendering very different awards. This phenomenon, where there might be no bias and yet awards on similar facts are disconcertingly different, we refer to as 'Noise'.[7]

In their recent book, 'Noise: A Flaw in Human Judgment',[8] Daniel Kahneman, Oliver Sibony, and Cass R. Sunstein argue that Noise is a common feature in human judgments: error in judgment (in a general sense, i.e., not only legal) arises both from systematic deviation (bias) and from random scatter (Noise), with varying impacts depending on the circumstances. Drawing from a range of examples, such as sentencing in the US criminal justice system, claims adjustments

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30 Leiden J. of Int'l L. 405 (2017). A number of general criticisms of international arbitration can also be found summarized in L. Trevelyan, IBANet, *International Arbitration: a Time of Change*, www.ibanet.org/article/aeef2580-8dfc-4d90-8639-8605de0f346a.

3 *See The Backlash Against Investment Arbitration* (M. Waibel, A. Kaushal, K.-H. Chung & C. Balchin eds, Kluwer Law International 2010).

4 *See* L. Nottage, *A Weathermap for International Arbitration: Mainly Sunny, Some Cloud, Possible Thunderstorms,* in *The Evolution and Future of International Arbitration* 496 (Stavros Brekoulakis et al. eds, Kluwer Law International 2016).

5 A good recounting of the issue can be found in J. Vinuales & F. Spoorenberg, *Conflicting Decisions in International Arbitration*, 8 LPICT 91 (2009).

6 *See* e.g., S. Brekoulakis, *Systemic Bias and the Institution of International Arbitration: A New Approach to Arbitral Decision-Making*, 4 JIDS 553 (2013); S. Franck, *Arbitration Costs: Myths and Realities in Investment Treaty Arbitration* (OUP 2019).

7 In what follows, we use the capitalized term 'Noise' to refer to the concept from *Noise*, the book by Kahneman, Sibony and Sunstein.

8 D. Kahneman, O. Sibony & C. R. Sunstein, *Noise: a Flaw in Human Judgment* (Little, Brown Spark 2021).

by insurers, or fingerprint forensic analysis, the authors demonstrate that judgments often vary substantially without good cause, and in particular much more than the differences in the underlying cases would appear to warrant. Drawing from studies of judicial behaviour, they describe troubling and substantial discrepancies in judgments between two judges in the same case – or, indeed, between the same judge faced with the same question at different times. They convincingly argue that Noise is much more common than we think, and its impact in terms of fairness or efficiency more profound than we realize.

In this article we show that arbitral decisions are also a victim of Noise. Of course, each arbitration is different, and those differences can often explain discrepancies in outcomes. Some specific questions and issues, however, are sufficiently similar that extensive variance in decisions should be a cause for concern, in terms of equity, fairness, and ultimately the legitimacy of arbitral proceedings. Even though this variance may well be inherent to arbitration, practitioners should be aware of Noise and familiar with strategies to mitigate it in order to achieve greater consistency in international arbitration awards.

The article has four sections. Section 1 looks at what constitutes Noise. We address the difference between Noise and bias, the psychological reasons behind Noise and why we tend to be oblivious to Noise and its impacts.

Section 2 identifies examples of Noise in international arbitration based on a Noise Audit of certain ISDS awards. A Noise Audit measures how much disagreement there is between individuals making judgments on the same facts. We show in particular that: (1) interest rates applied to compensate investors in Spanish and Italian renewables arbitrations vary dramatically, meaning that some investors end up in a far better position than others for no clear or consistent reason; and (2) tribunals cannot agree on the particular country risk for Venezuela, with material consequences for the compensation awarded to investors.

In section 3 we discuss the likely causes of Noise in international arbitration proceedings and identify four of them: (1) arbitrators; (2) procedural rules; (3) applicable law; and (4) limited review of arbitration awards.

In section 4 we consider the aspects of international arbitration that could mitigate Noise and focus on two Noise reduction methods: choosing the best decision-makers and applying 'decision hygiene strategies'.

2 WHAT IS NOISE?

'Noise' is an unjustified and unwanted variance in a set of judgments that should be identical. As such, Noise is a distinct concept from bias, although they both

contribute to the level of error in a judgment.[9] A judgment will be noisy where people who are expected to agree reach very different conclusions. A judgment will be biased where there is a level of consistency in the error that can be retraced (or explained) by a particular tendency in the decision-maker.

As Kahneman et al. are careful to note, bias has an 'explanatory charisma' which Noise lacks. While we can often easily suspect or discover bias in poor judgments, Noise is less intuitive because it requires statistical thinking: one single judgment cannot (by definition) display Noise, only a number of them can.[10] Bias is also a satisfying concept in speaking to our 'causalist' approach to life: humans tend to (and want to) rationalize what they see and experience. If a decision surprises us, we look for, and usually find, a cause. For example, we will look to find bias when trying to explain, in hindsight, why a particular decision might be wrong. A surprising decision by a judge in favour of defendant X is therefore readily attributed to pro-X bias. Yet bias is not necessarily, in all cases, the real explanation: perhaps the decision-maker was in a particularly good mood that day; or perhaps it was the defendant's birthday.[11] In these circumstances, a pro-X judgment cannot be ascribed to a pro-X bias, and such alleged bias cannot explain further differences in relation to judgments regarding Y, Z, and so on. In order to identify Noise we need to replace the 'causalist' approach with a statistical view.

Another way to approach Noise is from the concept of 'wisdom of the crowd'. Shortly put, this is the idea – empirically verified, at least in some contexts – that the average opinion of a number of judges should be closer to the truth than most individual opinions on their own. Think of a game at a county fair that asks people to guess the weight of an ox: while the average guess in these events is often (surprisingly) close to the correct answer, the concept of Noise describes the variance within the guesses.[12] And while such Noise is harmless when judgments are mere guesses, variance is more concerning when the judgment deals with a singular case – such as criminal sentencing, child custody decisions, or the assessment of insurance claims. In these circumstances, the knowledge that the average judgment may be more or less 'right' is of little comfort to the criminal with a jail sentence at the top of the range,[13] the children removed into care, or the insured party that sees its premiums rise. As the authors of Noise conclude: 'In noisy systems, errors do not cancel out. They add up'.[14]

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9 *Ibid.,* at 5: 'To understand error in judgment, we must understand both bias and noise'.
10 *Ibid.*, at 369.
11 As discussed in *Noise*, both these facts can influence decision-making.
12 Kahneman, Sibony & Sunstein, *supra* n. 8, at 83.
13 Notably, when setting mandatory sentencing rules, the US Sentencing Commission opted to adopt historical averages. *See* Kahneman, Sibony & Sunstein, *supra* n. 8, at 14–18.
14 *Ibid.*, at 29.

