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The Assessment and Calculation of Damages in Treaty-based ISDS

Jonathan Bonnitcha, José Manuel Alvarez-Zárate, Marcin Menkes, Josef Ostřanský and Yanwen Zhang[1]

1. Introduction

The question of damages remains among the most contentious issues in treaty-based investor-state dispute settlement (ISDS). Within UNCITRAL's Working Group III, several states have expressed their concerns about ISDS tribunals' approach to the assessment and calculation of damages.[2] At the heart of these concerns is a perception that the practice of ISDS tribunals has been too favourable to investors, particularly in tribunals' willingness to award damages for loss of future income that an investor alleges it would have earned if the respondent state had not breached its treaty obligations.

In July 2023, the UNCITRAL Secretariat produced 'Draft provisions on procedural and cross-cutting issues' containing draft provision 23 on 'Assessment of Compensation and Damages'.[3] Among other things, draft provision 23 sought to respond to states' concerns by limiting the use of income-based valuation methods in ISDS and capping the award of damages at the level of costs incurred by the investor in making the investment. At the October 2023 session of WG III, states expressed different views about draft provision 23. Some states spoke in support, while others expressed concerns that it departed from the principle of full reparation under customary international law. From these discussions, an uneasy consensus emerged that the UNCITRAL Secretariat should seek to redraft provision 23 to 'address the gaps in existing IIAs' in a way that was 'consistent with the general principle of full reparation'.[4]

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[2] Anthea Roberts and Taylor St John, 'UNCITRAL and ISDS Reform: Moving to the Delivery Phase' (*EJIL:Talk!*, 22 November 2023) <https://www.ejiltalk.org/uncitral-and-isds-reform-moving-to-the-delivery-phase/> accessed 21 February 2025. See also UNCITRAL, Report of Working Group III (Investor-State Dispute Settlement Reform), forty-sixth session, (Vienna, 9-13 October 2023) UN Doc A/CN.9/1160 para 99; José Manuel Alvarez Zárate, 'First Discussions on Damages in the Investor-State Dispute Settlement System at UNCITRAL Working Group III' (2024) South Centre Research Paper <https://www.southcentre.int/wp-content/uploads/2024/09/FIRST-DISCUSSIONS-ON-DAMAGES-IN-ISDS-AT-UNCITRAL-WG-III_Zarate.pdf> accessed 21 February 2025.

[3] UNCITRAL, Possible reform of investor-State dispute settlement (ISDS), Draft provisions on procedural and cross-cutting issues, (Vienna, 13 October 2023) UN Doc A/CN.9/WG.III/WP.231.

[4] UNCITRAL, Report of Working Group III (Investor-State Dispute Settlement Reform), forty-sixth session, (Vienna, 9–13 October 2023) UN Doc A/CN.9/1160 paras 114–115.

In July 2024, the UNCITRAL Secretariat produced a revised 'Draft provisions on procedural and cross-cutting issues' document, containing draft provision 20 on 'Assessment of Damages and Compensation'.[5] This revised draft provision 20 discarded the cap on damages, while retaining some other elements of the earlier draft provision 23. At the September 2024 session some states criticized draft provision 20 for failing to go far enough to address their underlying concerns with arbitral practice on damages; other states expressed their support.[6] On this basis, the Working Group decided that:

> guidelines could be prepared to assist tribunals in deciding on damages and compensation and … such guidelines could be developed in parallel with draft provision 20.[7]

This paper aims to contribute to discussions on the assessment and calculation of damages, both within and beyond UNCITRAL Working Group III.[8] It follows the approach of Working Group III, in seeing the legal principles that govern determination of damages and technical questions about appropriate choice and use of various valuation techniques as intertwined. As the paper shows, concerns about the use of particular valuation techniques – such as the discounted cashflow (DCF) method – are often as much about international legal principles that limit the recovery of uncertain future loss, as they are about technical questions relating to the way that the method is deployed.

The paper comprises five substantive sections. Section 2 provides a high-level overview of current valuation practice in treaty-based ISDS. It highlights the diverse range of scenarios that arise in ISDS and shows that this diversity is reflected, to at least some extent, in the range of valuation techniques that tribunals have deployed. Nevertheless, the data point to a striking increase in tribunals' use of income-based valuation techniques – particularly, the DCF method – over the past two decades.

Section 3 turns to damages and valuation under customary international law. It argues that international courts and tribunals' application of the seemingly expansive principle of full reparation is modulated by a range of doctrines and techniques within the framework of the customary law of State responsibility. Outside the ISDS context, international courts and tribunals have developed a comparatively more conservative approach guiding their valuation practice. Section 4 returns to the practice of ISDS tribunals, examining how a range of mid-level doctrines shape the application of the

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[5] UNCITRAL, Possible reform of investor-State dispute settlement (ISDS), Draft provisions on procedural and cross-cutting issues, (Vienna, 27 September 2024) UN Doc A/CN.9/WG.III/WP.244.

[6] UNCITRAL, Report of Working Group III (Investor-State Dispute Settlement Reform), forty-ninth session, (Vienna, 23–27 September 2024) UN Doc A/CN.9/1194 paras 100–103.

[7] ibid para 104.

[8] This paper builds on earlier research of the Academic Forum on ISDS, which identified and clarified concerns relating to the correctness and consistency of arbitral decisions on damages, as well as wider concerns relating to conflicts of interest and the rapidly escalating costs associated with the quantum phase of proceedings, see Jonathan Bonnitcha and others, 'Damages and ISDS Reform: Between Procedure and Substance' (2023) 14 JIDS 213.

principle of full reparation in this context. This section shows how debates about appropriate use of various valuation techniques in ISDS cannot be divorced from prior legal questions, such as those relating to the scope of compensable loss, the requirement of causation and the standard of proof, particularly as these legal questions relate to the award of damages for loss of expected future profit or income.

Section 5 turns to a series of more technical questions relating to the application of various valuation methods. While acknowledging the challenge of assessing arbitrators' technical competence to engage with and evaluate valuations produced by various methods, this section argues that evidence does raise questions about whether some arbitrators have sufficient technical competence to grapple with more complex valuation techniques. In light of the analysis in Sections 2-5, Section 6 presents a range of draft options that could be considered in discussions for the development of a future Guideline on the Assessment and Calculation of Damages

2. An overview of current valuation practice in ISDS

In this section, we provide a high-level overview of the frequency with which tribunals in treaty-based ISDS use different valuation techniques. We draw on two main sources of data: the first is a series of papers published by PwC on the use of valuation techniques in international arbitration; the second is a comprehensive review of recent ISDS awards conducted for the purposes of this paper. In interpreting these descriptive statistics, it is important to recall the extraordinary diversity of factual scenarios that give rise to disputes in treaty-based ISDS. Investment treaty claims arise from scenarios as varied as delays in judicial proceedings, changes to pricing in regulated industries, enactment of new public health legislation, state interference with the rights of (foreign) minority shareholders, and contested regulatory proceedings, such as those leading to the denial of environmental permits required for an investment's operation. This diversity is reflected in the range of valuation techniques deployed by tribunals across cases. Even with this caveat in mind, the data show clear trends in the use of different valuation techniques – particularly, the increased use of income-based valuation techniques in ISDS from the early 2000s to the present.

2.1 The PwC Studies on Valuation in International Arbitration

In an important 2015 study, PwC reviewed 95 awards on damages in international arbitration. [9] This study was subsequently updated in 2017 after the review of 21 additional awards, meaning that the studies reviewed 116 awards in total. Both studies classified these awards into one of five categories, those that used:

[9] PwC, '2015 – International Arbitration damages research' (2015) <https://www.pwc.com/sg/en/publications/assets/international-arbitration-damages-research-2015.pdf> accessed 21 February 2025.

- **Income-based valuation approaches**. While, in principle, there are several different techniques for valuing an investment on the basis of its projected future income, the vast majority of these awards use the discounted cashflow (DCF) method, which is based on the premise that 'an income-producing asset's value is equal to the present value of its expected future cash flows'.[10]
- **Market-based valuation approaches**, which comprise a range of techniques to value a business or asset by assessing prices paid for comparable businesses or assets in arms' length market transactions including Comparable Company Analysis (CCA) and Precedent Transaction Analysis (PTA);
- **Asset-based valuation approaches** value assets based on their replacement cost or book value (essentially, an asset's original purchase cost less depreciation), and value businesses by summing the value of a business's assets and liabilities;
- **Historical cost (or sunk cost) approaches**, which value investments based on the investor's expenditure in making the investment; and
- **Other approaches**.[11]

The first four categories reflect a common way of classifying different approaches to valuation in the context of international arbitration proceedings.[12]

The PwC studies need to be interpreted with some caution. Their most significant limitation is that they combine analysis of damages awards from treaty-based ISDS with damages awards from a small – but unspecified – number of other international arbitrations.[13] Because PwC has not made public the underlying data, it is impossible to determine the extent to which apparent trends in the data reflect dynamics in non-treaty-based arbitration where the underlying contracts may contain specific provisions on damages and valuation, unlike the more generic standards typically found in BITs, potentially skewing conclusions about patterns specific to treaty-based ISDS. Other limitations relate to the challenge of classification, bearing in mind that the distinction

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[10] Christina L Beharry, *Contemporary and Emerging Issues on the Law of Damages and Valuation in International Investment Arbitration* (Brill Nijhoff 2018) 186.

[11] PwC (n 9) 7.

[12] Kantor, for example, identifies income-based, market-based and asset-based valuation methods as the main categories of valuation techniques to determine a business's market value as a going concern, with sunk investment costs as a an additional, alternative, valuation approach that does not seek to reflect a business's value as a going concern - Mark Kantor, *Valuation for Arbitration* (Kluwer 2008) 9, 50. Similarly, an earlier study by the Academic Forum distinguished income-based, market-based and asset-based valuation approaches, while also drawing attention to sunk cost based approaches as a distinct sub-category of asset-based valuation – Bonnitcha and others (n 8) 222–4. Both asset-based and sunk cost based approaches are often described as 'backward looking' approaches, in the sense that they rely primarily on evidence of the historical record of the investment.

[13] The 2015 study says that 'the majority of cases in our sample relate to investment treaty arbitration' PwC (n 9) 4. The 2017 study says that 'awards reviewed primarily relate to investment treaty arbitration and are published on the italaw website.' PwC, 'International Arbitration damages research' (2017) 1 <https://www.pwc.co.uk/forensic-services/assets/pwc-international-arbitration-damages-research-2017.pdf> accessed 21 February 2025.

between approaches is not always clear-cut.[14] However, even with these caveats in mind, PwC's five-way classification provides valuable insights and the two studies remain one of the most valuable sources of insight into arbitral practice on valuation techniques.

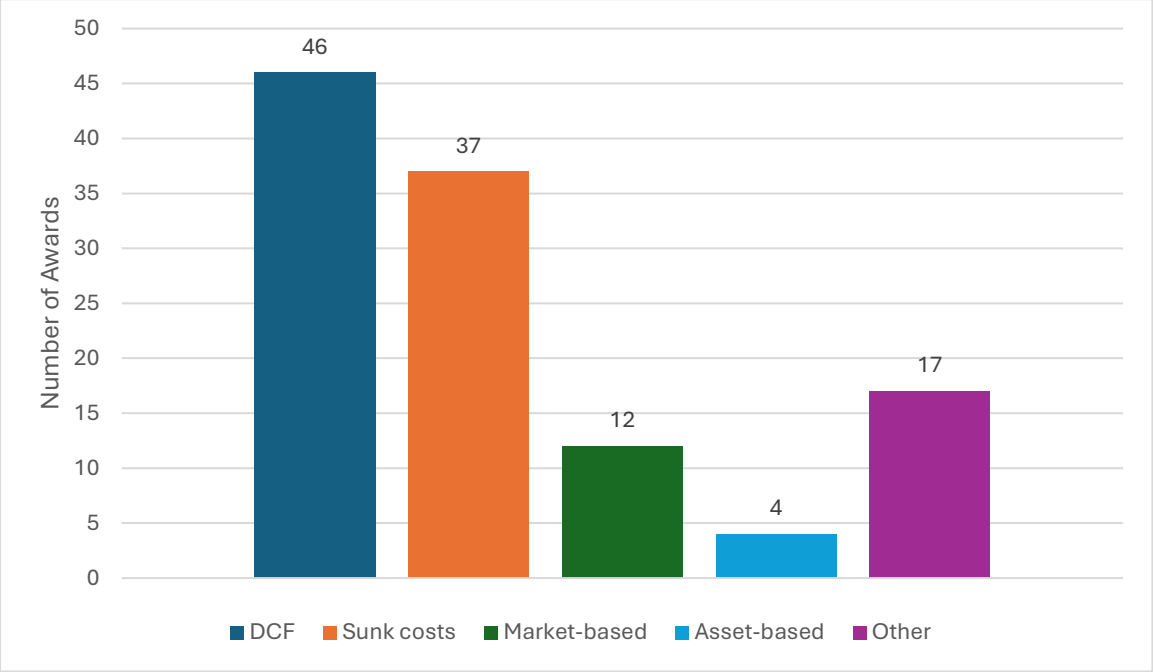

Figure 1: Valuation approaches used in publicly-available international arbitration awards up to June 2017, based on PwC (2017)

Figure 1 (above) shows that, across PwC's dataset of 116 awards, DCF is the most commonly used valuation technique, adopted in 40% of awards. Valuation on the basis of an investor's sunk costs is also common, albeit somewhat less so, being used in 32% of awards. Note that this high-level data tells us little about the types of cases in which the different techniques are preferred, nor whether the use of any particular technique is appropriate in a given case.

