Chapter from ***Damages in International Arbitration under Complex Long-term Contracts***
by Herfried Wöss, Adriana San Román Rivera, Pablo Spiller, and Santiago Dellepiane
Published: February 2014, 384 Pages, ISBN: 9780199680672.

DAMAGES IN INTERNATIONAL ARBITRATION UNDER COMPLEX LONG-TERM CONTRACTS

Herfried Wöss,
Adriana San Román Rivera,
Pablo T. Spiller,
Santiago Dellepiane

OXFORD
UNIVERSITY PRESS

OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP,
United Kingdom

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide. Oxford is a registered trade mark of
Oxford University Press in the UK and in certain other countries

First Edition published in 2014

Impression: 1

Published in the United States of America by Oxford University Press
198 Madison Avenue, New York, NY 10016, United States of America

British Library Cataloguing in Publication Data

Data available

Library of Congress Control Number: 2013950203

ISBN 978–0–19–968067–2

Printed in Great Britain by
CPI Group (UK) Ltd, Croydon, CR0 4YY

1

INTRODUCTION

1.01 This work aims to provide an in-depth analysis of the legal, financial, and economic issues involved in the preparation of claims and arbitral awards for damages for the breach of complex long-term contracts in international arbitration, and to provide guidelines for attorneys, financial and economic experts, and arbitrators, in order to overcome the challenges faced when preparing a damages claim or an arbitral award. In particular, it examines the way in which general principles of damages law have to be applied to the determination and the assessment of damages under complex long-term contracts.

1.02 Chapter 2 analyses the following question: 'What is the standard for compensation?' As explained by Professor Hersch Lauterpacht, states were originally reluctant to provide full compensation, however, at the beginning of the twentieth century, both the award of lost profits and the full compensation principle were already duly recognized, as shown by the well-known *Factory at Chorzów* case, which reflected contemporary state practice.[1] Full compensation nowadays is considered a general principle of law and it is also the international customary law standard.

1.03 The principle of full compensation, which is the leitmotiv running throughout this work, leads to the next question: 'Full compensation of what?'. In his seminal analysis of the 'Doctrine of Interest' in 1855, Professor Friedrich Mommsen developed the notion of interest through the so-called differential hypothesis, which is the difference between the economic situation with and without the breach of contract. This refers to the 'expectation interest' as further developed by Rudolf von Jhering. Nowadays, the expectation interest is the difference between the hypothetical and the actual economic situations after the application of limitations, and which can be proved through the evidence available, which leads to the compensation of the actual loss. This doctrine has spread throughout Europe, and was introduced by Professor Lon L. Fuller and his assistant William Perdue in the USA in 1937 and raised to perfection under the notion of the '*but-for*' premise in antitrust damages

[1] Hersch Lauterpacht, *The Development of International Law by the International Court* (Cambridge University Press 1958) 315–16.

claims in that country. The compensation of the expectation interest corresponds to full compensation and is used in international arbitration, as will be shown in examples throughout this book. Full compensation of the actual loss avoids over- and undercompensation. This book will examine in detail how legal, procedural, and quantification issues may affect the principle of full compensation and how both under- and overcompensation will be unfair to one of the parties.

1.04 Chapter 2 also examines the role, function, and importance of damages law. It outlines the relevance of compensation of losses caused by the breach of a contract or an illegal act, which is necessary for the proper functioning of any legal, social, and economic system. It provides an overview of the historic development from the commutative and distributive justice of Aristotle as applied by Roman law and further developed by the late scholastics in the Middle Ages, through to contemporary legal scholars and eminent economists, where the underlying notions with respect to compensation are fairness and justice. These provide the necessary legitimation to any legal rules on damages. Fairness is the guiding principle on which this book is based. However, as a subjective notion it needs to be translated into verifiable standards.