In this context, there is an important difference between predictive and evaluative judgments.[15] Predictive judgments refer to a knowable value: for instance, predicting whether a specific event will occur in the future, or guesses as to the weight of an ox. Evaluative judgments are those that cannot be compared with a 'right' answer: there is no 'right' decision to deny or grant bail in criminal proceedings – reasonable judges can reasonably disagree on the correct approach.[16] Most judgments in arbitral proceedings are evaluative, although some are also predictive.[17] The boundary between both sets of judgments is of course somewhat blurred, and decision-makers seem to approach both types of judgments similarly.[18]

What causes Noise? Kahneman et al. identify a number of factors conducive to Noise. Studies have found, for instance, that parole in the US criminal system is more likely to be granted after lunch. Judges were demonstrably more lenient on Mondays when their local team won a match during the weekend. The order in which decisions are rendered is also palpably important: asylum applications, for instance, are more likely to be granted when they follow several refusals. Noise, as explained above, is a *statistical* reality; however, variance can also derive from *individual* bias: if cases are assigned on a random basis to judges that are harsher or more lenient than others, this will create overall Noise.

Some amount of variance also derives from the fact that people often disagree in their approach to judging or in their interpretation of the relevant test or criteria. On a 1 to 5-star 'response scale', reviewers might disagree on what 4-star means, or what the baseline assessment should be. Disagreements in this context will lead to varying outcomes (e.g., different grades) *even if the decision-makers agree on the merits of the question.*[19]

Kahneman et al. further distinguish between 'Level Noise' and 'Pattern Noise'.[20] Level Noise is the variability of average judgments made by different individuals, such as whether some criminal judges are *in general* harsher than others, or some doctors more inclined to prescribe antibiotics. Pattern Noise, on the other hand, is a statistical interaction between two sources of Noise, a stable and a transient one.

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15 *Ibid.,* at 43–54.

16 The boundary between predictive and evaluation judgment is, however, fuzzy, as the authors of *Noise* acknowledge in Ch. 4: *see ibid.,* at 52.

17 For example, interlocutory decisions based on whether a certain event will occur at a later juncture.

18 Kahneman, Sibony & Sunstein, *supra* n. 8, at 52: 'Professionals feel much the same, act much the same and speak much the same to justify themselves when their judgments are predictive … and when they are evaluative'.

19 *Ibid.*, at 189.

20 *Ibid.,* at 74.

'Stable Pattern Noise' is the difference in the personal responses of judges to the same case.[21] It reflects human individuality, someone's idiosyncratic conscious or unconscious principles or values, as exemplified in a judge who might be particularly severe in relation to shoplifters and unusually lenient in relation to traffic offences.[22] The authors of *Noise* consider that Stable Pattern Noise is likely to be the main factor in overall Noise, with unfortunate consequences: there is little that can be done to counter the fact that people are different and unpredictable.

The transient element of Pattern Noise is 'Occasion Noise', which includes incidental factors such as the weather, the order in which matters are to be judged, the judge's mood or the judge's level of stress or fatigue. Since intrinsic variability is inherent to the human brain, Occasion Noise cannot be completely eradicated either.[23]

Noise in decision-making is an important problem. This is clearly the case for predictive judgments: if two predictions differ, at least one of them must be wrong (and the future will indicate which one was right). Yet, Noise is also an issue in the case of evaluative judgments, in terms of fairness, consistency, and legitimacy. Intuitively, we should not accept discrepancies in judgments that stem from factors unrelated to the matter being decided. When Noise Audits show that randomly assigned judges issue varying decisions with respect to similar cases like bail or asylum decisions, this reveals that these cases are partly governed by chance – a far cry from most people's idea of justice and fairness. Noise in these contexts is all the more concerning when it has material consequences, and especially where an asymmetry arises as result of the decision, i.e., when its impact might be neutral for one party, but catastrophic for the other party. Bail decisions, for instance, are to some extent asymmetric: the average cost of releasing a guilty party can be low for the broader society, while the cost of staying in jail is very high for the individual.

Finally, Noise in decision-making has a knock-on effect on trust in the system: why resort to any system of adjudication (such as arbitration) if the result is, to some extent, a double lottery, based on the identity of the adjudicator, and whatever circumstances led to Occasion Noise at the time a decision was taken?[24]

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[21] While this sounds like bias, it is important to consider that, strictly speaking, bias is an unjustified deviation from a 'right' answer. When there is no such right answer, the differences between individuals, seen from a statistical perspective (i.e., over the full dataset of judgments) qualify as noise instead.

[22] Kahneman, Sibony & Sunstein, *supra* n. 8, at 366.

[23] *Ibid.*, at 93.

[24] Noise in arbitral proceedings may also goes some way towards explaining why, in general and seemingly, international arbitrations do not settle as frequently as court proceedings: if the outcome of an arbitral proceedings is largely unpredictable, why not take a chance on it? Whilst it is difficult to

3 AUDITING NOISE IN INTERNATIONAL ARBITRATION

The authors of *Noise* state that 'wherever there is judgment, there is noise, and more of it than you think'.[25] If Noise is essentially an invisible enemy, how can we identify it? Kahneman et al. introduce the idea of a Noise Audit, an assessment of Noise conducted by having several professionals make independent judgments of the same cases, either in real or hypothetical situations. In this article we describe a slightly different version of a Noise Audit, namely, one undertaken by observing instances in which similar international arbitration proceedings have led to dissimilar outcomes, which cannot be retraced to the differences in the cases themselves.

As noted above, arbitral decisions for the most part can be described as evaluative: there is no 'true' answer to compare them with.[26] Using their discretion *infra legem*, arbitrators are ultimately asked to take a position on a question that remains, most of the time, eminently arguable – a fact underscored by the frequency of dissenting opinions in arbitral proceedings.[27]

Yet, the absence of a 'true' answer does not prevent us from evaluating the level of Noise in a given context. While bias reveals itself by comparison with an assumed 'unbiased' scenario, Noise can be perceived by comparison with an 'unnoisy' set of consistent judgments on matters that should be consistent. Notably, we assume that there should be relative consistency on issues that *do not depend fully on the underlying case* – like interest rates, or country risk rates.[28] Our Noise Audit aims to assist in identifying variance in such cases, so that we may start finding ways to lessen its impact.

Importantly, in identifying Noise in international arbitration, we are not challenging conclusions reached by individual tribunals – and we do not suggest that, somehow, a given tribunal was 'wrong' to decide as it did. Indeed, removed from a case's particular circumstances and dynamics, and unable to compare the decision with a 'true value', such criticism on our part would be groundless.