A more striking trend is the growth in the use of DCF and, to a lesser extent, market-based valuation techniques over time. The PwC studies group income-based and market-based approaches together as 'forward looking' approaches, in the sense that they capture, albeit in quite different ways, expectations of the profit that an investment would have earned if the respondent had not breached its obligations. Prior to 2000, only 17% of awards adopted either of these approaches. For the period from 2011-2015, 69%

[14] For example, in a dispute concerning a foreign investor that owns a minority shareholding in a company whose shares are publicly traded on a stock market, we would classify a valuation based on contemporaneous stock market data as a 'market-based' approach. However, based on PwC's definition, this valuation could also conceivably be classified as an asset-based valuation, as it value an asset (shares) on the basis of 'the current market' – see PwC (n 9) 7. The question of what sorts of valuation methods are used in the awards PwC classifies as 'other' remains tantalisingly unclear.

adopted a forward-looking approach, the substantial majority of which entailed use of DCF.

2.2 Review of valuation techniques in more recent ISDS awards

For the purposes of this paper, we reviewed all arbitral awards on quantum issued in treaty-based ISDS between 2022 and 2024. This is a significantly smaller sample than the PwC studies: 38 awards of which only 24 were publicly available. Nevertheless, this review has the advantage of being focused solely on treaty-based ISDS awards and of providing a snapshot of current practice.

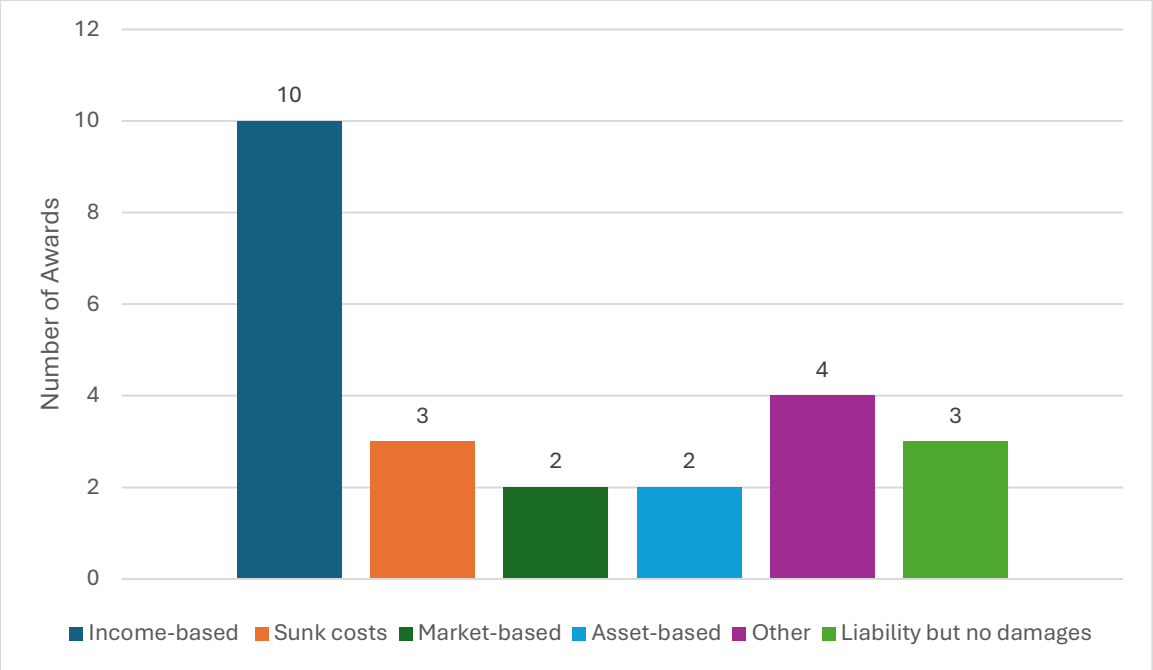

Figure 2: Valuation approaches used in publicly-available treaty-based ISDS awards rendered between Jan 2022 and December 2024

Consistent with the PwC studies, income-based valuation remains the most common approach among tribunals, with 42% adopting this approach. Perhaps the biggest shift since the 2010s is the apparent decline in tribunals awarding damages based on an investor's sunk costs, falling to 13%. This review also provides insights into the circumstances in which tribunals use 'other' valuation techniques, many of which respond to factual specificities of the case at hand. For example, *Venezuela US S.R.L. (Barbados) v Venezuela* concerned a claim by a minority shareholder in a Venezuelan company relating to non-payment of dividends. The tribunal found that the government of Venezuela intervened in the management of the company by instructing it to pay dividends to another shareholder, the Brazilian company Petrobras. This intervention amounted to discriminatory treatment in breach of Venezuela's treaty obligations, in the sense that Venezuela had caused the company to pay dividends to some shareholders

and not others. As such, damages were calculated as if a corresponding dividend had been paid to the claimant.[15]

2.3 Use of valuation techniques in ISDS vs. commercial arbitration

In 2020, PwC collaborated with the Queen Mary University of London to produce a third study of the use of valuation techniques in international *commercial* arbitration. Based on a review of 180 confidential damages award in ICC arbitration, the study concluded that tribunals calculated damages based on the claimant's sunk costs in 63% of cases, which is very significantly higher than the number of awards based on sunk costs in treaty-based ISDS.[16] Income-based valuation techniques are used in 29% of awards in commercial arbitration – still a significant minority of cases but a correspondingly lower proportion than is the case in treaty-based ISDS today.

The authors to the PwC/QMUL suggest that the balance of fact scenarios in their sample differ from those that arise in ISDS – disputes in commercial arbitration are more likely to concern 'outstanding payments or costs incurred due to a breach of contract more often than lost income or loss of profit or indeed, loss of an entire company.'[17] This is an important point and one that makes direct comparison between the two contexts difficult. That said, while there are differences between the types of fact patterns that regularly arise in commercial arbitration and ISDS, the large divergence between the frequency with which valuation techniques are deployed in the two contexts question as to *why* tribunals seem so much more willing to accept for lost income or lost profit in ISDS proceedings than in commercial arbitration. This is especially so given that that the majority of ISDS awards do not entail findings of expropriation or other breaches that point to loss of a business in its entirety.[18]

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[15] *Venezuela US S.R.L. (Barbados) v Venezuela*, PCA Case No 2013-34, Final Award (4 November 2022) paras 50–56.

[16] PwC and Queen Mary University of London, 'Damages awards in international commercial arbitration' (2020) <https://www.pwc.co.uk/forensic-services/assets/documents/trends-in-international-arbitration-damages-awards.pdf> accessed 21 February 2025.

[17] ibid 14.

[18] According to current UNCTAD data, only 16% of successful claims (48 out of 293) involve findings of direct expropriation. A further 26% (76 out of 293) not included in the original count involve findings of indirect expropriation, which generally involve 'substantial deprivation' – i.e. something approaching complete loss of an investment. This still leaves a clear majority of cases (58% or 169 out of 293) where there is neither a finding of direct nor indirect expropriation. UNCTAD, 'Investment Dispute Settlement Navigator' <https://investmentpolicy.unctad.org/investment-dispute-settlement> accessed 7 February 2025. Moreover, it is not clear that use of income-based valuation techniques is tightly correlated with cases involving loss of an entire investment in the way that the PwC/QMUL study implies. For example, the Spanish solar cases concerned disputes about changes to regulated tariffs paid to solar investments that continued to operate viably under the investors' control following the contested measures. Several tribunals adopted the DCF technique to quantify damages in these cases – for example, in the now annulled award of *Eiser v Spain,* ICSID Case No ARB/13/36, Award, (4 May 2017) para 465.

3. The question of remedies in customary international law

3.1 The principle of full reparation as a customary rule

The starting point of analysis in this section is the principle of full reparation, which is a customary rule of international law that could be modified by *lex specialis*; it is the basis on which UNCITRAL Working Group III has agreed to proceed, notwithstanding the reservations of some states.[19] The traditional position regarding the principle of full reparation, including full compensation, was set out by the Permanent Court of International Justice (PCIJ) in *Factory at Chorzów (Germany v Poland)*: 'The essential principle contained in the actual notion of an illegal act … is that reparation must, as far as possible, wipe out all the consequences of the illegal act and reestablish the situation which would, in all probability, have existed if that act had not been committed.'[20] The full reparation principle is further expressed in Article 31(1) of the United Nations International Law Commission's Articles on Responsibility of States for Internationally Wrongful Acts (2001) (ILC Articles), which provides that '[t]he responsible State is under an obligation to make full reparation for the injury caused by the internationally wrongful act'.[21] It is also widely recognised as a rule of customary international law in the practice of international courts and tribunals.[22]

Nevertheless, unlike non-derogable *jus cogens* norms, the full reparation principle as a customary rule could be modified by *lex specialis*.[23] This is particularly the case in treaty-based systems with compulsory dispute settlement mechanisms. A notable example is the law of the World Trade Organization (WTO) which provides voluntary compensation only in the event that the recommendations and rulings of the Dispute Settlement Body are not implemented within a reasonable period of time, as a temporary remedy pending the withdrawal of the WTO-inconsistent measure.[24] Human rights treaties also adopt

[19] See UNCITRAL (n 4).
[20] *Factory at Chorzów (Germany v Poland)* (Merits) [1928] PCIJ Rep Series A no 17, 47.
[21] 2(2) YBILC 26, A/CN.4/SER.A/2001/Add.1.
[22] *United Nations Legislative Series: Materials on the Responsibility of States for Internationally Wrongful Acts* (2nd edn, UN 2023) ST/LEG/SER.B/25/Rev.1.
[23] 2001 ILC Articles (n 21) art 55; UNCTAD, 'Compensation and Damages in Investor-State Dispute Settlement Proceedings' (2024) IIA Issues Note, No 1,10 <https://unctad.org/system/files/official-document/diaepcbinf2024d3_en.pdf> accessed 21 February 2025, 10; Jonathan Bonnitcha, 'Rethink the Rule, Not the Exception: Comments on Martins Paparinskis, "A Case Against Crippling Compensation in International Law of State Responsibility" (2020) 83(6) MLR 1246–1286' (2021) MLR Forum 004; Martins Paparinskis, 'Crippling Compensation and State Responsibility: A Response to Bonnitcha, Daley, Gattini, and Pazartzis' (2021) MLR Forum 004.
[24] Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU) arts 3.7, 22, Annex 2 to the Marrakesh Agreement establishing the World Trade Organization (adopted 15 April 1994, entered into force 1 January 1995) 1867 UNTS 3.

differently worded reparation standards, although the interpretation of such standards still tends to bend towards the full reparation principle.[25]

By contrast, most (old generations of) investment treaties specify compensation standards only with regard to lawful expropriation. In the absence of clear guidance in the text of the treaties themselves, tribunals have normally awarded damages for breaches of the treaties' other substantive obligations based on the full reparation principle.[26] The 2001 ILC Articles leave open the remedial principle in non-inter-State settings[27] and States have the choice to adopt different approaches in treaty drafting. Still, in light of the apparent consensus reached in the Working Group III, the full reparation principle remains the primary point of reference for discussing the practice of international courts and tribunals in this section.