1.05 Chapter 3 starts with an overview showing that large infrastructure projects such as water distribution, railways, the Gotthard tunnel, and the Suez Canal were financed and operated by private parties, which predominantly owned and operated infrastructure until the early twentieth century. Thereafter, the first and second World Wars and de-colonization led to massive nationalization. The situation changed again in the 1970s with the appearance of the first Build-Operate-Transfer (BOT) projects in Turkey. This led to the Private Finance Initiative (PFI) in the UK in 1992 and the promulgation of Public Private Partnerships (PPPs) around the world. In 1996 the United Nations Industrial Development Organization (UNIDO) published the *Guidelines for Infrastructure Projects through Build-Operate-Transfer Projects* ('the UNIDO BOT Guidelines') and a significant contribution was made by the United Nations Commission on International Trade Law (UNCITRAL) through its *Legislative Guide on Privately-financed Infrastructure Projects* published in 2001 ('the UNCITRAL Legislative Guide') to assist countries in reforming their legislations in order to make them suitable and attractive for privately-financed infrastructure projects in order to promote economic growth and welfare. During the last decades, the need for the provision of public infrastructure and services by private parties has increased exponentially, supported by multilateral institutions such as the World Bank, UNIDO, UNCITRAL, regional development banks such as the Inter-American Development Bank, and other multilateral and regional institutions. According to Professor Don Wallace Jr, private participation in infrastructure and the provision of public services is inevitable and difficult.

1.06 Complex long-term contracts used in project agreements for privately-financed infrastructure projects in order to provide public infrastructure and services

through private parties, such as PPP or BOT projects, are of primordial importance for the world economy and disputes often result in high-profile and high-value damages claims in commercial and investment arbitrations. Therefore, they will be analysed in chapter 3 together with private-to-private complex long-term contracts, which are found in industrial joint venture agreements, telecommunications, air-space, and other high-technology projects.

1.07 As shown in chapter 3, whereas detailed international rules have been developed in the area of public procurement, models for complex long-term contracts have been left to private institutions such as FIDIC (International Federation of Consulting Engineers, for its acronym in French), ICC (International Chamber of Commerce), and other institutions, which are mostly limited to construction contracts. In 2008, FIDIC published the *FIDIC Conditions of Contract for Design, Build and Operate Projects*, which are useful for a particular type of privately-financed infrastructure projects. A fully fledged contract model for PPPs can be found in the UK in HM Treasury's *Standardisation of PFI Contracts*, which served as a model for the first Mexican PPPs. Contract guidelines are provided by the World Bank PPP in Infrastructure Resource Center. The development and the most important legal documents, contract models, and legislative and contract guidelines for privately-financed infrastructure projects are examined in this book. Both legislative and contract guidelines and model contracts contain interesting provisions reflecting fair practices for the award of damages in case of breach of contract, using contractual mechanisms.

1.08 Complex long-term contracts for private and public infrastructure projects are the domain of project finance lawyers and experts. Project finance is a legal and financial discipline originally developed in the USA. It was used for oil and gas projects in the 1970s and later extended to power plant projects, roads, railways, bridges, telecommunication facilities, and water treatment plants. It is based on a 'nonrecourse or limited recourse financing structure in which debt, equity and credit enhancement are combined for the construction and operation, or the refinancing, of a particular facility in a capital-intensive industry, in which lenders . . . rely on any revenue-producing contracts and other cash flow generated by the facility. . . '.[2] In essence, project finance is about the contractual and financial mechanisms used to make a project or investment happen. In the case of privately-financed infrastructure projects, the state or state entity wishes to obtain public infrastructure and services for its citizens it could not otherwise afford, and the lenders and investors wish to obtain a reasonable profit in accordance with the risks taken. An understanding of the role of project finance for complex long-term contracts based on income stream, and the design of such contracts using sophisticated risk

[2] Scott L. Hoffman, *The Law and Business of International Project Finance* (3rd edn., Cambridge University Press 2008) §1.01.

allocation mechanisms in order to make a project or investment viable or 'bankable', is of importance when framing a damages claim or awarding damages. The UNIDO BOT Guidelines and the UNCITRAL Legislative Guide provide recommendations for the 'reasonable sharing of the benefits between the investors and the host government',[3] in order to make such projects successful. The ultimate aim of project finance, as further explained in chapter 3, is to structure financings that are robust enough to withstand long-term volatility and be sufficiently attractive to lenders and investors.

1.09 An understanding of the risk allocation mechanisms contained in complex long-term contracts, as explained in chapter 3, is of utmost importance for the awarding of damages. Risk identification, risk allocation, and risk mitigation are essential elements of complex long-term contracts, where the long-term character and the complexities of the underlying project, multi-parties, multi-contracts, technology issues, and the quality of the legal framework in host states requires the elaboration of risk profiles based on a reasonable risk-reward approach. Project agreements are structured in accordance with such risk profiles. The corresponding risk determination and allocation is relevant not only at the planning stage and during the execution of the complex long-term project, but also when establishing a breach, as well as when evaluating damages and determining the applicable discount rate to calculate the present value of a future income stream, as analysed in chapter 6.