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gather statistics on this issue, the perceived wisdom is that, for a variety of reasons, arbitrations do not settle as frequently as court proceedings. Although somewhat dated now, the Bühring-Uhle survey gave a settlement rate for international commercial arbitrations of 43%. The 2008 survey 'International Arbitration: Corporate Attitudes and Practices' gave a settlement rate of 51%. The Commercial Court in London reported a settlement rate of over 63% in 2018–2019, *see* www.judiciary.uk/wp-content/uploads/2020/02/6.6318_Commercial-Courts-Annual-Report_WEB1.pdf.

25 Kahneman, Sibony & Sunstein, *supra* n. 8, at 365.

26 Of course, some arbitral decisions involve judgments of facts, which can be *compared* with a truth value.

27 *See* International Chamber of Commerce, *ICC Dispute Resolution: 2020 Statistics*, ICC Publication No. DRS895 ENG, 19 (2021): 'In 2020, of the 289 partial and final awards rendered by three-member tribunals, 46 awards (16%) were rendered by majority'.

28 While both rates vary geographically and over time, they are often derived from sources external to a given case – with the result that two cases sharing a factual, geographical and temporal background should, *a priori*, involve the same or similar interest and country risk rates.

However, even if each judgment *individually* may be explained away, the variance between *all of them* remains a concern. Our argument, in short, is that the two following propositions are true:

(1) arbitral decisions, individually, may be 'right'; and
(2) variance between decisions may be cause for concern.

For this reason, the retort that 'disputes differ' sufficiently to justify Noise is not a compelling counter-argument. Nobody denies that each case has its particularities. Yet, different disputes can (and, we submit, often do) lead to outcomes that vary more than their differences would warrant, and this is exactly what we describe as Noise. In this context, to explain away such variance on the grounds of perceived differences between cases and arbitrators is, ultimately, a sign of complacency, a preference for and trust put in the 'black box' of decision-making. In making that counter-argument we are settling for a flawed process without attempting to improve it. Arbitration practitioners and parties deserve better.

3.1 Interest rates in Spanish and Italian renewables disputes

Throughout the last decade, Spain and Italy have been party to a number of investment arbitrations arising from the reform of their renewable energy subsidy schemes.[29] In brief, investors contended that the states wrongfully abolished a number of incentives offered under previous schemes, allegedly in breach of these state's international investment obligations as found, most notably, in the Energy Charter Treaty (ECT). As of October 2021, at least twenty tribunals have awarded damages to investors in renewable energy cases involving Spain and Italy.

These cases offer a remarkable opportunity to study variance in arbitral decision-making. Consider the features they have in common[30]:

- They involve a similar type of respondent (Spain or Italy, two relatively analogous Southern European countries).
- A limited set of counsel acted in most of these disputes (the two states were self-represented, while a small number of law firms and quantum experts represented the investors).

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[29] A number of cases were also initiated against the Czech Republic in a similar context. Because only one tribunal (in *Natland Group Ltd* et al. *v. Czech Republic*, PCA Case No. 2013–35) has ruled in favour of investors against the Czech Republic, and is still to rule on quantum, we exclude Czech cases from the following analysis.

[30] To be sure, these disputes also differed between themselves, and notably when they involved different states. The investments at play also differed, although most of them took place during the same rough chronological area. For our purposes, however, which is to study interest rates applied to the compensation awarded, these distinctions have *a priori* little relevance to the tribunal's award.

- The same legal framework is applicable (all the cases arise from the ECT).
- All cases dealt with similar issues (investments in renewable energy on the basis of a preferential scheme) at a similar time (impact of post-2009 reforms to renewable energy incentives schemes). Most of these arbitrations also took place concurrently.
- While all the tribunals were different, some individual arbitrators appeared in several cases, and most of the arbitrators involved in those cases belong to the group of frequent arbitrators in investment disputes.

In spite of these similarities, the decisions resulted in a variety of outcomes, and the amount of damages awarded to investors differed, sometimes considerably.[31] While there may be Noise in these awards, the variance in results can also be explained by differences in the tribunals' reasoning: in particular, arbitrators disagreed as to what investors were entitled in the circumstances (either the original subsidies, or a 'reasonable rate of return'), while the specific features of each investment (e.g., in terms of profitability, timing, etc.) were often material to the eventual outcome.

However, those considerations are unavailing with respect to the interest rate applied to the damages awarded.[32] There is, *a priori*, no determinant of the interest rate applicable to each award.[33] While decisions on interest might reflect different legal theories on *interest*, these theories (such as the need to settle on a 'commercial rate') leave room for a large variety of rates, and most awards are opaque as to the relation between their preferred theory and the rate eventually adopted.[34] Of course interest rates vary geographically and over time, but there is no reason why, in theory, a tribunal at time t, considering a dispute from time $t - 1$, should adopt a rate different than a tribunal at $t + 1$. The most frequent basis for interest, Spain or Italy's borrowing costs, introduces yet more variance in the decisions – depending on the period of reference, the computations of the parties' experts, or the date of the award. The difficulties associated with this approach are illustrated by a striking admission found in the Award in *NextEra v. Spain:*

> The Tribunal also recalls that in its Decision of 12 March 2019 it concluded that both prejudgment and post-judgment interest were to be awarded on the basis of 5-year Spanish sovereign bonds as at the date of the Award, compounded monthly. At the time of making the Decision the 5-year sovereign bond rate was 0,234%. However, if interest were

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[31] *See* the table in D. Charlotin, *Awards on the Merits, Remedies and Settlements, and Post-Award Developments,* in *Yearbook on International Investment Law and Policy* (Lisa Sachs et al. eds, OUP 2021). Our data is updated with awards up to Oct. 2021.

[32] Other features of these cases could have been studied, notably the tribunals' decision as to the regulatory life of the assets at stake, or the relevant valuation date.

[33] With the possible exception of tribunals that consider that the interest rate should be pegged to the *claimant's* average rate of return or borrowing costs.

[34] The common lack of clarity of awards in this respect is unhelpful; tribunals, for instance, often confuse the basis for the rate (e.g., annual) with the compounding frequency (e.g., monthly or annual).

> determined on the basis of 5-year sovereign bonds as of the date of this Award, that amount would be essentially zero which is the last rate published by Spain's Central Bank (Banco de España) on the date of the Award. Since an award of zero interest is not consistent with the conclusion of the Tribunal (Decision, 671) that an award of interest was appropriate in this case, the Tribunal has decided to award interest at the rate of 0,234%, the rate for 5-year sovereign bonds at the date of the Decision.[35]

We reviewed all interest rates awarded by tribunals to date and calculated the average rate over time.[36] Apart from three tribunals that aligned on a pre- and post-award rate of 2.07%,[37] and two tribunals that opted for 1.5%,[38] all tribunals settled on different rates of interest. Figure 1 illustrates the extensive variance in such rates.