3.2 Application of the principle of full reparation

In addressing contested doctrinal issues underlying the principle of full reparation, international courts and tribunals outside the ISDS context tend to develop a comparatively more cautious approach guiding their valuation practice. While the principle of full reparation is endorsed at a high level of abstraction, there are a range of issues that remain contested in conceptual and practical terms. Regarding compensation as a form of reparation specifically, relevant issues are highlighted in the topic 'Compensation for the Damage caused by Internationally Wrongful Acts' which entered into the long-term programme of work of the ILC in 2024.[28] These include the determination of compensable damage, especially lost profits alongside capital value within the meaning of material damage;[29] the distinction drawn between factual and legal causation in assessing the causal link between internationally wrongful act and injury;[30] and the relevance of equitable considerations,[31] among others. A fuller appreciation of the balance struck by the ILC in its 2001 Articles should thus take into account doctrinal techniques that may potentially moderate the seemingly expansive notion of full reparation, such as proportionality framed in terms of limiting compensation to 'damage

[25] Esmé Shirlow, 'Approaches of International Courts and Tribunals to the Award of Compensation in International Private Property Cases and Implications for the Reform of Investor-State Arbitration' IISD Report (2022) 8-10.
[26] UNCTAD (n 23) 10. .
[27] 2001 ILC Articles (n 21) art 33(2). For different understanding of Article 33(2), see Martins Paparinskis, 'Investment Treaty Arbitration and the (New) Law of State Responsibility' (2013) 24 EJIL 617, 635.
[28] Report of the International Law Commission, Seventy-fifth session (New York, 2 August 2024), A/79/10, Annex I (by Martins Paparinskis).
[29] 2001 ILC Articles (n 21) arts 31(2), 36(2).
[30] ibid arts 31(1), 36(1); Martin Jarrett, 'Depolluting the Doctrine on Causation in International Investment Law: The Case for Extracting "Legal Causation"' in Gábor Kajtár et al (eds), *Secondary Rules of Primary Importance in International Law: Attribution, Causality, Evidence, and Standards of Review in the Practice of International Courts and Tribunals* (OUP 2022) 124.
[31] 2001 ILC Articles (n 21) commentary (7) to art 36.

actually suffered as a result of the internationally wrongful act', excluding 'damage which is indirect or remote'.[32]

Notably, such a balance also informs the approach adopted by the ILC to income-based valuation methods, including its scepticism about the DCF as a method that analyses 'a wide range of inherently speculative elements' that may have a significant impact upon the outcome.[33] In this regard, the ILC refers to the 'cautious approach' to the DCF reflected in the practice of international courts and tribunals and other bodies pre-2000s, especially the Iran-United States Claims Tribunal (IUSCT) and the United Nations Compensation Commission (UNCC).[34]

While income-based methods were accepted in principle, the IUSCT in *Phillips Petroleum Company Iran v Iran* expressed a preference for using asset-based approach to at least verify the findings concerning the capital value.[35] The tribunal explained the inadequacy of the DCF method, noted in *Amoco International Finance Corporation v Iran*,[36] as well as the need to take into account equitable considerations when making adjustments to conclusions reached through the DCF method, following *Starrett Housing Corporation v Iran*.[37] In a similar vein, Decision 9 taken by the Governing Council of the UNCC (which is not a judicial institution *stricto sensu*) provided that in principle, loss of future earnings and profits should be ascertained with 'reasonable certainty', and that the valuation method should be one that 'focuses on past performance rather than on forecasts and projections into the future'.[38] A Report issued by the Panel of Commissioners of the UNCC further required 'clear and convincing evidence of ongoing and expected future profitability' in relation to loss of profits,[39] reflecting a relatively high standard of proof.

Since the 2000s, the increasing vitality of international dispute settlement is manifested in diverse approaches adopted by courts and tribunals for achieving full reparation contingent upon legal and political contexts of various fields of public international law.[40]

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[32] ibid commentary (14) to art 31, commentary (5) to art 34; James Crawford, *State Responsibility: The General Part* (CUP 2013) 482; Martins Paparinskis, 'A Case Against Crippling Compensation in International Law of State Responsibility' (2020) 83 MLR 1246, 1259.
[33] 2001 ILC Articles (n 21) commentary (26) to art 36.
[34] ibid commentary (26) to art 36.
[35] IUSCT Case No 39, Final Award No 425-39-2 (29 June 1989) para 115.
[36] IUSCT Case No 56, Partial Award No 310-56-3 (14 July 1987) para 223.
[37] IUSCT Case No 24, Final Award No 314-24-1 (14 August 1987) paras 274, 279; *Phillips Petroleum* (n 35) para 112.
[38] UNCC, 'Propositions and Conclusion on Compensation for Business Losses: Types of Damages and Their Valuation' (1992) S/AC.26/1992/9, para 19.
[39] UNCC, 'Report and recommendations made by the Panel of Commissioners concerning first instalment of "E3" claims' (17 December 1998) S/AC/26/1998/13, para 147.
[40] Chester Brown, *A Common Law of International Adjudication* (OUP 2007) 198; Christine Gray, 'Remedies' in Cesare PR Romano et al (eds), *The Oxford Handbook of International Adjudication* (OUP 2013) 872; Shirlow (n 25); Toni Marzal, 'Conjuring Markets: Valuation in Comparative International Economic Law' (2004) 27 J Intl Econ L 2, 353.

At the same time, international courts and tribunals outside the ISDS context have developed various doctrinal techniques guiding their valuation practice to strike a balance that broadly goes with the grain of the more cautious approach reflected in the 2001 ILC Articles, diverging from the frequent award of high amounts of compensation in ISDS.[41]

In *Ahmadou Sadio Diallo (Republic of Guinea v Democratic Republic of the Congo)*, for instance, the International Court of Justice (ICJ) awarded an amount of compensation based on equitable considerations despite shortcomings in the evidence related to the damage to personal property.[42] Nevertheless, it dismissed the claim for loss of future earnings in light of its 'speculative' nature, as equity could not serve as a substitute for evidence that actually existed and could have been produced.[43] With evidence mostly 'insufficient to reach a precise determination of the amount of compensation due' in the context of armed conflict, the Court awarded compensation in the form of a global sum in *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* in light of equitable considerations.[44] In doing so, it took into account the possibility to reduce the levels of compensation to 'account for the uncertainties that flow from applying a lower standard of proof'.[45]

Notably, the reasoning in ICJ's Judgments on reparation often refers to the jurisprudence of a range of other international courts and tribunals. The trade-off between less rigorous standards of proof and the reduction of compensation levels identified in *Armed Activities*, for example, was a key finding in the Final Award on Ethiopia's Damages Claim rendered by the Eritrea-Ethiopia Claims Commission (EECC) in the context of addressing injuries affecting large numbers of victims.[46] The consideration of equitable principles also draws upon the practice of regional human rights courts, especially the European Court of Human Rights (ECtHR), the Inter-American Court of Human Rights (IACtHR), and the African Court on Human and Peoples' Rights (ACtHPR).

In addition to the less rigorous standards of proof used to reduce the level of compensation, the ECtHR is influenced also by doctrines central to the overall application of the European Convention on Human Rights such as balancing and proportionality, which underpins the prominent role of the principle of equity.[47] The Practice Directions of the Court defines 'just' in 'just satisfaction' in Article 41 of the European Convention on Human Rights as 'appears to it to be appropriate in the circumstances' and allows the Court to 'award less than the value of the actual damage

[41] UNCTAD (n 26) 2.
[42] (Compensation) [2012] ICJ Rep 324, para 33.
[43] ibid paras 49–50, Declaration of Judge Greenwood, para 5.
[44] (Reparations) [2022] ICJ Rep 13, paras 106, 124–125, 258.
[45] ibid para 107.
[46] Final Award on Ethiopia's Damages Claim (17 August 2009) paras 35–38.
[47] Marzal (n 40) 359; Gray (n 40) 890.

sustained' for 'reasons of equity'.[48] The use of equitable principles is often seen in the context of assessing lost profits. In *Sporrong and Lönnroth v Sweden*, the Court rejected to use the valuation methods put forward by disputing parties, which was either based on a hypothetical redevelopment of the properties or the actual use of the properties, and instead awarded an amount on an equitable basis considering the 'virtual impossibility' of quantifying the loss of opportunities.[49] A similar approach was taken in *Centro Europa 7 Srl and Di Stefano v Italy* with regard to loss of earnings resulting from the impossibility of making use of a license, where the Court highlighted that the loss of earnings must be 'conclusively established' rather than based on 'mere conjecture or probability' and ultimately awarded a lump sum on an equitable basis.[50]

Likewise, when awarding 'fair compensation' in accordance with Article 63(1) of the American Convention on Human Rights, the IACtHR tended to award an amount 'on grounds of equity' where there was no 'conclusive evidence' with regard to lost profits, such as in *Palamara Iribarne v Chile*.[51] Based on the standard of 'fair compensation or reparation' in Article 27(1) of the Protocol to the African Charter on Human and Peoples' Rights and taking into account 'fairness and reasonable proportionality', the ACtHPR in *Ajavon v Benin* considered that the 'compensation for damages resulting from loss of opportunity should be a lump sum that cannot be equal to the benefit that would have been earned had the intervening event not occurred and, hence, could not to be equal to the entire expected gain'.[52]

At the same time, the use of equitable principles in the valuation practice of international courts and tribunals is not without constraints. The separate opinions by ICJ judges in *Diallo* and *Armed Activities* observed that equity is not 'alchemy' and is of 'an essentially legal character (equity *infra legem*)' different from 'a decision *ex aequo et bono* … as equity *contra legem*'.[53] The IACtHR also held that the use of the criterion of equity 'does not mean that the Court can act discretionally'; it is still for disputing parties to provide 'clear evidence' of the losses suffered and the 'causal relationship' between breach and injury.[54] In the practice of the ECtHR, there were multiple instances where claims for lost profits were dismissed in the absence of evidence fulfilling the standard of proof or causation.[55] Similar approaches have also been taken in the field of the law of the sea by

[48] 'Practice Directions: Just Satisfaction Claim' (2022) paras 3–4, 9.
[49] App No 7151/75 (ECtHR, 18 December 1984) paras 27–32; Shirlow (n 25) 28–29.
[50] App No 38433/09 (ECtHR, 7 June 2012) paras 218–222.
[51] (22 November 2005) IACtHR Series C No 135, para 242; see also *Ituango Massacres v Colombia* (1 July 2006) IACtHR Series C No 148, paras 271-272.
[52] (28 November 2019) ACtHPR App no 013/2017, paras 63, 66; see also *Lohe Issa Konate v Burkina Faso* (3 June 2016) ACtHRP App no 004/2013, paras 39–43.
[53] Diallo (n 42) Declaration of Judge Greenwood, para 5; Diallo (n 42) Declaration of Judge Yusuf, para 24.
[54] See eg, *Mémoli v Argentina* (22 August 2013) IACtHR Series C No 265, paras 214, 216.
[55] See eg, *Skibińscy v Poland,* App no 52589/99 (ECtHR, 21 October 2008) para 24; Shirlow (n 25) 30.

International Tribunal for the Law of the Sea (ITLOS) and the Annex VII arbitral tribunals under the United Nations Convention on the Law of the Sea (UNCLOS).[56]

In short, the seemingly expansive notion of full reparation is counter-balanced by a range of doctrinal techniques within the framework of the customary law of State responsibility. This section has not attempted to be exhaustive, but rather to highlight some of the most important doctrines and techniques that shape the application of the principle of full reparation under customary international law. [57] Overall, international courts and tribunals outside the ISDS context have developed various approaches for applying the full reparation principle in a relatively cautious manner guiding their valuation practice.

4. Interpretation and application of the full reparation principle in treaty-based ISDS

Section 3 reviewed the practice of international courts and tribunals in awarding compensation as an element of full reparation. This section turns to the practice of tribunals in treaty-based ISDS. It begins, in Section 4.1, by drawing attention to the role of mid-level legal principles in framing the assessment of damages. Some ISDS tribunals, however, have been insufficiently attentive to these legal principles – notably, principles that define the scope of compensable loss, the legal requirements of causation and the relevant standard of proof. Whether and how these principles are applied plays a significant role in framing choice and application of valuation methods in ISDS. Sections 4.2 and 4.3 explore two such mid-level principles in more detail, those of causation and the standard of proof, respectively. While these sections highlight variation and disagreement among tribunals, the overall picture that emerges is that tribunals in treaty-based ISDS approach the assessment and calculation of damages in ways that are more favourable to claimants than other international courts and tribunals that also apply the principle of full reparation.

4.1 The relevance of mid-level legal principles to the assessment and calculation of damages

The Commentary to the ILC Articles on State Responsibility explains that, as matter of customary international law, "The allocation of injury or loss to a wrongful act is, in principle, a legal and not only a historical or causal process." [58] This statement is uncontroversial; the same is true for *all* domestic legal systems, as the following three

[56] See eg, *The M/V "Virginia G" Case (Panama/Guinea-Bissau)* [2014] ITLOS Reports 4, Judgment (14 April 2014) paras 436, 440; *The Arctic Sunrise Arbitration (Netherlands v Russia),* PCA Case No 2014-02, Award on Compensation (10 July 2017) para 98.

[57] International courts and tribunals also reduce the amount of damages if a claimant has failed to take reasonable steps to mitigate damage, or has contributed to the damage through its own negligence, see para 11 of the Commentary to arts 31, 39 of the ILC Articles (n 21). These limits are reflected in the current draft of provision 20 under consideration by WG III, see UNCITRAL (n 5).