1.10 Complex long-term contracts may be classified in different manners. Contracts with states or state entities and international administrative contracts found in legal systems where these contracts are subject to public law, such as under the French notion of 'contrat administratif' applicable throughout Latin America, are of particular importance. Even when under the public law domain, states may act *de jure imperii* or *de jure gestionis*, which gives rise to different legal issues. These contracts are more rigid and more likely to lead to disputes due to political concerns.

1.11 It has been recognized that there are no provisions that regulate complex long-term contracts in European codes of law.[4] The International Institute for the Unification of Private Law (UNIDROIT) has already identified the need for particular rules on long-term contracts and prepared a document for possible inclusion in the next edition of the UNIDROIT Principles of International Commercial Contracts (PICC). The notion of the 'relational contract' developed in the USA as a flexible framework agreement for co-operation does not seem to correspond to the realities of complex long-term contracts, because the latter are characterized by 'very detailed and extensive regulation with the aim to avoid any ambiguity'.[5]

[3] UNIDO BOT Guidelines 215.

[4] See Stefan Grundmann and Martin Schauer, *The Architecture of European Codes and Contract Law* (Kluwer Law International 2006) 12, 60–61.

[5] Michel Kerf et al., *Concessions for Infrastructure: A Guide to their Design and Award*, World Bank Technical Paper No. 399 (The World Bank and the Inter-American Development Bank 1998) 108.

1.12 The rules of law on damages analysed in this work are 'one size fits all'. Under the respective rules of law, the same rules apply to simple cases such as Pothier's case of a sick cow under French law, or the UK case of the swimming pool which did not meet specifications (both mentioned in chapter 4), as well as to the loss of income stream due to breach of complex long-term contracts The latter situation has a different nature and therefore it is necessary to analyse the application of general rules of damages to these particular situations. The understanding of the characteristics of complex long-term contracts, and, in particular, those based on income stream, is, therefore, important for the identification of the relevant rules applicable to damages claims.

1.13 Chapter 4 provides a 'functional' analysis of seven different rules on damages as applied in the UK, USA, France, Mexico, Germany, the United Nations Convention on Contracts for the International Sale of Goods (CISG), and PICC. The different rules of law analysed provide different insights and solutions for damages claims under complex long-term contracts by using different approaches in order to arrive at full compensation. These rules of law contain normative requirements such as breach of contract, the existence of a loss, causation, the measure of damages, and limitations such as foreseeability, remoteness or adequacy, mitigation, and contributory negligence. The normative requirements, measures of damages (interest protected), and limitations reflect the legal policy and systemic aspects under the different rules of law. For example, the expectation interest and the reliance interest, a distinction originally developed by Rudolf von Jhering and further developed by Lon Fuller with William Perdue are subject to the social and economic values of the applicable rules of law.

1.14 Systemic differences are evident in the measure of damages, where certain rules of law protect 'specific' performance through the performance principle, while others protect the monetary equivalent of performance under the economic benefits principle. This reflects the difference between the cost of cure under civil law and the difference in value under common law, as will be explained in detail in chapter 4. However, whether the difference in value or the cost of cure is applied, full compensation is the basic premise. This is valid even under the US theory of efficient breach of contract developed as part of the Economic Analysis of Law, where the respondent may breach the contract if it gains enough from the breach so that it can compensate the injured party for its losses, yet still gain some benefits from the breach.

1.15 The analysis of the different rules of law in chapter 4 follows the order mentioned here, which includes other issues such as contributory negligence, undue enrichment, and the notion of loss of a chance:

(1) Principles for damages claims.
(2) Requisites for a damages claim: (a) breach of contract, (b) existence and classification of losses, and (c) causation.

(3) Measure of damages.
(4) Limitations to damages claims such as (a) foreseeability and similar concepts, and (b) avoidance or mitigation of damages.
(5) Other aspects affecting the damages claim in the form of (a) the date of the determination of damages and (b) the level of evidence required and the burden of proof.
(6) Penalties and liquidated damages.
(7) Considerations.