Figure 1 Distribution of Interest Rates

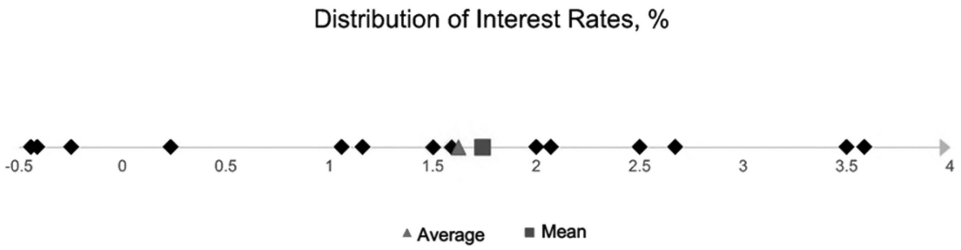

Figure 2 is a decision tree that indicates all the bases upon which interest rates have varied in the reviewed cases.[39]

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35 *NextEra Energy Global Holdings BV and NextEra Energy Spain Holdings BV v. Kingdom of Spain*, ICSID Case No. ARB/14/11, Award (31 May 2019), para. 18.

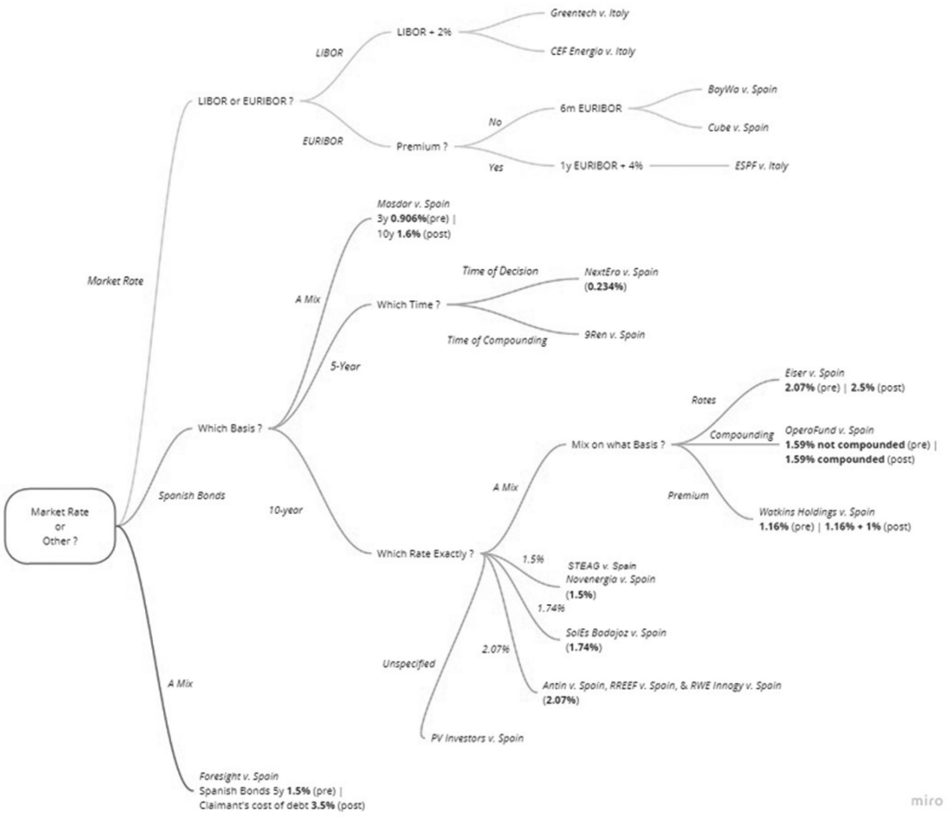
36 For rates set at a commercial rate, such as LIBOR or EURIBOR, we relied on future contracts as of the time of writing – actual rates may therefore vary.

37 *RWE Innogy GmbH & RWE Innogy Aersa SAU v. Kingdom of Spain*, ICSID Case No. ARB/14/34, Award (18 Dec. 2020), para. 135; *Antin Infrastructure Services Luxembourg Sàrl and Antin Energia Termosolar BV v. Kingdom of Spain*, ICSID Case No. ARB/13/31, Award (15 June 2018), paras 733–734; and *RREEF Infrastructure (GP) Ltd and RREEF Pan-European Infrastructure Two Lux Sàrl v. Kingdom of Spain*, ICSID Case No. ARB/13/30, Decision on Responsibility and on the Principles of Quantum (30 Nov. 2018), paras 68–69. Even then, the tribunals disagreed on the *dies a quo* for pre-award interest, with the arbitrators in *Antin v. Spain* and *RWE Innogy v. Spain* opting for 20 June 2014, while the tribunal in *RREEF v. Spain* favoured 30 June 2014.

38 *STEAG GmbH v. Spain*, ICSID Case No. ARB/15/4, Award (17 Aug. 2021), and *Novenergia II—Energy & Environment v. Kingdom of Spain*, SCC Case No. 2015/063, Award (15 Feb. 2018). Here as well, the tribunals disagreed on the *dies a quo*: the tribunal in STEAG opted for 20 June 2014, while the arbitrators in *Novenergia* preferred 15 Sept. 2016.

39 Figure 2 does not include yet another variable, which is whether costs accrue interest as well. Three tribunals, in *NextEra, supra* n. 35, *Novenergia, supra* n. 38 and *InfraRed Environmental Infrastructure GP Ltd* et al. *v. Spain*, ICSID Case No. ARB/14/12, Award (2 Aug. 2019), found that they should; the others either found that they should not, or left that decision implicit.