[58] 2001 ILC Articles (n 21), Commentary to art 31, para 10.

examples illustrate. First, as a matter of English tort law, damage outside the scope of the duty that the defendant owed to the claimant is not recoverable.[59] Second, as matter of US contract law, damages that could not reasonably have been foreseen as a probable result of the breach are not recoverable and, moreover, 'a court may limit damages for foreseeable loss by excluding recovery for loss of profits ... if it concludes that in the circumstances justice so requires in order to avoid disproportionate compensation'.[60] Third, as a matter of Chinese law, damages for breach of contract are calculated on an expectation basis.[61] However, in relation to claims for loss of profits obtainable from the performance of a contract, guidance from the Supreme People's Court emphasizes that a court 'shall comprehensively apply the foreseeability rule, the mitigation rule, the benefits rule, the contributory negligence rule and other such rules' all of which serve to limit excessive claims in relation to such profits.[62]

In all three examples, mid-level legal principles limit the recovery of damages, even if the claimant is able to prove that it has suffered loss that was caused by the breach in a factual, 'but for' sense. Moreover, in many jurisdictions a successful claimant must prove both the fact *and* the quantum of lost future profits in order to recover. For example, in claims for loss of profits obtainable from the performance of a contract under Chinese law, the claimant bears the burden of proof in establishing 'the total amount of the loss' of the profits that it incurred.[63]

One of the challenges in customary international law is that these mid-level legal principles are not as precisely defined as they are in some domestic legal systems. For example, the Commentary to Article 31 to the ILC Articles on State Responsibility mentions the concepts of proximity, remoteness, directness and foreseeability as limits on the scope of compensable loss, without setting out a clear and complete scheme of how these, and other, principles inter-relate. A similar variety of principles have been invoked by international courts and tribunals.[64] The fact that general international law of state responsibility operates as a backdrop regime of "secondary rules" contributes to

[59] Harvey McGregor, *McGregor on Damages* (James Edelman eds, 20th edn, Sweet & Maxwell 2018), para 8-132.

[60] American Law Institute, *Restatement of the Laws of Contracts* (2nd edn, American Law Institute Publishers 1981) para 351(3).

[61] 《中华人民共和国民法典》已由中华人民共和国第十三届全国人民代表大会第三次会议于 2020 年 5 月 28 日通过，现予公布，自 2021 年 1 月 1 日起施行。(The Civil Code of the People's Republic of China, as adopted 28 May 2020) art 584.

[62] 最高人民法院印发《关于当前形势下审理民商事合同纠纷案件若干问题的指导意见》的通知 （法发〔2009〕40 号）(Guiding Opinions of the Supreme People's Court on Several Issues concerning the Trial of Cases of Disputes over Civil and Commercial Contracts under the Current Situation, No. 40 [2009]) art 10, author's translation.

[63] ibid, art 11.

[64] Vladyslav Lanovoy, 'Causation in the Law of State Responsibility' 90 (2022) BYBIL 1, 44.

this situation.[65] What is clear, however, is that addressing these legal questions is a necessary step in identifying the damage that a valuation technique can then be used to value.

Many tribunals in treaty-based ISDS pay insufficient attention to these legal principles.[66] Indeed, there is sometimes a tendency to see the assessment and calculation of damages as mechanical, fact-finding operation divorced entirely from legal considerations.[67] For instance, in *Antin v. Spain*, the tribunal found that Spain's abandonment in 2014 of the tariff regime that had previously applied to investors in the solar industry breached the fair and equitable treatment standard. The investors claimed compensation – calculated according to the DCF method – for the income they would have earned if the old tariff regime had been retained indefinitely. The tribunal, in its own analysis of the merits, concluded that the breach did not arise from change of the old tariff regime *per se* but, instead, from the 'elimination of the key features' of the old regime and their 'replacement by a wholly new regime, not based on any identifiable criteria.'[68] As such, it is clear that the Spanish state retained some scope under international law to change the way it regulated the sector in ways that did not eliminate the regime's key features and ensured that variations to the regime were administered according to identifiable criteria.

The tribunal's decision on the merits squarely raises the question of whether the investors were entitled to recover as damages all the future profits that they would have earned if the old tariff regime had been retained indefinitely. Doctrinally, this question could be approached either as one relating to the scope of compensable damage (that

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[65] In most domestic legal systems, there is no general set of rules that define the consequences of wrongful conduct in a way that is equivalent to the secondary rules of responsibility articulated in Part Two of the ILC Articles on State Responsibility. For example, in domestic legal systems, rules governing the consequences for breach of administrative law are very different to those governing the consequences for breach of contract.

[66] Abby Cohen Smutny, 'Compensation Due in the Event of an Unlawful Expropriation: The "Simple Scheme" Presented by Chorzów Factory and Its Relevance to Investment Treaty Disputes' in David D Caron and others (eds), *Practising Virtue: Inside International Arbitration* (OUP 2015) 626, 641 ('the amount of compensation due is a question of fact for the tribunal to assess'); Sergey Ripinsky, "Assessing Damages in Investment Disputes: Practice in Search of Perfect" (2009) 10 JWIT 1, 9–10 (noting the issue of quantification is guided by the facts of the case rather than by legal provisions); Wolfgang Alschner, 'Aligning Loss and Liability – Towards an Integrated Assessment of Damages in Investment Arbitration' in Marion Jansen, Joost Pauwelyn and Theresa Carpenter (eds), *The Use of Economics in International Trade and Investment Disputes* (Cambridge University Press 2017) 283–318 (calls this practice of misalignment that privileges loss over liability "farming out legal questions to economists"), 285.

[67] Toni Marzal, 'Quantum (In)Justice: Rethinking the Calculation of Compensation and Damages in ISDS' (2021) 24 JWIT 2, 249–312; Marzal (n 40), 353–370. In 2015, Alschner claimed that there is also the opposite tendency in ISDS practice, that is, grounding valuation almost exclusively in notions of equity (Wolfgang Alschner, "Aligning Loss and Liability – Towards an Integrated Assessment of Damages in Investment Arbitration" in Marion Jansen, Joost Pauwelyn and Theresa Carpenter (eds), *The Use of Economics in International Trade and Investment Disputes* (CUP 2017) 283, 291-2.

[68] *Infrastructure Services Luxembourg S.à.r.l. and Energia Termosolar B.V. (formerly Antin Infrastructure Services Luxembourg S.à.r.l. and Antin Energia Termosolar B.V.) v Kingdom of Spain*, ICSID Case No ARB/13/31, Award, (15 June 2018) para 572.

is, a question of which alleged future losses were compensable) or as a question of causation (that is, a question of the extent to which the breach, as characterized by the tribunal, *caused* the damage alleged by the investor). However, the tribunal entirely failed to address these questions, or even – it seems – to realize that there was a major gap in its reasoning. Instead, it moved directly from a reference to the principle of full reparation to an engagement with the parties' pleadings on valuation.[69] This illustrates a point also made by Ripinsky and Marzal that the use of DCF method – which involves specification of a hypothetical but-for future scenario as a baseline against which to measure loss – can obscure a range of questions about the possibility and legitimacy of regulatory change over time.[70]

Approaching the assessment and calculation of damages as mechanical, fact-finding operation rather than a legal one may also contribute to the evacuation of equitable considerations from the analysis. For example, the tribunal in *ESPF v Italy* refused to consider equitable considerations in its damages analysis on the ground that this would lead to awarding less than full compensation.[71]

4.2 Full reparation and causation in treaty-based ISDS

The ILC Articles reflect a broad consensus on the legal requirements for compensation for breach of an international legal obligation. There must be an act that has violated a legal rule, a loss or injury, and a causal link or connection between the illegal act and the damage (loss or injury). Despite the extensive research on this subject in various legal systems worldwide, the analysis of damages by arbitral tribunals in ISDS received comparatively little attention for many years. Tribunals were equally slow to appreciate the importance of the subject – in 2008 Walde and Sabahi wrote that many tribunals "fail to address the impact of causation on damages in any substantial manner."[72] More recently, the question has attracted growing scholarly attention,[73] although, as we will see, arbitral practice remains uneven.

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[69] ibid para 664.

[70] Toni Marzal, 'Quantum (In)Justice: Rethinking the Calculation of Compensation and Damages in ISDS' (2021) 22(2) JWIT 249, 308, explaining Sergey Ripinsky's reflections on 'Damages Assessment in the Spanish Renewable Energy Arbitrations: First Awards and Alternative Compensation Approach Proposal' (2020) 2 TDM. See also Martin Jarrett, 'A Proposal for Reforming the Calculation of Damages in Investment Treaty Arbitration' (*Investment Treaty News*, 2 July 2024) < https://www.iisd.org/itn/2024/07/02/a-proposal-for-reforming-the-calculation-of-damages-in-investment-treaty-arbitration/ > accessed 21 February 2025.

[71] *ESPF Beteiligungs GmbH, ESPF Nr. 2 Austria Beteiligungs GmbH, and InfraClass Energie 5 GmbH & Co. KG v Italian Republic*, ICSID Case No ARB/16/5, Award, (4 September 2020) paras 854–859. Contra see *Gold Reserve Inc v Bolivarian Republic of Venezuela*, ICSID Case No ARB(AF)/09/1, Award, (22 September 2014) para 686.

[72] Thomas W Wälde and Borzu Sabahi, 'Compensation, Damages and Valuation' in Peter Muchlinski, Federico Ortino and Christoph Schreuer (eds), *The Oxford Handbook of International Investment Law* (OUP 2008) 1051, 1094.

[73] A number of seminal works on causality were published in the early stages of this field of study: Todd Weiler and Luis Miguel Diaz, 'Causation and Damages in NAFTA Investor-State Arbitration', in Todd Weiler

4.2.1 Factual and legal causation

The question of causation has both factual and legal dimensions.[74] Paragraph 10 of the Commentary to Article 31 of ILC Articles, confirms that the allocation of injury or loss is, "in principle, a legal and not only a historical or causal process." It follows that "causality in fact is a necessary but not sufficient condition for reparation." For the obligation of compensation to arise, arbitral tribunals will need to examine the losses attributable to the wrongful act as a proximate cause, and whether alleged losses are too indirect, remote or uncertain. As questions of law, these requirements of causation cannot be delegated to economic experts.

At this juncture it is relevant to note that most BITs do not incorporate or establish guidelines on causation. However, a small number of more recent BITs do encompass include provisions pertaining to causation. In general, these treaties typically delineate that compensation is only available for damages that arose as a "result of" the state measure in question.[75] This formulation restates the requirement of causation without offering much guidance as to how it should be applied. Subsequent treaties that address this issue further stipulate that the damage must be actual, rather than speculative, and directly caused by the breach of the treaty, as exemplified by the India -UAE BIT.[76]

At present, in general, ISDS tribunals have adopted the secondary rules provided in the 2001 ILC Articles on State Responsibility (ILC Articles).[77] It is important to note that the establishment of a causal link between legal violation and resulting injuries requires a

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(ed), *NAFTA Investment Law and Arbitration: Past Issues, Current Practice, Future Prospects* (Ardsley, NY, Transnational Publishers, 2004) 199 (hereinafter 'Weiler ed 2004'). Nowadays there are works such as Martin Jarrett's who shows some of the early work on causality. See, Jarrett (n 30) 122; Patrick W Pearsall and J Benton Heath, 'Causation and Injury in Investor- State Arbitration' in Christina L Beharry (ed), *Contemporary and Emerging Issues on the Law of Damages and Valuation in International Investment Arbitration* (Brill 2018).

[74] Michael Moore distinguishes between physical causation (factual) and proximate causation (legal). In addition to these two basic conceptions of causation. he identifies additional criteria that are also used in various contexts, such as the counterfactual criterion in law, criteria that consider physical causation as a matter of policy, or criteria that consider proximate causation as a matter of policy, in fact, or criteria that are partially causal or policy causal: direct with foreseeability (of supervening cause). *Causalidad y Responsabilidad: Un ensayo sobre derecho, moral y metafísica* (Marcial Pons 2011) 167-168.

[75] See Comprehensive Economic and Trade Agreement (signed 30 October 2016, entered into force 21 September 2017) (Canada-EU CETA) art 8.18 and the proposal at UNCITRAL (n 3), draft provision 23 and UNCITRAL (n 5), draft provision 20.

[76] See Agreement between the Government of the Republic of India and the Government of the United Arab Emirates on the Promotion and Protection of Investments (signed 13 February 2024, entered into force 31 August 2024) (India-United Arab Emirates BIT); also UNCITRAL, Possible reform of investor-State dispute settlement (ISDS): Assessment of damages and compensation, (Vienna, 16 September 2022) UN Doc A/CN.9/WG.III/WP.220, 9–10; UNCITRAL (n 3), draft provision 23.4, which mentions that the tribunal must only award damages that are not inherently speculative. UNCITRAL (n 5), draft provision 20.

[77] See José Manuel Alvarez Zárate, 'Assessing Damages in Customary International Law: The Chorzów's Tale' in Panos Merkouris and others (eds), *Custom and Its Interpretation in International Investment Law* (CUP 2023); 2001 ILC Articles (n 21) art 31.

meticulous examination on a case-by-case basis.[78] This approach is particularly crucial when assessing the relationship between the alleged damage and the breach in question, which according to the commentary must not be too speculative, remote or uncertain.[79]

In principle, the causal inquiry is separate from the determination of breach, and from the assessment of quantum, so for causation determination, three conceptual steps should be taken. The first step comprises the following inquiries: to ascertain the measure of damages under the applicable law, in other words, the standard of damages, its rules and principles applied to the rule breached, which determines what losses are compensable. The second step, the applicable theory of causation, where the concepts of remoteness, foreseeability, adequacy, contributory negligence, mitigation and the standard of proof should usually be included in the analysis. Provided that the previous steps find that the breach caused losses to the claimant, the final step in this process is the valuation of the quantum of injury or loss, where economic experts assess the loss according to the applicable law and the applicable causation theory.[80]

4.2.2 Engagement with questions of causation in treaty-based ISDS

With a relatively small number of exceptions,[81] tribunals in treaty-based ISDS framework rarely accord substantial consideration to the issue of causation. In *Crystallex v. Venezuela*, for example, the damages against the State were set at USD 1,202 million, the tribunal's discussion of causation was limited to four short paragraphs. [82] More problematically, the tribunal seems to have understood causation as a pure question of fact, failing to recognize or consider questions of legal causation.