1.16 Chapter 4 starts with English law, which is without doubt one of the principal rules of law applicable to complex long-term contracts, and which is characterized by simple straightforward rules recognizing both expectation and reliance interest. The aim of English law does not appear to be full compensation as this is considered too harsh upon defendants and courts are afraid of overcompensation. This has led to broader grounds on which the right to performance is protected. The distinction between general and special damages derived from the landmark case *Hadley v. Baxendale* is the benchmark for the determination of remoteness of losses, in particular as regards the question of when consequential losses are general damages within the first limb of the aforementioned case. Recent case law contains particular rules as regards the assumption of responsibility and its effect on the non-remoteness of losses related to risks assumed. The common measure of damages under English law is the expectation interest in the form of compensation for the difference in value between the promised performance and the defective performance, which leads to a financial equivalent but not to a factual equivalent. This also includes loss of profits. In particular, English law recognizes the *but-for* premise.

1.17 US law is characterized by partial codification through the Uniform Commercial Code and the Restatement (Second) of Contracts, which led to a significant development of the law. As will be shown in chapter 4, US law appears to be based on fairness to both parties, aiming at avoiding over- and undercompensation through full compensation of the actual loss, and is influenced by doctrines such as the Economic Analysis of Law and the principle of efficient breach of contract, which, however, do not reduce the level of protection of the promisee. US law, like English law, does not recognize the principle of *pacta sunt servanda* in the form of specific performance. According to Oliver Wendell Holmes: 'The duty to keep a contract at common law means a prediction that you must pay damages if you do not keep it—and nothing else.' The principal measure of damages is expectation interest based on the *but-for* premise. The modern version of contractual reliance interest was developed by Lon Fuller with William Perdue and both expectation and reliance interest are expressly established in the law. Both English and US law are rich in damages cases, due to their highly developed court systems, capable of handling complex economic damages situations using balanced rules of evidence, which will be discussed in detail in chapter 4.

1.18 French law is based on a very high level of protection for the injured party, where expectation interest in the form of cost of cure may be recovered even if this is unreasonable. This, however, is irrelevant for income stream based complex long-term contracts, as will be shown throughout this book. The function of damages law is to put the injured party in the position in which it would have been had the contract been performed, which is the *but-for* situation, although using a very high benchmark of full compensation. The main instruments of limitation are the requirements of causality and foreseeability; however, the latter does not apply in case of bad faith. In spite of the idealistically high level of protection, the application of the law is a matter of considerable discretion for the trial judge, with control by the appeal court and the *Cour de cassation* limited to legal issues. French law does not impose an express duty to mitigate damages but comes to similar results through the notion of causality, as will be examined in detail in chapter 4. French law is of particular interest due to its influence in many countries. The measure of damages of *damnum emergens* and *lucrum cessans* provides a general indication of damages and its distinction is not particularly relevant in judicial practice.

1.19 Mexican damages law follows the French Civil Code, however, with few judicial precedents. Due to its important oil and energy sector, Mexico is the source of important commercial and investment arbitration cases relating to damages under complex long-term contracts with state entities. Mexico has been a pioneer in privately-financed infrastructure projects in Latin America, and state contracts have been submitted to arbitration since 1993. Issues deriving from the French law notion of the 'contrat administratif', such as limitations to the arbitrability of acts of authority under complex long-term contracts entered into with state entities, appear throughout Latin America.[6]

1.20 German law is the source of many important doctrines of damages law, such as the differential hypothesis or *but-for* premise to determine the expectation interest. Rudolf von Jhering developed the reliance interest as an extra-contractual notion which was only recently included into German law as a contractual measure of damages. German legal doctrine explains the relationship between the scope of protection of a contractual provision (*Schutzzweck der Norm*) and foreseeability of the loss through the test of adequacy. It has influenced international law with the notion of the hypothetical normal course of events found in the *Factory at Chorzów* case. Modern German damages law, as reformed in 2002, follows contemporary developments of international sales and contract law; however, it is characterized by a casuistic approach and a strong influence of doctrine that makes access to

[6] Herfried Wöss, 'Solución de Controversias al amparo de la Nueva Ley Mexicana de Asociaciones Público-Privadas' (2012/2013) 5 Lima Arbitration 185–94; Herfried Wöss, 'Mexico: Dispute Resolution under the New Public-Private Partnerships Law' (2013) Global Arbitration Review (23 May).

German law difficult. Courts have a wide discretion when assessing damages and strict rules of burden of proof do not necessarily apply.