Figure 2 Decision Tree for Interest Rates



Given the difficulties investors are experiencing in enforcing these awards against Spain and Italy,[40] it is likely that these interest rates will have a significant impact on the total compensation. More striking yet, tribunals who awarded interest in line with a market rate (such as sovereign bond yield) probably did not expect that such rates could eventually turn negative, meaning that the entire point of interest on compensation (i.e., as an incentive for the debtor to pay promptly) stands to be rendered moot.[41]

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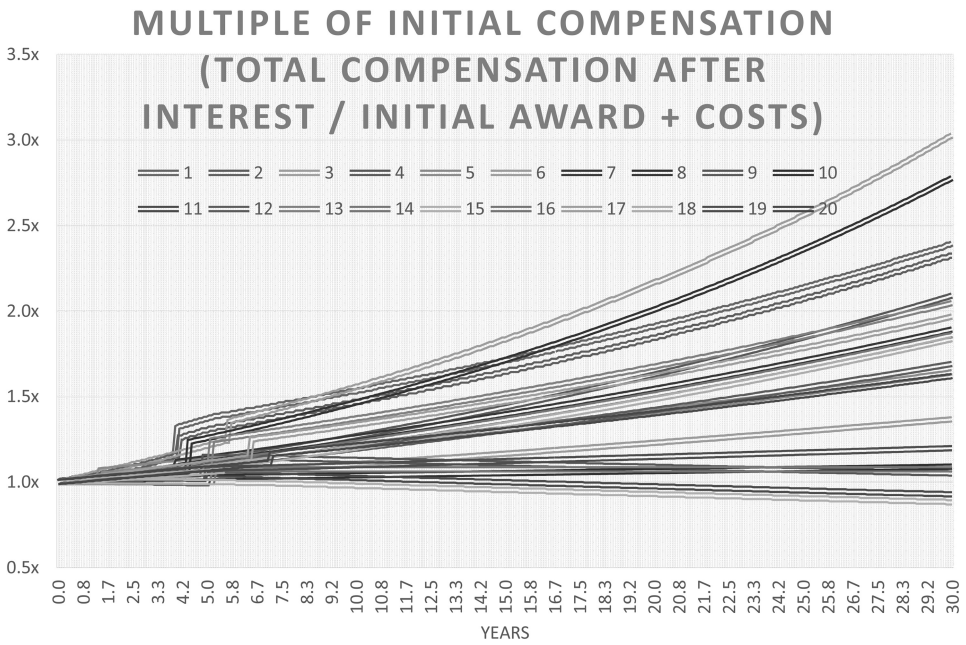
[40] *See OperaFund Eco-Invest SICAV Plc and Schwab Holding AG v. Kingdom of Spain*, ICSID Case No. ARB/15/36, Decision on the Request for the Continuation of the Stay of Enforcement of the Award (16 Nov. 2020), paras 101–105, in which the committee found a substantial risk that Spain would not pay the award – notably in view of the European Commission's injunction against Spain doing so.

[41] None of the tribunals in these renewable energy cases so far has had the clear-sightedness of the arbitrators in *OOO Manolium Processing v. Republic of Belarus*, PCA Case No. 2018–06, Award (22 June 2021), who specified that interest should stop accruing if and when the rate turns negative. *See ibid.*, para. 686.

Figure 3 shows what will likely happen to the sums awarded in these arbitrations over time. (For variable rates, we based our calculations on the relevant futures as of the time of writing.) From a common base 100,[42] the compensation owed under some awards will double or even triple in magnitude over a 30-year period,[43] while others will decline if rates remain below zero. The ranking of the various compensations will also change over time – as claimants awarded a higher interest rate will see their award grow faster – sometimes much faster, thanks to the power of compounding – than others.

Figure 3 Award Value Over Time⋆



⋆ 1: *Greentech v. Italy*; 2: *CEF Energia v. Italy*; 3: *ESPF Beteiligungs v. Italy*; 4: *Eiser v. Spain*; 5: *Novenergia v. Spain*; 6: *Masdar v. Spain*; 7: *Antin v. Spain*; 8; *Foresight v. Spain*; 9: *9Ren Holdings v. Spain*; 10: *NextEra v. Spain*; 11: *Cube v. Spain*; 12: *SolEs v. Spain*; 13: *InfraRed v. Spain*; 14: *OperaFund v. Spain*; 15: *Bayway v. Spain*; 16: *RREEF v. Spain*; 17: *RWE Innogy v. Spain*; 18: *Watkins Holdings v. Spain*; 19: *PV Investors v. Spain*; 20: *STEAG v. Spain*.

[42] Jumps in the lines in Figure 3 indicate the point at which time costs are added to the compensation due.

[43] A thirty-year period until payment is not necessarily fanciful: reportedly, sums were still outstanding from the award in *Franz Sedelmayer v. Russia*, ad hoc arbitration, Award (7 July 1998), nearly twenty years after it was issued. *See* D. Charlotin, *Looking Back: German Investor, Franz Sedelmayer, was Early-Adopter of Investment Treaty Arbitration, but Had to Engage in Decade-Long Assets Hunt Against Russia*, IAReporter (29 Aug. 2017).

Of course, investment arbitration tribunals have substantial discretion in matters of quantum,[44] including in determining the applicable interest rate.[45] That discretion is unsurprising: the question of the applicable interest rate has no obvious answer. In acknowledgement of this discretion, ad hoc committees in the International Centre for Settlement of Investment Disputes (ICSID) context have declined to annul awards that opted for a rate not cited by the parties (as long as they made an unspecified request for interest).[46]

Yet, the fact that there is no 'true value' for interest rates does not justify the discrepancy between the awards in this respect. By analogy, there is no 'true' length of a prison sentence that would perfectly respond to a given crime, but this does not justify equally situated convicts serving very different sentences. We intuitively recoil at the thought of this. While (arguably) not as sympathetic, foreign investors do not deserve to experience such variance either – especially when some of them see their compensation dwindle while others remain fully compensated over time.

3.2 Country risk in Venezuela

There is an ongoing debate in investment arbitration regarding the country risk premium that feeds into the discount rate used to value a foreign business on the basis of a discounted cash flow (DCF) analysis. Notably, arbitrators differ as to whether the risks of expropriation or other mistreatment should be factored into the premium, or whether the existence of an investment agreement should be seen as mitigating those risks.[47]

This results in widely-differing choices of country risk premia. Country risk premia will naturally vary depending on the country at stake. Yet, in cases involving the same country, this variance may be cause for concern. For example, a number of investment arbitrations against Venezuela or its state-owned oil

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[44] *Perenco v. Ecuador*, ICSID Case No. ARB/08/6, Decision on Annulment (28 May 2021), para. 363: 'Ad hoc committees have consistently recognized that tribunals have a considerable measure of discretion in deciding issues of quantum'.

[45] For instance, in the ICSID context, *see Compañía de Aguas del Aconquija SA and Vivendi Universal SA v. Argentine Republic*, ICSID Case No. ARB/97/3, Decision on Annulment (10 Aug. 2010), para. 256: 'the allocation of interest, like the evaluation of damages, falls within the discretionary power of the Tribunal in the light of all relevant circumstances of the case'.

[46] *See Perenco, supra* n. 44, para. 560: 'Perenco requested a compound interest at a commercial rate, and so did Ecuador. It is undisputed by the Parties that the rate of LIBOR for three months borrowing is a commercial rate of interest. Thus, the Committee finds that the Tribunal's decision is circumscribed to the Parties' requests.' (footnotes omitted).