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[78] See *Air Canada v Bolivarian Republic of Venezuela,* ICSID Case No ARB(AF)/17/1, Award (13 September 2021) para 598*,* there needed to be a "sufficient causal link between the breach and the damage caused," since causation is "not only a prerequisite for the claim for damages but also has an impact on the amount or scope of the damages to be compensated. YET a "partial causation" would only lead to a "substantial reduction" in damages".

[79] See 2001 ILC Articles (n 21) commentaries 9–10 art 31.

[80] Herfried Wöss and Adriana San Román Rivera, 'Damages in international commercial and investment treaty arbitration' in Nikos Lavranos and Stefano Castagna (eds) *Internation Arbitration and EU Law* (2nd edn, Elgar Arbitration Law and Practice, 2024) 367-369. (the measure of damages is what the applicable law determines may be compensated). See also Marzal (n 70), 249–312, 305–310.

[81] See, for instance the case in *Biwater Gauff v Tanzania*, ICSID Case No ARB/05/22, Concurring and Dissenting Opinion, (18 July 2008) para 23, where dissenting arbitrator Gary Born stated: "… it is inaccurate to characterise BGT's claims for monetary damages as failing for lack of causation; rather, BGT's monetary damages claims fail because the injury that was caused to it had no quantifiable monetary value." On the other hand, the majority of the tribunal arrived to the conclusion that the claimant´s claim for compensation must fail because the causation element was not proven, and not because the damage was not quantifiable: (para 805) "As set out earlier, the conclusions on causation reached by the majority of the Tribunal *are based on the lack of linkage between each of the wrongful acts of the Republic, and each of the actual, specific heads of loss and damage for which BGT has articulated a claim for compensation*. In other words, the actual loss and damage for which BGT has claimed – however it is quantified – is attributable to other factors." (emphasis added)

[82] See *Crystallex International Corporation v Bolivarian Republic of Venezuela*, ICSID Case No ARB(AF)/11/2, Award (4 April 2016) paras 859-862.

Tethyan Copper v. Pakistan concerned Pakistan's refusal to issue an investor with a Mining Lease that was necessary for the investor to proceed with a mining project. The tribunal found that this conduct amounted to indirect expropriation and a breach of the state's fair and equitable treatment obligation. Similar to the *Crystallex*, the tribunal's discussion of causation was very brief and implied that causation was a purely factual question: "*…the Tribunal considers it sufficient to state at this point that Respondent's conduct deprived Claimant of the value of its investment and thereby directly caused a loss that is to be quantified at a later stage of the proceedings…*".[83]

The decision in *Tethyan Copper* is especially concerning because the facts of the case clearly called for serious engagement with questions of legal causation. The investor conceded that, even if Pakistan had not violated the investment treaty, the viability of the project would have depended on negotiation of a 'Mineral Agreement' with the state setting project royalty rates.[84] On the tribunal's own analysis, the state retained discretion under both the BIT and Pakistani law to set the terms of such a hypothetical future Mineral Agreement, including the discretion to set royalties at a level that would substantially reduce the expected future profitability of the project.[85] Nevertheless, the tribunal came to a view, on the facts, that the state would likely have entered into a Mineral Agreement on terms favourable to the investor.[86] The tribunal then largely adopted the DCF valuation proposed by the investor's expert on quantum, which predicted the cashflows that the (hypothetical) future mine would have earned on the assumption that the state would have entered into a Mineral Agreement on favourable terms to the investor. Leaving aside questions about the evidentiary basis for the tribunal's speculation as to the likely content of a hypothetical future Mineral Agreement between the investor and the state, the tribunal's decision is open to serious criticism as matter of law, in that it allowed the investor to recover a supposed future 'loss' that resulted from future income it said it would have earned as a result of the beneficial terms of a future Mineral Agreement with the state that did not exist and to which it was not entitled.

One context in which tribunals have begun to engage more with questions of causation is where the state's breach of its treaty obligation involved some procedural defect – for example, the failure to conduct an environmental approval process in a way that was fair to a foreign investor.[87] For instance, in the case of *Eco Oro v. Colombia* the tribunal found that Colombia's conduct did not amount to expropriation, but that its failure to complete

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[83] *Tethyan Copper Company Pty Ltd v Islamic Republic of Pakistan*, ICSID Case No ARB/12/1, Award (12 July 2019) paras 85–87, 304–314. See also Decision on Jurisdiction and Liability, (10 November 2017) para 1374.

[84] *Tethyan Copper* (n 83) para 402.

[85] ibid para 408.

[86] ibid para 459.

[87] For example *William Richard Clayton, Douglas Clayton, Daniel Clayton, and Bilcon of Delaware, Inc. v Government of Canada,* PCA Case No 2009-04, Award on Damages, (10 Jan 2019).

the delimitation of the páramos breached Colombia's obligation under the minimum international standard of treatment provision. The tribunal found that the extent of the investor's injury caused by this breach was the loss of opportunity to apply for an environmental license necessary for the investor to proceed with development of a mine on a part of its concession. This characterization of the injury is an application of the 'but for' approach to factual causation. In order to quantify the damages caused by Colombia's breach, it was necessary for Eco Oro to provide the tribunal with some guidance as to the value of Eco Oro's lost opportunity.[88] However, "Eco Oro elected to provide no evidence or arguments in relation to the value of this loss. Instead, it provided expert evidence with regard to the market value of Concession 3452, based on Comparable Transactions methodology."[89] In the absence of relevant evidence of the damage caused by the breach, the tribunal, by majority, awarded no damages.[90]

4.2.3 Limits on compensation

A tribunal may also need to determine whether alleged losses were caused by other lawful conduct of the respondent State in relation to which there is no obligation to award compensation, the claimant's contributory action, [91] claimant's failure to mitigate damages or the role of intervening conduct by third parties.[92] If only partial causation is established through the application of the but-for premise, this may result in a substantial reduction of the claim for damages. This situation is closely related to the contributory negligence of the claimant, where the difficulty lies in the construction by the State of hypothetical situations of concurrent causation in order to prove that the injured party caused his own damage.

However, if the tribunal fails to apply the correct legal theory, which is the focal point of the calculation, or employs disparate theoretical frameworks, this may result in divergent compensation amounts. For instance, the application of the hypothetical normal course of events theory to causation does not take into account in its analysis of extraordinary events, such as economic crises, and their subsequent effects which lead to a decrease in the value of assets/investments which if not considered in turn can lead to an increase in the value of damages. Furthermore, tribunals frequently impose these risks on

[88] *Eco Oro Minerals v Colombia,* ICSID Case No ARB/16/4 Award on Damages, (15 July 2024), para 316.
[89] ibid para 303.
[90] ibid
[91] See 2001 ILC Articles (n 21) art 39 which provides that 'In the determination of reparation, account shall be taken of the contribution to the injury by willful or negligent action or omission of the injured State or any person or entity in relation to whom reparation is sought'. *Occidental Petroleum Corporation v Ecuador*, ICSID Case No ARB/06/11, Award, (5 October 2012), para 687.
[92] See *CME Czech Republic BV v The Czech Republic,* UNICITRAL Ad Hoc Arbitration, Partial Award (13 September 2001) paras 575–585, where the tribunal reviewed the implications of third-party intervention in the amount of the loss.

respondent states. So, as Marzal put it, "the State absorbs the full costs of an economic crisis rather than have investors bear a proportionate share of them."[93]

Moreover, If the arbitral tribunal determines that the State is responsible for violating one or more of the treaty obligations, the tribunal's subsequent task will be to ascertain whether the evidence provided by the claimant to substantiate the alleged damage or losses can be traced back to the violation in a direct, actual, and proximate manner pursuant to Article 31 commentaries of the ILC Articles.

4.3 Full reparation and standards of proof in treaty-based ISDS

"[T]he burden of proof defines which party has to prove what, in order for its case to prevail; the standard of proof defines how much evidence is needed to establish either an individual issue or the party's case as a whole. As soon as the distinction is stated in that way, it becomes evident that the burden of proof is absolute, whereas the standard of proof is relative."[94] The ICJ acknowledged that the standard of proof may vary between cases and depend on the gravity of the alleged acts, as more serious allegations generally require stronger evidence.[95] Additionally, where the claimant is unable to provide direct evidence, the Court has recognized that "more liberal recourse to inferences of fact and circumstantial evidence" may be appropriate.[96]

What complicates articulation of the standard (and burden) of proof further are the uncertainties whether they are matters of procedure or substance. Whereas the former concerns activity of arbitrators and the conduct of proceedings (e.g., admissibility of discovery or examination of witnesses), the latter cover issues pertaining to the merits of the dispute (including assessment of damages).[97] Classification of the standard of proof as a procedural or substantive issue influences the choice between applicable law: the law of the place of arbitration, the substantive law governing the merits of the dispute, or some international arbitral standard.[98] If the standard of proof is a procedural matter, it should be governed by *lex arbitri* or applicable international standards. Conversely, if it is a substantive issue, it is governed by the norms applicable to the investor-state

[93] Marzal (n 70), 308.
[94] *Rompetrol Group NV v Romania,* ICSID Case No ARB/06/3, Award, (6 May 2013) para 178.
[95] *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)* [2007] ICJ Rep 42, Judgment, [210].
[96] *Corfu Channel Case (UK v Albania)* (Merits) [1949] ICJ Rep 4,18; *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda,* Reparations, Judgment (9 February 2022), paras 123–126.
[97] Hans Smit, 'Substance and procedure in international arbitration: the development of a new legal order' (1990-1991) 65 Tul L Rev, 1311 et seq.
[98] Mateus Aimoré Carreteiro, 'Burden and standard of proof in international arbitration: proposed guidelines for promoting predictability' (2016) 13 Revista Brasileira de Arbitragem 49, 99.

relationship. Some suggest that while common law system tend to adopt the procedural view, civil law system treat it as a matter of substance.[99]

Conceptually, the standard of proof is based on duty to prove asserted facts (*actori incumbit probatio*), which also underpins the burden of proof. At the same time, it is based on tribunal's mandate to resolve the dispute, which encompasses procedural determinations such as the production and admissibility of evidence, timing and order, and the types of evidence required. Most importantly it includes the level of persuasion necessary to satisfy the standard of proof.

While in many civil law systems the acceptable standard of proof, ultimately, hinges upon "inherently subjective" and "discretionary" assessment by the arbitrator (multiple civil law states recognise the principle of the free evaluation of evidence by the judge/arbitrator),[100,] common law systems generally try to introduce greater clarity. Case law thus refers to "preponderance of the evidence" or "a reasonable degree of probability". The civil law systems refrain from specific standards, implicitly relying upon conviction of the judge. At the same time, practical relevance of these differences may be smaller than it would result from the first comparison, as "functionally [reasonable conviction and preponderance of the evidence are] essentially the same".[101]

The various approaches to the standard of proof also reflect procedural traditions prevailing in various jurisdictions, namely inquisitorial or adversarial systems, and related issue such as the role of party-tribunal appointed expert witnesses[102] or the availability of discovery.[103] As such they relate to broader issues such as performance of obligations in good faith, equality of arms and the right to fair trial, or due process.

The default rule of party autonomy in arbitration extends to procedural matters, allowing arbitrators to determine the admissibility and probative value of evidence, subject to fundamental due process principles. This discretionary mandate is explicitly recognised under ICSID Arbitration Rule 36(1), ICSID Convention art. 44, IBA Rules on the Taking of Evidence in International Arbitration art. 9(1), UNCITRAL Arbitration Rules art. 27(1, 4), 1993 PCA Optional Rules for Arbitrating Disputes Between Two Parties of Which Only One Is a State, art. 25(6), as well as UNCITRAL Model Law on International Commercial

[99] Julian D M Lew, Loukas A Mistelis and Stefan M Kröll, *Comparative international commercial arbitration* (Kluwer Law International 2003) 552.
[100] Robert Pietrowski, 'Evidence in International Arbitration' (2006) 22 Arbitration International 373, 379.
[101] American Law Institute and UNIDROIT, 'UNIDROIT - Transnational Civil Procedure' para 21B
[102] Pietrowski (n 100) 373–410.
[103] Rolf Trittmann and Boris Kasolowsky, 'Taking Evidence in Arbitration Proceedings Between Common Law and Civil Law Traditions: The Development of a European Hybrid Standard for Arbitration Proceedings' (2008) 31 UNSWLJ 1, 333–334; Klaus Sachs, 'Use of Documents and Document Discovery: "Fishing Expeditions" Versus Transparency and Burden of Proof' (2003) 5 SchiedsVZ 193, 194.