1.21 CISG hardly plays a role for complex long-term contracts, even if it could apply in the absence of an express opting-out provision, to power purchase agreements or construction contracts where the value of the goods exceeds the value of services. CISG is based on the principle of full compensation and the traditional notion of *damnum emergens* and *lucrum cessans* as measure of damages, which may easily be applied to sales contracts, but not to complex long-term contracts based on income stream, as further explained in chapters 4 and 5. The CISG Advisory Council Opinion No. 6 on the 'Calculation of Damages under CISG Article 74' provides an interesting insight into legal policy in favour of lost profits and loss of a chance or opportunity, which is of general relevance, as discussed in chapter 4.

1.22 The PICC represent best legal practices of leading jurisdictions rather than a common minimum standard. PICC are based on the principle of full compensation, however, they refer to the traditional notions of *damnum emergens* and *lucrum cessans* instead of the modern notion of expectation interest, which is a considerable shortcoming, as explained in detail in chapter 5. PICC contain express references to risk allocation, with respect to co-operation clauses and other provisions that govern the effect of the interference of the other party, or as regards the relationship between exemption and justification clauses, force majeure, and the foreseeability of losses, which are of particular relevance for complex long-term contracts. Reasonable certainty of loss has been incorporated into Article 7.4.3 PICC (Certainty of harm), which is further examined in chapter 4. The last paragraph of this provision expressly states that where damages cannot be established with a sufficient degree of certainty, the discretion of the court prevails. The procedural equilibrium established in that article is of utmost importance in order to allow for full compensation of damages through a learned estimate of damages, as the application of strict rules of burden of proof may lead to undercompensation and windfall profits for the respondent.

1.23 Chapter 5 provides an insight when analysing, framing, and proving a damages claim under a complex long-term contract. It is divided into two parts. The first part refers to commercial arbitration, whereas the second part focuses on the particularities of investment arbitration and the measure of damages under the Chorzów formula. This chapter also contemplates three different damages situations: (1) the breach of a typical synallagmatic complex long-term contract such as a power purchase agreement or a construction contract; (2) the breach of an atypical synallagmatic complex long-term contract based on income stream; and (3) the breach of a complex long-term contract based on income stream entered into with a state entity that amounts to a violation of an international legal standard or international tort in investment arbitration. The emphasis of chapter 5 is on the lost profits or lost income stream in typical and atypical synallagmatic contracts,

and their differences and similarities when analysing, framing, and proving a damages claim.

1.24 Particular attention is paid to the examination and explanation of fundamental legal concepts such as the measure of damages in the form of expectation interest and its intimate relationship with the differential hypothesis or *but-for* premise, which is the means by which over and undercompensation can be avoided, that is, full compensation of the actual loss is achieved. The *but-for* premise is: (a) a principle accepted under all rules of law analysed including international law ('to wipe out all consequences'), (b) a comprehensive analytical method, to determine loss, causation, and the measure of damages, and (c) the framework required in order to calculate the quantum. The *but-for* premise is increasingly used in international arbitration, especially in the recent leading commercial and investment arbitration cases, which are examined throughout this work.

1.25 Chapter 5 explains how the reasonable certainty of income stream is related to the reconstruction of the hypothetical course of events under the *but-for* premise, which has to be compared with the actual course of events to obtain the expectation interest. It further shows the importance of the analysis of contingencies when reconstructing the hypothetical course of events in order to provide evidence of the reasonable certainty of income. It also explains the relevance of isolating the effect of the breach or violation of an international standard in order to reconstruct the *but-for* situation to be compared with the actual situation and then to obtain the actual loss to be compensated. This chapter also explains how legal issues such as the hypothetical normal course of events under the German law and the notions of concurring and interrupting causality under English law may lead to completely different results, as well as the differences of burden of proof when applied to reliance interest under those rules of law. Particular considerations as regards the measure of damages under international customary law are also found in chapter 5. In addition, it analyses the difference between the reasonable certainty of income and the notion of foreseeability of losses and examines the relevance of the test of foreseeability for contracts whose very nature is the generation of income. These issues are compared with damages situations under typical synallagmatic contracts and loss profits arising from collateral transactions.

1.26 Chapter 5 further aims to clarify general damages law concepts, which cause considerable confusion when applied to the interruption of income stream caused by breach of contract or the violation of an international standard, such as *damnum emergens* and *lucrum cessans*, expectation interest, and reliance interest. The justification of the reliance interest from a legal policy perspective will be further analysed in chapter 5. It examines in detail, both from a legal and economic perspective, the implications of choosing the relevant date for the assessment of damages in the light of the full compensation principle.