[47] *See in particular* the debate on this point in *Saint-Gobain Performance Plastics Europe v. Venezuela*, ICSID Case No. ARB/12/13, Decision on Liability and the Principles of Quantum (30 Dec. 2016), para. 697 et seq., and the disagreement between the majority and the dissenting opinion.

company, Petroleos de Venezuela SA ('PdVSA'), concluded with liability awards in favour of the investors that differed widely – notably due to the country risk premium applied.

Reasonable minds may differ on this legal debate. What is striking, however, is that differences in discount rates have a substantial impact on a case, resulting in dramatically-different amounts being awarded.[48] Besides, and in common with the example of interest rates above, even when tribunals (seemingly) agree on the legal theory underpinning the country risk premium, this leaves them room to adopt a variety of different rates.[49]

Such variance in Venezuelan cases, and its powerful impact on the compensation eventually awarded, has been noted by the tribunals involved.[50] For instance, in *Rusoro v. Venezuela*, the arbitrators (who eventually did not rely on a DCF analysis) explained that:

> The country risk advocated by Navigant (1.5%) is clearly too low, and does not reflect the actual situation of Venezuela; the tribunal in Owen-Illinois (OI) European accepted that the equivalent margin should be 6%; simply adding a 4.5% differential to the Weighted Average Cost of Capital (WACC) used by Navigant reduces the valuation from USD 1,266 million to USD 910 million; and accepting Charles River Associates (CRA's) proposed WACC of 26.38%, the resulting valuation would be just USD 457 million.[51]

In the face of this (conflicting jurisprudence), the tribunal in *ConocoPhillips v. Venezuela* (whose award on quantum was one of the most recent decisions to address this subject) tried to explain the variance in the following terms:

> Little inspiration can be taken from discount rates retained by other arbitral awards relating to investments in Venezuela, adopting discount rates and their country risk portion offering variations between 10.09% (4%), 14.9% (7.9%), 18% (8.89%), 19.88% (10.26%),

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48 *See* the comment of a quantum expert quoted by *IAReporter*: 'a country risk premium of 1.5% can reduce the value of an enterprise by approximately 20% while a country risk premium of 14.75% can reduce the value of an enterprise by approximately 70%'. *In-Depth: As $3 Billion of ICSID Arbitral Debt Piles up on Venezuela, Arbitrators are Seen to Disagree on Key Factors Affecting Compensation*, IAReporter (16 Mar. 2015).

49 Compare *Gold Reserve Inc. v. Venezuela*, ICSID Case No. ARB(AF)/09/1, Award (22 Sept. 2014), para. 842 (4%, using a Market Report by RBC Capital); *OI European Group BV v. Venezuela*, ICSID Case No. ARB/11/25, Award (10 Mar. 2015), para. 773 (6%, following the rates indicated by Professor Damodaran); and *Serafín García Armas and Karina García Gruber v. Bolivarian Republic of Venezuela*, PCA Case No. 2013–3, Final Award (26 Apr. 2019), para. 490 (8.92%, based on the Emerging Market Bond Index).

50 The tribunal in *Gold Reserve, supra* n. 49, para. 840, for instance noted that 'Of the different inputs used by [Venezuela's expert], the largest discrepancy concerned the country risk premium applied as part of the cost of equity'. In *Koch v. Venezuela*, the tribunal also noted (in a recapitulative table) that 'US$ 93.4 million is the difference between a generic country risk premium at 6% and [Venezuela's proposed] 11.26%'. *Koch Minerals Sàrl and Koch Nitrogen International Sàrl v. Venezuela*, ICSID Case No. ARB/11/19, Award (30 Oct. 2017), at 191. This was the second largest discrepancy between the parties' experts opposing assumptions. *See also* para. 9.65, and Table 5, for the impact of the country + market risk premium on the opposing parties' valuations.

51 *Rusoro Mining Ltd v. Venezuela*, ICSID Case No. ARB(AF)/12/5, Award (22 Aug. 2016), para. 785.

> 21.25% (14.75%), and 23% (6%). One may think that such divergence simply demonstrates inconsistencies in the arbitral tribunals' work. While this may be true up to a point, another and more convincing conclusion is that the disparity in rates demonstrates a disparity in the businesses involved and the need to derive discount rates based on the characteristics of each particular investment involved in each case.[52]

Yet, that explanation seems relevant only for the overall discount rates adopted by past tribunals in disputes involving Venezuela – and less so for their country risk element that should be centred on Venezuela, and not on the various businesses involved.[53] Whatever the reason for this discrepancy, this article's main thesis remains applicable: insofar as the discrepancy is unjustified (or, indeed, inexplicable), it creates concerns for the fairness, consistency and legitimacy of investment arbitration.

4 CAUSES OF NOISE IN INTERNATIONAL ARBITRATION

In our Noise Audit we focused on issues that are similar (interest and discount rates), and which, in cases sharing factual and temporal characteristics, should lead to similar outcomes. However, arbitral proceedings involve numerous other potentially noisy decisions: decisions on document production and scheduling orders, or other procedural choices, for example, may all vary without good reason as well. When looking at probable sources for Noise in arbitral proceedings we identified four likely causes: arbitrators; procedural rules; applicable law; and the limited review of awards.

The first source of Noise in arbitral decision-making can be traced to the decision-makers themselves. Indeed, the general view is that 'arbitration is only as good as the arbitrators'.[54] The variability of arbitrators' decisions can be a result of both 'within-person reliability' and 'between-person reliability'.[55] Within-person reliability is the Noise found within an individual arbitrator: no one is ever fully consistent, and a busy professional life offers many opportunities for making noisy decisions. We discussed this in section 1 above when describing Pattern Noise and

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[52] *ConocoPhillips Petrozuata BV, ConocoPhillips Hamaca BV and ConocoPhillips Gulf of Paria BV v. Venezuela*, ICSID Case No. ARB/07/30, Award (8 Mar. 2019), para. 926. The tribunal in that case was also particularly not impressed that the claimant's proposed rate changed five times in the course of the proceedings, without good reasons: *see ibid.,* para. 930.

[53] Some tribunals have, however, held that the country risk should also include consideration of the particular sector in which the investment was made. Others more accurately distinguish country risk from sector risk. Other cases have invoked the particularly unstable situation of Venezuela over the preceding decades: *See Rusoro, supra* n. 51, para. 714, pointing out 'the increase of the political country risk associated with the Bolivarian Republic (whose sovereign bond spread jumped from 2% to 12% between 2007 and 2011)'.

[54] J. F. Lalive, *Mélanges en l'honneur de Nicholas Valticos: Droit et Justice* (Pedone 1999).