Arbitration art. 19. This autonomy is constrained by the consent to arbitration, mandatory rules as well as international public policy including, *inter alia*, due process.[104]

Arbitral tribunals have applied a range of standards of proof in different contexts, including:

a. A default standard of preponderance of evidence, also described as balance of probabilities or – in civil law – the inner conviction test. Some investment tribunals concluded that there are no grounds for applying higher standard of proof for establishing damages;[105]
b. A higher standard of "sufficient certainty" or "reasonable certainty" for proof of loss, ensuring damages are substantiated and not speculative;[106]
c. the heightened standard of clear and convincing proof (or even reaching beyond reasonable doubt level) in cases involving "particularly sensitive allegations of wrongdoing such as conduct *contra bonos mores*", involving allegations of bribery, fraud or corruption reflecting the need for stronger proof due to the severity of the claim;
d. a lower standard, for instance, for interim measurers and in allowing the discretionary award of damages in cases where the injury suffered is proven but cannot be quantified;[107] and, somewhat controversially,
e. *prima facie* evidence, which can be the lowest standard above the level insufficient proof. It can generally be described as "evidence which, unexplained or uncontradicted, is sufficient to maintain the proposition affirmed."

While the standard of proof is not always contentious in damages claims – for example, when damage is easy to substantiate as sunk costs or the price paid in an arms' length transaction to purchase the investment – it become so when the investor seeks damages for lost future profits or cash flows. Such claims are inherently based on a hypothetical, counterfactual set of circumstances. This is conceptually different task from establishing,

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[104] Campbell McLachlan, *Commission 18: Equality of Parties before International Investment Tribunals* (Institut De Droit International 2019) 423–424.

[105] *Gold Reserve Inc v Venezuela,* ICSID Case No ARB(AF)/09/1, Award (22 September 2014) ("The Tribunal finds no support for the conclusion that the standard of proof for damages should be higher than for proving merits, and therefore is satisfied that the appropriate standard of proof is the balance of probabilities").

[106] The formulation comes from the ILC Articles on State Responsibility, para 27 of the Commentary to Article 36 in relation to proof of future loss. See also para 13, using the term "reasonable degree of certainty in relation to proof of loss generally. Using the term "sufficient certainty" see e.g. *Gemplus SA v Mexico*, ICSID Case No ARB(AF)/04/3, Award (16 June 2010) para 13.91; *Compañía de Aguas del Aconquija SA v Argentina*, ICSID Case No ARB/97/3, Award (20 August 2007) para 8.3.4; *Southern Pacific Properties (Middle East) v Arab Republic of Egypt*, ICSID Case No ARB/84/3, Award (20 May 1992) 215.

[107] Such an approach is expressly adopted in certain domestic law, such as the *Swiss Code of Obligations* (ratified 30 March 1911, entered into force 2 January 1912) (SR 22) arts 42(1–2). This is broadly consistent with the practice of the International Court of Justice in cases like *Diallo* (n 42) and *Armed Activities* (n 44), as described in Section 3, above.

whether the defendant state breached any investment treatment standard.[108] Direct evidence about whether a hypothetical event would have occurred in the past, might occur in the future, or would not have occurred at all, may be limited or entirely absent. Valuation of future profits may be relatively easy, where the investor can present a long record of (audited) financial statements. The situation is different with regard to enterprises in the process of establishment or recently established. Where such a history is absent, according to the *Vivendi* tribunal, claimant should present "a thoroughly prepared record of its (or others) successes, based on firsthand experience (its own or that of qualified experts) or corporate records"[109]. According to the ILC, "cases where lost future profits have been awarded, it has been where an anticipated income stream has attained sufficient attributes to be considered a legally protected interest of sufficient certainty to be compensable. This has normally been achieved by virtue of contractual arrangements or, in some cases, a well-established history of dealings"[110].

Since the claimant is forced to base the arguments on assumptions, and valuation ratios from comparisons with similar factual situations, some tribunals acknowledged resulting evidentiary difficulties even when "risks, costs, and revenues are conjectural, controversial, and imperfectly synchronised".[111] According to the *Achmea (I)* tribunal, "the requirement of proof must not be impossible to discharge" and "the requirement for reasonable precision in the assessment of the quantum[should not] be carried so far that the search for exactness in the quantification of losses becomes disproportionately onerous when compared with the margin of error".[112] According to several awards, when the claimant suffered a loss, an award on damages should not be denied due to inability to assess it[113] or prove exact damage.[114]

Accordingly, also the tribunals conduct estimations.[115] Where the tribunal makes its own estimates, the claimant must at least provide factual elements that enable a reasonable

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[108] *ADC Affiliate v Hungary*, ICSID Case No ARB/03/16, Award (2 October 2006) para 515; See also Arif Hyder Ali and David L Attanasio, *International Investment Protection of Global Banking and Finance: Legal Principles and Arbitral Practice* (Kluwer Law International 2021) 352–357.
[109] *Compañía de Aguas del Aconquija* (n 106) para 8.3.10.
[110] 2001 ILC Articles (n 21) art 36 comment 27.
[111] *Himpurna California Energy Ltd v PT. (Persero) Perusahaan Listruik Negara,* UNICITRAL Ad Hoc Arbitration, Final Award, (4 May 1999) reprinted in (2000) 25 YBCA 13, Albert Jan van den Berg (ed), paras 375–376; *Archer Daniels Midland Co v Mexico ,* ICSID Case No ARB(AF)/04/5, Decision on the Requests for Correction, Supplementary Decision and Interpretation, (10 July 2008) paras 40–41.
[112] *Achmea BV (formerly Eureko BV) v Slovak Republic,* PCA Case No 2008-13, Final Award, (7 December 2012) para 323.
[113] *Southern Pacific Properties (Middle East) Ltd v Arab Republic of Egypt*, ICSID Case No ARB/84/3, Award on the Merits, (20 May 1992) para 215; *Archer Daniels Midland Co v Mexico,* ICSID Case No ARB(AF)/04/5, Decision on the Requests for Correction, Supplementary Decision and Interpretation, (10 July 2008) para 38.
[114] *Sapphire v NIOC,* Ad Hoc Arbitration, Arbitual Award, (15 March 1963) reprinted in 35 Int'l L. Rev. 136, 187–88 (1963); *Ioannis Kardassopoulos v Georgia,* ICSID Case No ARB/05/18, Award, (3 March 2010) and *Ron Fuchs v Georgia,* ICSID Case No ARB/07/15, Award, (3 March 2010) para 229.
[115] *EDF International SA v* Argentina, ICSID Case No. ARB/03/23, Award (11 June 2011) para 1250.

basis for the estimation.[116] Accordingly, Gotanda argues that the existence of damages must be evidenced with reasonable certainty, but a lower standard of proof applies in relation to the quantum of damages (in order not to skew the arbitration in favour of the wrongdoer).[117] Insofar as Gotanda's view extends to the proof of lost future profits, it differs markedly from the position under customary international law, where the ILC Articles on State Responsibility suggest that the higher standard of "sufficient certainty" applies.

Controversially, some tribunals award damages also for the loss of an opportunity, where the investor's loss is sufficiently clear even though a claims for loss of profits was not sufficiently established – in such cases tribunals awarded expected value of the lost opportunity.[118] For instance, the *Gemplus* tribunal acknowledged that "the concept of certainty is both relative and reasonable in its application", yet as it should "be adjusted to the circumstances of the particular case", which in the case at hand prevent the tribunal from valuating the lost opportunity, it awarded damaged based on "the exercise of its arbitral discretion".[119] Although the principle of damages for loss of opportunity is firmly established in certain legal systems,[120] it isn't a universal approach. Accordingly, other argue that also damages should be proved with reasonable certainty in order not to award speculative compensation.[121]

5. Arbitrators' Technical Competence to Engage with Valuation

Sections 3 and 4 have shown that much of the debate about the appropriate use of valuation methods in treaty-based ISDS stems from *legal* questions – notably, questions relating to the extent to which loss of expected future income is compensable under international law, the requirement of causation and the relevant standard of proof. Beyond these legal questions, both academics and practitioners have raised additional concerns about arbitrators' technical proficiency in understanding and applying various valuation techniques. For example, Robert Volterra – an experienced arbitrator – has been quoted as saying:

> Most arbitrators sitting in investment treaty cases have only the vaguest idea of what is quantum, apart from a theoretical abstract, how it is calculated, how it relates to business activity and commerce[122]

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[116] Tethyan Copper (n 83) para 298.
[117] John Yukio Gotanda, 'Assessing Damages in International Commercial Arbitration: A Comparison with Investment Treaty Disputes' (2007) 6 TDM, 5–6.
[118] Sergey Ripinsky and Kevin Williams, *Damages in International Investment Law* (BIICL 2008) 291.
[119] *Gemplus* (n 106); *Talsud SA v Mexico,* ICSID Case No ARB(AF)/04/4, Award, (16 June 2010) paras 13–100.
[120] UNIDROIT, *Principles of International Commercial Contracts* (2016) art 1.6(2).
[121] Mark Kantor, *Valuation for Arbitration: Compensation Standards, Valuation Methods and Expert Evidence* (Wolters Kluwer 2008), 72–78.
[122] Robert Volterra quoted in Juan Carlos Boué "'Lying with numbers" in international arbitration against states' (2024) 15 JIDS 5, 15.

Irmgard Marboe – author of one of the leading authorities on compensation and damages in ISDS – puts a similar point more diplomatically. Noting that tribunals often struggle with questions of compensation and valuation she explains that "[t]he particular challenge here is that the arbitrators must recur to economic principles and techniques which they – as lawyers – are not necessarily familiar with."[123]

One difficulty in assessing these concerns is that the internal deliberations of tribunals remain confidential. Moreover, for the vast majority of ISDS cases, the evidence that forms the basis for the tribunal's decision on quantum – including evidence of the instructions disputing parties have given to their valuation experts, the reports of these valuation experts, and the underlying business records on which these reports are based – also remain confidential. With these significant limitations in mind, this section draws on two main sources of information. The first is a detailed qualitative study of arbitrators' engagement with complex valuation evidence by Tobias Traxler. Second, is a series of ISDS awards that, on their face, raise serious questions about arbitrators' understanding of the basic underpinnings of valuation methods that they have endorsed.

Over the course of a four-year research project, Traxler interviewed 49 arbitrators and counsel in treaty-based ISDS.[124] Interviewees were granted anonymity to allow them to speak openly about their experiences. Although the early interviews were not designed to focus specifically on questions of damages and valuation, these topics emerged repeatedly in Traxler's interviews, to the extent that they became a central focus of his research over time.

Traxler's findings are nuanced. He points to important differences between arbitrators' technical competence – for example, his data suggest that those with a background in commercial practice are likely to have greater technical proficiency in valuation. Nevertheless, the overall findings raise serious questions about whether arbitrators are suitably qualified to evaluate more technically complex forms of valuation evidence that are now regularly presented in treaty-based ISDS. In particular, his interviewees repeatedly highlighted arbitrators' lack of capacity to evaluate DCF valuations produced by the parties, due to the inherent complexity of these valuation methods and the extent to which they rely on speculative and often non-transparent judgments and predictions as inputs.[125]

These concerns are borne out by ISDS awards in practice. For example, in the well-known case of *Tethyan Copper v Pakistan*, the tribunal adopted a so-called 'modern' DCF valuation method. Conceptually, a modern DCF method allows a valuer to use risk-

[123] Irmgard Marboe, 'Valuation in Cases of Expropriation' *in* Marc Bungenburg and others (eds), *International Investment Law: a Handbook* (C.H. BECK 2015) 1059.
[124] Tobias Traxler, 'Explaining Damages Valuation: How Counsel and Experts Leverage Arbitrators' Knowledge Gaps in Investment Arbitration' (2025), copy on file with authors
[125] ibid

adjusted inputs in estimating an investment's future cashflows – for example, risk-adjusted projections of future commodity prices. Having accounted for the risk of variation in these components of an investment's future cashflow projections, it is no longer necessary to incorporate the risk of variation in these specific elements that underpin the cashflow projections into the discount-rate.[126] On the basis of this valuation method, the tribunal awarded the investor USD 4.1 billion in damages plus interest for Pakistan's failure to approve the development of a mine that was never actually built.

The decision in *Tethyan Copper* has been justifiably criticised on a range of grounds.[127] For present purposes, the decision also reveals the tribunal's misunderstanding of the conceptual foundations of the modern DCF method that it adopted. As Traxler notes, the claimant's expert relied on commodity futures markets to estimate the price of gold, copper and oil for the first 10 years of the project.[128] Beyond that period, the claimant simply 'extrapolate[d] the forward market curve'.[129] Because the project would have taken roughly seven years to develop, these extrapolated prices covered the vast majority of the estimated future operating life cycle of the (hypothetical) future mine. The tribunal seems to have understood that these price extrapolations were not – conceptually – equivalent to risk-adjusted predictions of future prices,[130] yet still failed to grasp the basic point that the absence of risk-adjusted inputs in the case meant that the necessary conditions for adopting a modern DCF method were not met.[131] Instead, the tribunal applied an entirely arbitrary *post hoc* reduction of 25% to the claimant's valuation,[132] a reduction that was almost certainly far less than would have been implied if the risks had been accounted for within the model itself.

Another high-profile case that raises profound questions of arbitrator competence is *P&ID v Nigeria*. It is important to bear in mind that this case involved *contract-based* ISDS and that the award in the case has subsequently been set aside by English courts, on account of fraud on the part of the investor.[133] Nevertheless, because the underlying facts of the case are similar to those that arise in treaty-based ISDS, and because at least one

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[126] 'Modern DCF' (*Damages in Arbitration*) <https://icca-asil-damages.com/articles/modern-dcf> accessed 21 February 2025.

[127] At the most basic level, it is difficult to understand how cashflow predictions for a period of almost 60 years into the future could form a reliable basis for valuing a non-existent mine, bearing in mind the range of risks and uncertainties that the proposed project was subject to, including the need for further negotiation and agreement with the host state, the need for development of parallel infrastructure to ensure the mine's viability, and the ongoing security and political context in Balochistan.

[128] Traxler (n 124).

[129] Tethyan Copper (n 83) para 1514.

[130] ibid para 1506.

[131] *Similarly* Juan Carlos Boué, 'The Investor-State Dispute Settlement Damages Playbook: to Infinity and Beyond' (2023) JWIT 24, 382–3.

[132] *Tethyan Copper* (n 83) para 1521.

[133] *Nigeria v Process and Industrial Development* (2023) EWHC 2638, Judgment, [574].

of the arbitrators in *P&ID v Nigeria* also acts as an arbitrator in treaty-based ISDS, the case retains some relevance to wider discussions about valuation in treaty-based ISDS.

The case concerned a planned gas processing facility in Nigeria that was never built. In the arbitration, the investor argued successfully that it stood ready to proceed with the construction of the facility but that it had been unable to do so, due to Nigeria's breach of contract. The tribunal accepted the investor's argument that damages (for breach of contract, under Nigerian law) should be valued using the DCF method, on the basis of estimates of the cashflows that the project would have generated if it had gone ahead. On this basis, a majority of the tribunal awarded USD 6.6 billion in compensation, plus interest.

The award is open to criticism on a number of grounds, including on the grounds that any use of DCF was entirely inappropriate given the absence of credible business planning of the sort that could provide a basis for estimates of the (hypothetical) future investment's likely future cashflows. For present purposes, a more specific but equally serious concern was the majority's adoption of the claimant's expert recommendation that a discount rate of 2.65% – equivalent to the 'risk free rate' on US Treasury Bonds[134] – should be used in the course of arriving at a value using the DCF method.

Application of a discount rate of 2.65% is so far outside the range of plausible discount rates that might be used in valuation as to raise questions of basic professional competence.[135] The tribunal justified its choice of 'risk free' rate on the basis that 'the main risk is that for one reason or another the Government will not perform its [contractual] obligations'.[136] While the tribunal may have been justified to exclude the risk of breach of contract from the discount rate, the suggestion that this implies the adoption of a risk-free rate shows profound misunderstanding of the role of the discount rate in DCF valuation.[137] The concept of 'risk' in this context refers to any possibility that the cashflow might turn out to be different to its predicted value.[138] Conceptually, the discount rate captures the full range of risks to the projected cashflows that are not already fully reflected in risk-adjustments to the cashflow projections themselves, including risks that the investor would have borne under the contract, such as the risks that the costs of building and operating the plant might exceed the claimant's estimates, the possibility of delay or interruption from reasons other than breach of contract by the respondent, and the possibility of unanticipated events, including those referred to in the

[134] *Process and Industrial Development v Nigeria*, Ad Hoc Arbitration, Case No 1:18-cv-00594, Final Award, (31 January 2017) para 107.
[135] *Similarly* Boué (n 122) 16.
[136] *P&ID* (n134) para 107.
[137] For an explanation of how to build a discount rate that illustrates the seriousness of the tribunal's error, see Kai F Schumacher and Henner Klönne, 'Discounted Cash Flow Model' in Christina Beharry (ed) *Contemporary and Emerging Issues on the Law of Damages and Valuation in International Investment Arbitration* (Brill 2018) 217-226.
[138] ibid 220.

contract's *force majeure* clause. Put simply, no sane investor would regard investing in the construction and development of a gas processing facility in Nigeria as being as safe as investing the same amount in US Treasury Bonds.

In conclusion, it is important to recall the caveats noted at the start of this Section. The internal deliberations of tribunals remain confidential, which makes it difficult to assess arbitrators' technical competence in understanding and applying valuation techniques. There is also – naturally – variation among arbitrators' level of technical proficiency. Nevertheless, the material reviewed in this Section raises real questions about some arbitrators' ability to critically evaluate more complex forms of valuation evidence, particularly valuation based on the DCF method. These questions of expertise are also relevant to the drafting of any future guideline on the assessment and calculation of damages. These limits of expertise imply that, all other things being equal, arbitrators should favour simpler and more transparent valuation methods over the use of more complex and opaque methods.

6. Draft Options for a Future Guideline on the Assessment and Calculation of Damages

In light of the analysis in previous sections, this section suggests some possible principles that could be considered by states participating in UNCITRAL WG III for inclusion in a future guideline on the assessment and calculation of damages and compensation. These suggestions are not intended as a full draft of such a guideline. Nor do they seek to restate elements already captured in *Draft Provision 20: Assessment of damages and compensation* of WP.244.[139] As a result, some elements are not discussed, even though they are potentially important to the calculation of compensation, such as interest and the date of valuation. Rather, the principles seek to respond to concerns articulated within Working Group III concerning both the consistency and the correctness of the existing practice of ISDS tribunals in relation to assessment and calculation of damages.

High-level principles governing damages under international law

1. **The relationship between treaty rules and customary international law** Where a treaty specifies the consequences of a breach of its own terms, the provisions of the treaty prevail over rules of customary international law.

Commentary: This principle clarifies the basic principle of *lex specialis* under international law – that treaty rules prevail over background rules of customary international law. This principle preserves the ability of states, through their treaty

[139] UNICITRAL (n 5).

practice, to specify and amend over time the rules that govern damages and valuation. It should be noted that many treaty regimes – such as the WTO agreements – establish their own rules on compensation and remedies that do *not* reflect the principle of full reparation. This is legitimate and appropriate exercise of states' sovereign power to enter into treaties under international law.

2. **Full reparation as a default principle** Full reparation is a default principle governing remedies under international law. In the absence of a treaty rule specifying the remedy for breach of an obligation arising under that treaty, a tribunal should apply the principle of 'full reparation' as the relevant default principle under customary international law.

Commentary: Article 33(2) of the ILC Articles on State Responsibility clarifies that the principle of full reparation is a principle of customary international law that applies in cases of State responsibility as between States and 'without prejudice to any right, arising from the international responsibility of a State, which may accrue directly to any person or entity other than a State.' Nevertheless, the practice of arbitral tribunals has been to transpose the principle of full reparation to investor-state disputes. Without taking any position on the correctness of this transposition – which remains controversial – WG III has agreed that further work on questions of damages and valuation techniques should proceed on the assumption that the principle 'full reparation' should apply in the case of treaty-based ISDS claims where the treaty in question fails to specify the remedial consequences of a breach.

3. **Full reparation is a principle of international law** As a principle of international law, the principle of full reparation should be applied in accordance with international law.

Commentary: One concern with ISDS is that some tribunals have applied the principle of full reparation in ways that are untethered from the principles of international law that govern and modulate the application of that principle. For example, Section 4 (above) shows that some tribunals have paid lip service to the principle of full reparation and then gone on to apply that principle without regard to principles of international law that define the range of losses that are recoverable, that specify the standards of causation and that clarify the relevant standards of proof. Principle 3 seeks to restate something should be uncontroversial – full reparation is a principle that takes its authority from international law; it should, therefore, be applied according to international law.

It follows that, in applying the principle of full reparation, ISDS tribunals should place greater weight on the sources of international law, such as customary international law

(state practice and opinio juris) and general principles of law. Where available, tribunals may also draw upon subsidiary means for the determination of rules of law, including decisions of international courts and tribunals, in particular of the International Court of Justice. The weight of decisions of earlier ISDS tribunals should be assessed in light of, inter alia, the quality of the reasoning and the reception by states and other entities.[140]

Mid-level legal principles relevant to the choice and application of valuation methods

4. **Scope of Compensable Loss** The allocation of injury or loss to a wrongful act is, in principle, a legal and not only a historical or causal process. Factors such as the foreseeability of the loss and its proximity to the breach are relevant in determining whether loss is compensable.

Commentary: The first sentence of this principle reproduces text directly from the Commentary to the ILC Articles on State Responsibility. It seeks to highlight the relevance of mid-level legal principles in framing the assessment of damages. The second sentence seeks to provide a non-exhaustive illustration of such principles, drawing again on the Commentary to the ILC Articles on State Responsibility. Some academic commentators have argued that the different mid-level principles that clarify the scope of compensable loss are rival alternatives to each other, in the sense that the operation of one principle (e.g. foreseeability) means that there is no room for the operation of another (e.g. proximity).[141] In contrast, the drafting here follows the ILC Articles on State Responsibility in seeing these principles as operating together, which is also consistent with operation of mid-level principles in several national legal systems,[142] on the basis that different principles perform different functions.

The drafting of this principle does not seek to identify and fully define every mid-level principle that may be relevant under international law. States in Working Group III may wish to consider further clarification in this regard.

5. **Causation**. A State is liable for damage resulting directly from conduct that constitutes a breach of the State's obligations to an investor; not for all 'damage' resulting from conduct of the State.

[140] See, similarly Anthea Roberts, 'Power and Persuasion in Investment Treaty Interpretation' (2010) 104 AJIL 179, 190; ILC, Subsidiary means for the determination of rules of international law, (Geneva, 4 August 2023) UN Doc A/CN.4/L.985, draft conclusion 3.
[141] See, for example, Lanovoy (n 64) 46-47.
[142] See text to n 62.

Commentary: This principle addresses and seeks to resolve inconsistency in arbitral practice, particularly in relation to damages flowing from breach of the fair and equitable treatment standard. This principle adapts language from the award in *Kruck v Spain*,[143] and reflects similar proposals made by Martin Jarrett that a state should be liable for the damage directly caused by the wrongful aspect of the relevant conduct.[144]

6. **Standard of proof** A claimant must establish that it has suffered compensable damage to the standard of 'reasonable certainty' in order to justify an award of damages. This is a more demanding standard than 'the preponderance of evidence'. This standard applies to both the fact of damage and the quantum of damage.

Commentary: ISDS tribunals have been inconsistent in their approach to the standard of proof. This has been a source of controversy, particularly as it relates to the proof of lost future profits and the related question of the appropriate use of income-based valuation methods. The principle stated here aims to reflect the approach in international law, as explained in Section 3. The practical implication of this standard of proof is to make it difficult for a party to recover for lost future profits, unless it can establish that:

> an anticipated income stream has attained sufficient attributes to be considered a legally protected interest of sufficient certainty to be compensable. This has normally been achieved by virtue of contractual arrangements or, in some cases, a well-established history of dealings.[145]

While some ISDS tribunals have departed from the approach that should prevail under international law, it is the practice of ISDS tribunals, not the practice of international courts and tribunals, that is the outlier in this regard. For example, the first two sentences in this principle are consistent with the *Unidroit Principles of International Commercial Contracts* (2016), which provide that "Compensation is due only for harm, including future harm, that is established with a reasonable degree of certainty."[146]

The formulation proposed in the third sentence of this principle, however, differs from the *Unidroit Principles of International Commercial Contracts*.[147] The main context in which questions of proof of the quantum of damage arise in treaty-based ISDS are in claims where the investor seeks to recover alleged loss of future profits and, in this context, customary international law is clear that a high standard of proof applies. The need for

[143] *Kruck v Spain,* ICSID Case No ARB/15/23, Decision on Jurisdiction, Liability, and Principles of Quantum (14 September 2022) para 354.
[144] Jarrett (n 30) 138-139.
[145] 2001 ILC Articles (n 21) Commentary to art 36, para 27.
[146] UNIDROIT (n 120) art 7.4.3.
[147] ibid (n 120) leave open the possibility that a lower, discretionary standard of proof might be applied in relation to determining the quantum damage

heightened standard of proof in this context is consistent with the approach of domestic courts in comparable domestic cases. For example, the ICA-ASIL Taskforce on Damages in International Arbitration explains that:

> Where a party attempts to reclaim lost profits, courts have more rigidly enforced the requirement for proof to a reasonable certainty. For example, lost profits caused by the breach of a contract to produce a sporting event or theatrical or musical performance have been deemed too uncertain for recovery, even where evidence as to profits adduced from comparable events or performances is provided. An established business claiming lost profits on transactions of a kind that it has already performed may be able to recover on the basis of evidence of profits previously earned. A new business, however, has traditionally been unable to produce sufficient evidence to be able to recover claimed lost profits (the so-called "new business" rule).[148]

7. **Relationship of damages for breach of a treaty obligation to underlying contractual rights that constitute the investment** In circumstances where a state's breach of an investment treaty arises from interference with, or abrogation of, an investor's rights under a contract between the investor and the host state, an international tribunal cannot award damages that exceed what the investor would have been entitled to for breach or repudiation of the underlying contract, as determined according to the law governing that contract.