[55] Kahneman, Sibony & Sunstein, *supra* n. 8, at 47.

its stable and transient components. Between-person reliability is the Noise found among different arbitrators, which can be particularly relevant when different individuals are called to rule on similar issues – especially if parties are otherwise prevented, or disincentivized, from appointing the same individual in similar cases.[56]

Experiences in psychology have demonstrated that, far from consisting of 'fully rational and deliberative decisions', arbitral decision-making is often 'intuitive and impressionistic' and influenced by extra-legal considerations and biases.[57] There is thus no ground to believe that arbitrators remain perfectly consistent in all their individual decisions, or when different co-arbitrators, secretaries, or even arbitral institutions are involved in the decision-making process.

These issues are compounded by the fact that arbitrators often come from different legal and national cultures. For instance, arbitrators may give different weight to precedents, including in the context of international arbitrations, in which precedent is supposedly not binding (though ubiquitous). To the extent that following precedent is, by definition, a non-noisy approach to judging,[58] arbitrators' willingness to depart from precedent can introduce Noise in their decision-making activity.[59] In other words, and in line with the statistical nature of Noise explained above, intra-person inconsistencies and biases add up to introduce Noise in the overall set of decisions.

Second, the procedural rules applicable to an arbitration are also a source of Noise, given the vagueness of some terms and the broad discretion exercised by arbitrators in their interpretation. Those two elements combined lead to tribunals adopting different tests or approaches to similar issues, not necessarily because of different views on the substance but rather because of different interpretations of imprecise terms. A salient example is the jurisprudence of ad hoc committees in ICSID arbitration as to whether a stay of enforcement of the award under Article 52(5) of the ICSID Convention is, or is not, an 'exceptional remedy' – with different committees taking varying positions on this issue.[60] Noise in this context

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[56] In this respect, the problem of lack of coherence, i.e., of noisy decisions, appears to be an under-discussed problem inherent in the idea of the 'issue conflict' ground for disqualification of an arbitrator.

[57] S. Franck et al., *Inside the Arbitrator's Mind*, 66 Emory L. J. 1115 (2017).

[58] To some extent, *stare decisis* (or other rules as to the weight of precedent) is equivalent to the 'model of a judge' described in Kahneman, Sibony and Sunstein, *supra* n. 8, Chs 9 and 10. Research has demonstrated that a simple predictive model based on past behaviour is less noisy over future decisions than individuals left by themselves.

[59] Although the difference in legal cultures as to the weight given to precedents should not be exaggerated: *see* notably, J. Z. Liu, L. Klöhn & H. Spamann, *Precedent and Chinese Judges: An Experiment*, 69 Am. J. Comp. L. 93 (2021).

[60] Article 52 reads: 'The Committee may, if it considers that the circumstances so require, stay enforcement of the award pending its decision. If the applicant requests a stay of enforcement of the award in his application, enforcement shall be stayed provisionally until the Committee rules on such request'. In this respect, *see* e.g., the different approaches taken by the ad hoc committees in *Tenaris SA and*

is compounded by rules that merely confer discretion to the arbitrators, as in matters of costs, and by the inherent and broad discretion given to arbitrators generally.

Third, the applicable law can promote noisy decisions, especially when the arbitrators are not experts in that law. Indeed, the arbitrators' degree of discretion in identifying or applying the applicable law will in itself offer opportunities for Noise. An example of this are the different approaches of the three arbitrators to the same choice of law provision in the Libyan oil arbitrations: Arbitrator Lagergren in the British Petroleum (BP) arbitration focused on the general principles of law, and concluded that *restitutio in integrum* was not available on this basis; Arbitrator Dupuy in the Texaco Overseas Petroleum Company (TOPCO) arbitration reviewed both Libyan law and international law, and found that *restitutio in integrum* was available; and Arbitrator Mahmassami in the *Liamco* arbitration focused on Libyan law (with a role for the general principles of international law as well), while concluding that *restitutio in integrum* was not available.[61]

Fourth, the limited review of arbitration awards by arbitral institutions may also entail Noise. The role of local courts in reviewing awards, although equally limited, is yet another source of Noise. Imagine the following scenario: on a common issue, virtually all arbitrators agree on the appropriate answer, and issue an award accordingly, creating a *jurisprudence constante* – and a robust one at that. And yet, depending on the seat chosen by the parties, some awards might be set aside while others will survive.

5 COUNTERING NOISE IN INTERNATIONAL ARBITRATION

While arbitration might seem a favourable environment for noisy decision-making, some factors inherent to arbitration may mitigate Noise. Notably, coherence is singularly prized in arbitration, which is indeed one reason that prompted us to

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Talta - Trading e Marketing Sociedade Unipessoal LDA v. Bolivarian Republic of Venezuela, ICSID Case No. ARB/11/26, Decision on the Request to Maintain the Stay of Enforcement of the Award (24 Mar. 2017), and *Tenaris SA and Talta - Trading e Marketing Sociedade Unipessoal LDA v. Bolivarian Republic of Venezuela*, ICSID Case No. ARB/12/23, Decision on Venezuela's Request for the Continued Stay of Enforcement of the Award (23 Feb. 2018). While the first committee saw a pro-enforcement bias in the ICSID Convention and concluded that a stay should be an exceptional remedy, the second committee opined that a stay of enforcement should be granted in normal circumstances.

[61] R. B. von Mehren and P. N. Kourides, *International Arbitrations Between States and Foreign Private Parties: The Libyan Nationalization Cases*, 75 AJIL 476, at 533 (1981): 'the conclusions of the sole arbitrators in the *BP* and *TOPCO/CALASIATIC* arbitrations on the question of remedy were vitally affected by the choice-of-law analyses presented to them'. Of note, von Mehren and Kourides also noted these discrepancies might have stemmed in part from the different legal strategies adopted by counsels in these proceedings (*ibid.,* at 497) – a reminder that pleading dynamics are also conducive to Noise.

write this article.[62] When a counsel cites a precedent or alludes to past decisions from an arbitrator, he or she is engaged in reducing Noise and enhancing predictability in decision-making.

Beyond this, there are two key Noise reduction methods applicable to international arbitration, namely: (1) choosing the best decision-makers; and (2) applying 'decision hygiene strategies'.