Commentary: A contract represents an agreed, project-specific allocation of risk as between two parties. Where an investor and a host state enter into a contract, the 'investment' is the investor's bundle of contractual rights as defined under the applicable law governing the contract, including the investor's right to recover damages in the event of breach or repudiation. An investment treaty may protect those rights as an investment, but it cannot enlarge or expand the underlying investment. The alternative view – that an investor should be able to recover all 'damage' caused by an interference with contractual rights, notwithstanding an agreed damages clause in the underlying contract – would have the effect of substituting a better set of rights for those that actually constituted the investor's investment.[149]

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[148] 'Standard of Proof' (*Damages in Arbitration*) <https://icca-asil-damages.com/articles/standard-of-proof-2> accessed 21 February 2025.

[149] Julian Arato, 'The Private Law Critique of International Investment Law' (2019) 113 AJIL 1, 26–7; *Similarly* Borzu Sabahi, Kabir Duggal and Nicholas Birch, 'Limits on Compensation for Internationally Wrongful Acts' in Marc Bungenburg and others (eds), *International Investment Law: A Handbook* (C.H. BECK 2015) 1127.

8. **Role of Equitable Considerations** In choosing between competing, plausible valuation methods, a tribunal may take into account equitable considerations. These include the economic situation of the respondent State, the extent to which the investment has contributed to the development of the respondent State, the extent of profits already earned by the investor through the operation of the investment, the extent to which the award of damages beyond a certain amount would unjustly enrich the investor, and the potential crippling effect of the award on the respondent State and its people

Commentary: Equitable considerations play an important role in the remedial practice of the International Court of Justice and reflect the wider 'concern to reach an equitable and acceptable outcome' in customary international law on state responsibility.[150] In this context, equitable considerations are applied within the boundaries of the law, rather than as an alternative to legal determination.[151] The drafting of this principle is intended to reflect this role for equitable consideration within the framework of law, as distinct from a power to determine damages *ex aequo et bono*.

The articulation of the principle here reflects Wälde and Sabahi's view that:

> Tribunals ultimately, when choosing between competing and equally plausible and legitimate valuation methods, and in weighing the significant assumptions (in particular, discount rate and risk factors) underlying such models, cannot avoid exercising discretion. This is where they will be influenced by equitable considerations. For transparency purposes, it is better if they acknowledge their reliance on equitable principles.[152]

It also seeks to responds to legitimate concerns articulated within WG III that some ISDS tribunals have approached the assessment of damages is ways that are disconnected from the wider context of the dispute, including the consequences that complying with the award would have the Respondent state.[153]

Guidelines relating to use of particular valuation methods

[150] 2001 ILC Articles (n 21) commentary (7) to art 36.
[151] Catharine Titi, *The Function of Equity in International Law* (OUP 2021) 185-193. See also, Brinkman 'Redefining Compensation under International Law: the Methodology of the International Court of Justice in *DRC* v *Uganda*' 87(3) Modern Law Review 728, 733 discussing the ICJ's recourse to equitable considerations in the determination of damages in *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo* v *Uganda)*.
[152] Wälde (n 72) 1105.
[153] See also Paparinskis (n 32); Oliver Hailes, 'Unjust enrichment in investor–State arbitration: A principled limit on compensation for future income from fossil fuels' (2022) 32 RECIEL 2.

9. **Use of income-based valuation methods in general** Income-based valuation methods are not generally appropriate for valuing damage suffered by investments that have no record of generating income.

Commentary: This principle endorses the traditional position under international law: that income-based valuation methods, such as DCF, are not generally a reliable method for valuing businesses that have no established record of generating income. Some ISDS tribunals have departed from this position on the basis that income-based methods are sometimes used in business contexts to estimate the value of planned investments that are not yet operational. While it is true that income-based methods are sometimes used in a business context, this is not sufficient to justify their use in valuing early-stage projects in ISDS for at least two reasons. First, the legal principles governing the scope of compensable loss, causation and the standard of proof under international law limit recovery of projected losses indefinitely into the future. Second, as an evidentiary matter, the use of DCF to inform a business's internal strategic decision-making is institutionally constrained in a range of ways that the use of DCF in contested ISDS proceeding is not. Put simply, a person or business unit that proposes a valuation for business purposes will ultimately have to answer for their analysis – for example, in the event that wildly optimistic cashflow predictions or the application of an uncommercial discount rate lead an investor to proceed with an investment that turns out to be unprofitable. There is no equivalent mechanisms for accountability associated with the use of DCF in ISDS proceedings.

10. **Relevant components of the discount rate in DCF** Insofar as the DCF method is used to value an investment that has a record of generating income, all elements of 'country risk' for the Respondent state should be included in the discount rate, save those that reflect the risk of specific conduct in relation to the investor's investment that would be clearly wrongful under the treaty in question.

Commentary: This principle addresses another area of controversy in valuation practice in ISDS, which was discussed in the Academic Forum's earlier paper on 'Damages and ISDS Reform'.[154] The 'country risk' component of the discount rate should reflect the possible impacts on the investment of war, civil disorder, macro-economic instability, currency change, regulatory change, regime change, etc., as well as risks arising from the Respondent state's general propensity to expropriate. This reflects the principle of 'full reparation', according to which the key point of reference is the position the investor would have been in 'but for' the breach; if the Respondent state had not breached an investment treaty, the investor-claimant would still have been subject to all such risks.[155]

[154] Bonnitcha and others (n 8) 227–8.

[155] Markus Burgstaller and Jonathan Ketcheson, 'Should Expropriation Risk Be Taken into Account in the Assessment of Damages?' (2017) 32(1) ICSID Review – Foreign Investment Law Journal 193, 214.

However, the risk of specific conduct in relation to the investor's investment that breaches the treaty in question should be excluded. This is to avoid a state from driving down the value of an investment through conduct that the treaty is designed to prevent.[156]

11. **Evidence relating to the appropriate discount rate in DCF** Insofar as the DCF method is used to value investments that have a record of generating income, evidence of the hurdle rate used by investors to evaluate similar investment projects is relevant in determining an appropriate discount rate

Commentary: Insofar as DCF is used in ISDS, the determination of the discount rate remains controversial, and can have a large impact on the amount of damages ultimately awarded. When a DCF valuation model is used in a real commercial context (as opposed to DCF valuations prepared for the purposes of arbitration/litigation), the hurdle rate refers to the minimum internal rate of return that an investor, themselves, would need to expect on an investment to proceed with (or acquire) the investment, in light of the cost of capital, and country and project-specific risks associated with the investment. As such, the hurdle rate is direct evidence of the present value that a commercial actor with 'skin in the game' ascribes to projections of a future stream of cashflows associated with an investment.

It is well established as a matter of empirical valuation practice that firms regularly use hurdle rates that are higher than standard measures of the cost of capital, such as the Weighted Average Cost of Capital (WACC).[157] From a theoretical perspective this presents a conundrum, as it means that firms are passing up opportunities to make investments that would appear to have positive net present values if they were valued according to the DCF method using lower discount rates closer or equal to the firm's WACC.[158] But this conundrum is largely a problem of a theory not of practice,[159] and points to firms' own caution in relying on DCF valuations as a tool to inform decision-making in real commercial contexts, particularly when the projected cashflows are increasingly distant in the future.[160] Insofar as it is possible to tell, it seems that firms use

[156] Ibid 215.

[157] John R Graham, 'Presidential Address: Corporate Finance and Reality' (2022) 77(4) Journal of Finance 1975, 1988-1990. See also Kevin Lane and Tom Rosewall, 'Firms' Investment Decisions and Interest Rates', [2015] (2) Reserve Bank of Australia Bulletin 1, 3 and Michael Mauboussin and Dan Callahan, *Cost of Capital and Capital Allocation Investment in the Era of "Easy Money"* (Morgan Stanley 2024) <https://www.morganstanley.com/im/publication/insights/articles/article_costofcapitalandcapitalallocation.pdf> accessed 26 February 2025.

[158] Graham (n 157) 1988.

[159] Similarly, Mauboussin and Callahan (n 157) 1, arguing in that 'in theory there is no difference between theory and practice, while in practice there is.'

[160] Indeed, many firms say that they 'often ignore cash flows that are some distance in the future (say, beyond five years)', Lane and Rosewall (n 157) 5.

high hurdle rates to correct for the inherent 'optimism bias in [the] cash flow projections.'[161]

One concern with existing valuation practice is that tribunals appear to apply discount rates that are significantly lower than the hurdle rates that commercial actors would use in equivalent real-world contexts,[162] which has the effect of inflating the value of damages. This principle directs tribunals to pay much closer attention to the ways that real commercial actors seek to account for the uncertainty and speculation inherent in DCF valuation.

12. **Use of cost-based valuation methods** In some cases, evidence of unrecoverable costs incurred by an investor in making an investment may be the best evidence of the extent of damage suffered by the investor. However, any award of damages based on an investor's sunk costs must be legally justified – for example, in light of legal requirements relating to causation and the standard of proof.

Commentary: This principle recognizes that, in some circumstances, evidence of unrecoverable costs incurred by the investor may be the best available evidence of the damage suffered by that investor due to the State's breach of the treaty. The principle also clarifies that damages based on sunk costs should not be awarded by default, or as a 'split-the-baby' outcome. An investor must still meet the legal requirements necessary to justify an award of damages based on sunk costs, including by proving, to the applicable standard of proof, that the damage in question was caused by the breach.

13. **Use of multiple valuation methods** Where possible, it is good practice to cross-check a valuation arrived at by a method that a tribunal is considering adopting by comparing it to valuations derived from other credible valuation methods. Such cross-checking is especially important in cases where a tribunal proposes to adopt a forward-looking valuation method.

Commentary: Different valuation methods have different strengths and limitations. As such, it is good practice to cross-check a valuation obtained through one method through

[161] Lane and Rosewall (n 157) 3. Similarly, Mauboussin and Callahan (n 157) 4, arguing that

> [E]xecutives suffer from a form of overconfidence called "overprecision," defined as excessive certainty in the accuracy of one's judgment." And they commonly forecast ranges of outcomes that are too optimistic. This is the main reason financial executives use a hurdle rate that is higher than the cost of capital: it helps cushion the blow of rosy forecasts. Financial executives are fine with using a hurdle rate well above the cost of capital because they are aware that the projected returns are generally too high on the investments they approve.

[162] Boué (n 122) 17.

the use of other credible valuation methods.[163] The language proposed here articulates a general principle favouring cross-checking, as opposed to mandatory requirement to carry out cross-checks. This reflects the fact that multiple credible valuation methods may not always be available on the facts of a case. The advantages of cross-checking should also be weighed against other considerations, such as the costs and length of proceedings.

Cross-checking is especially important when a tribunal is proposing to adopt a forward-looking valuation method – particularly income-based methods and more complex forms of market-based methods (such as those where an investment's value is derived from market multiples, rather than from prior arms' length transactions relating to the investment itself). This is both because of the inherent complexity of such methods, and because the value implied by the use of such methods is often highly sensitive to apparently minor adjustments to the inputs to the valuation model.[164] The importance of cross-checking in this context has been recognised by international courts and tribunals. For example, the Iran-US Claims Tribunal expressed a preference for using asset-based approaches to verify the findings reached by income-based valuation methods.[165]

[163] Multiple tribunals have recognised this. For example, *DTEK v Russia*, PCA Case No 2018-41**,** Award, (1 November 2023) para 950-51, cf. Separate Opinion on Quantum (1 November 2023) para 1. See also *Crystallex v Venezuela* (n 82) paras 886-888.

[164] For example, the *International Private Equity and Venture Capital Valuation Guidelines* acknowledges that DCF method has some strengths, but notes that:

> The disadvantages of the DCF technique centre around its requirement for detailed cash flow forecasts and the need to estimate the 'terminal value' and an appropriate risk-adjusted discount rate. All of these inputs require substantial subjective judgements to be made, and the derived present value amount is often sensitive to small changes in these inputs.

On this basis, it cautions against the use of DCF in isolation. *International Private Equity and Venture Capital Valuation Guidelines* (IPEV 2022) <https://www.privateequityvaluation.com/Portals/0/Documents/Guidelines/IPEV%20Valuation%20Guidelines%20-%20December%202022.pdf> accessed 27 February 2025.

[165] *Phillips Petroleum Company Iran v Iran*, IUSCT Case No 39, Award No. 425-39-2 (29 June 1989) paras 111-116.