Noise reduction can be factored in the selection process for arbitrators. Highly-skilled and experienced arbitrators are less likely to contribute Noise to the process, as intelligence and competence have been found to improve consistency in decision-making.[63] In short, better judges produce better judgments, and the best judges, according to Kahneman et al., will be: (1) well trained (what they know); (2) highly intelligent, which implies being capable of 'actively open-minded thinking' (how well they think); and (3) have the right cognitive style (how they think).[64]

International arbitration is a field in which parties can choose their judges, such that conducting more extensive and robust due diligence to the question as to how an arbitrator is selected could improve the ultimate decision considerably. Although the above might seem self-evident, in practice it is not: arbitrators are in fact appointed on the basis of a range of considerations, their decision-making skills being only one of them – leading to 'high-status' arbitrators that are not necessarily 'highly-skilled' or do not necessarily have an 'actively open-minded' cognitive style. A greater attention to Noise in arbitral proceedings should favour the promotion and appointment of diligent, pro-active, and highly competent arbitrators instead. Often described as the most important decision made in an arbitration, it is surprising how little real due diligence is in fact carried out in relation to arbitrator selection.

The second Noise reduction method is to establish 'decision hygiene strategies' to create frameworks that lead to less noisy decision-making. Just as with preventive hygiene measures in medicine, such as frequent and thorough handwashing, the point is to prevent an unspecified range of potential errors before they occur.[65] Some of these strategies include:

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62 *See* e.g., E. Gaillard, *The Representations of International Arbitration*, 1 JIDS 271, at 273 (2010): 'In the field of law, as in the field of logic, the cardinal sin is inconsistency'. For ISDS, *see also* Institut de Droit International, 18th Commission, *Resolution on the 'Legal Aspects of Recourse to Arbitration by an Investor Against the Authorities of the Host State Under Inter-State Treaties'* (13 Sept. 2013), Principle 2.

63 Kahneman, Sibony & Sunstein, *supra* n. 8, at 225.

64 *Ibid.,* at 225. *See also ibid.,* at 234: 'Actively open-minded thinking' is an active search for information that contradicts one's hypotheses. Such information includes the dissenting opinions of others and the careful weighing of new evidence against old beliefs. Fortunately, there is some evidence that this kind of thinking is a teachable skill.

65 Kahneman, Sibony & Sunstein, *supra* n. 8, at 243.

1. sequencing decision-making, by resisting premature intuitions and reducing the weight given to irrelevant information in the decision-making process (with the welcomed side-effect of reducing confirmation bias);
2. dividing a general decision into several specific independent assessments, so as to avoid the risk of 'excessive coherence' (the psychological mechanism causing people to distort or ignore information that does not fit a pre-existing or emerging story); and
3. collecting individual opinions before those individuals have had a chance to be influenced by (Noise-prone) collective deliberation.

These two Noise reduction methods mesh well with some features of international arbitration. For instance, a greater focus on decision-making skills might actually align with the incentives of the arbitrators themselves.[66] Meanwhile, professional dynamics, in having individuals play different roles (as counsel, arbitrator, third-party funder, expert, etc.) should likewise assist in sharing emergent norms, ideas, and best practices in how to decide a case. Efforts to codify or develop common principles and practices in arbitration, be it the International Bar Association (IBA) Rules on the Taking of Evidence, or even the International Council for Commercial Arbitration (ICCA) Guidelines on Standards of Practice in International Arbitration, should be understood as helpful devices to further the consistency of decisions in arbitral proceedings.

Evidence indicates that structured interviews are consistently less noisy than unstructured ones.[67] In keeping with that finding, tribunals should strive to adopt, when appropriate, more formalized tools for collecting information or for ruling on recurring issues, on the model of the (rightly popular) Redfern schedule. The ability of arbitrators to issue dissenting opinions can also be seen as a tool to promote consistency, since such dissents often prompt a majority to better reason an award. Greater access to jurisprudence, thanks to the drive towards increased transparency in arbitral proceedings, would likewise reduce Noise in allowing common solutions to be adopted in similar contexts, or at least putting a greater onus on arbitrators to explain why outcomes differ.[68] Adopting clearer rules with respect to precedent has been recognized as a way of increasing consistency in

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[66] *See* D. Kapeliuk, *The Repeat Appointment Factor: Exploring Decision Patterns of Elite Investment Arbitrators*, 96 Cornell L. Rev. 47 (2010), arguing that the 'arbitrators' incentive to maintain their reputations as experienced and unbiased experts may lead them to grant an award uninfluenced by the purported need to satisfy both parties or either one of them'.

[67] Kahneman, Sibony & Sunstein, *supra* n. 8, at 306.

[68] *See* Vinuales & Spoorenberg, *supra* n. 5, at 97: 'A fourth possible reason explaining contradictory decisions is the confidentiality which characterizes commercial and to a lesser extent investment arbitration proceedings. The basic point which may be made in this regard is that limitations imposed on the publication of arbitral awards foster incoherence between decisions'.

arbitral proceedings.[69] Finally, reforming the framework for the review of awards has also been cited as a pathway towards greater consistency, and should be investigated in this context as well.[70] However, it must be understood that eliminating Noise in arbitration is impossible for many reasons, not least the inherent flexibility of the arbitral process.

6 CONCLUDING REMARKS

Those of us who work in the international arbitration field know that it is far from perfect. Yet, international arbitration practitioners are distinguished by their willingness to engage in robust discussion and self-reflection in relation to its flaws. Understanding the prevalence of Noise in our field and debating appropriate measures to address it is another step towards refining and improving arbitral decision-making. The broad discretion afforded to arbitrators is the cornerstone on which the flexibility of international arbitration is built. That flexibility must be preserved as it is one of the key advantages offered by arbitration. [71] Arbitrators are proud of their ability to make subtle and nuanced legal decisions (even though that subtlety is, often, another name for Noise) and their ability to do so arises out of their broad discretion to conduct proceedings largely as they see fit.

However, addressing Noise will render the process more sophisticated, more defensible, and more fit for purpose. What we suggest in this article is a nuanced approach to the reduction of Noise, focused on acknowledging the importance of decision-making skills in arbitrators and the need for better practices, and on raising awareness of the existence of Noise with respect to certain issues that should not exhibit so much variance. Progress on these issues would be to the benefit of all.

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69 *Ibid.*, at 102.

70 Notably, setting up an appeal mechanism is often cited as a remedy for the alleged lack of coherence of the investor-state arbitration regime: *see* G. Kaufmann-Kohler & M. Potestà, *The Composition of a Multilateral Investment Court and of an Appeal Mechanism for Investment Awards*, CIDS Supplemental Report 57 (2017): 'consistency and coherence under the same IIA and across different treaties with the same or similar language is precisely one of the goals pursued through the institution of a standing body'.

71 *See* Vinuales & Spoorenberg, *supra* n. 5, at 101: 'The main users of international arbitration proceedings may not be willing to enhance legal certainty and the predictability of the procedures' outcomes if that considerably impairs the confidentiality, flexibility and expediency which the international arbitration system is expected to provide'.