1.27 The evidence available and the burden of proof are essential for damages claims. Chapter 5 further analyses the effects of procedural rules on evidence and burden of proof already mentioned in chapter 4, all of which reflect a rather liberal approach based on procedural equity, taking into consideration the evidentiary difficulties in forecasting the with and without breach courses of events. Damages claims under complex long-term contracts based on income stream require particular economic and financial expertise from the outset of the preparation of a damages claim and as experts during the arbitration. The analysis of damages claims is a cross-disciplinary matter where legal issues are tied to economic and financial concepts and 'language' problems such as the understanding of economic concepts by lawyers and of legal issues by economists are of utmost importance. This chapter provides clarification on how these issues should be dealt with when framing and proving a damages claim. In particular, chapter 5 discusses the notion of 'judging economists' and the importance of the proper communication and treatment of legal and economic issues in order to arrive at a well-structured damages claim and a well-reasoned award. The experience in damages claims in antitrust or competition law damages arbitrations are of particular relevance in that respect, as further discussed in chapter 5.

1.28 The last part of chapter 5 analyses the principal features of damages claims under complex long-term contracts based on income stream with state entities in investment arbitration. International law as applied in investment arbitration is analysed in the light of the influence of private law in the formation of international customary damages law, as recognized in the *Factory at Chorzów* case. The particular measure of damages in this case and the rationale behind are explained. The objective is to show the difference in damages determination in commercial and investment arbitration. Particular attention is paid to fair market value (FMV) as the measure of damages in investment arbitration and its application in case of partial interruption of income stream over a certain period of time, as explained in more detail in chapter 6.

1.29 Chapter 6 provides an insight into the economics of public and private contracts and the application of the *but-for* premise with respect to damages analysis both under its original notion as well as the particular aspect of the *but-for* premise applied to FMV in investment arbitration. It begins by identifying the key aspects of complex long-term contracts that tend to differentiate them from other types of agreements, and draws parallels with agreements typically seen in infrastructure and utilities in public-private contracts, allowing inferences from investment arbitration to be made. It further analyses the economic and financial effects on damages of choosing the appropriate date of valuation and how to make the corresponding adjustments in the situation where the date of valuation is different from the date of the award. Double counting as well as situations of undercompensation are subject to extensive economic and financial analysis. Finally, the experts survey the most frequently used valuation methods (and other methods not used

as frequently), and comment on their application in the determination of damages in international disputes. The experts make the important distinction between two exercises that often are not the same: valuation and damages assessment; the former as a more 'canned' exercise which may or may not coincide with the determination of damages, and the latter in a role whose mission is first and foremost, to assist tribunals in determining the specific impact of specific actions in accordance with the merits of a case, the facts, and the economic reality or assumptions that the merits dictate. In examining this, the experts draw examples from public awards in investment disputes and address, where appropriate, the key differences in damages assessment between commercial and investment arbitration.

1.30 The role of interest is examined in chapter 6 from an economic and financial perspective and in chapter 7 under the notion of interest as damages and as an integral part of damages valuation. If discount and pre-award interest rates are not properly determined this may seriously affect full compensation, as analysed in chapters 6 and 7. These chapters explain how pre- and post award interest rates form an integral part of damages valuation; in particular, how undercompensation and unfairness results from the so-called invalid round trip (described by Abdala, López, and Spiller[7]) or when not applying the correct pre-award interest rate or not choosing the correct date of valuation. Chapter 7 examines how the currency and cost of arbitration issues are to be solved as part of the damages analysis through the *but-for* premise.

1.31 This book underlines the fundamental necessity for arbitral tribunals to learn to deal with uncertainty and not to spare any effort to make a learned, fair, and well-reasoned estimate of income or profits lost, rather than taking a shortcut to reliance interest or 'splitting the baby'. The aim of this book is to provide tools for the preparation of damages claims, which lead to well-reasoned and fair awards where the damages section can be reconstructed, and the congruence of legal principles and the economic and financial models can be 'verified' or 'falsified' in the sense used by Sir Karl Raimund Popper, which means that findings may be replicated. As such, a selection of the relevant issues to be analysed must be made, which necessarily means the exclusion of topics that might be of interest but are not relevant for the purpose of this book.

1.32 Hypothetical and real arbitration and court cases are extensively used throughout this book as examples of how to overcome the aforementioned legal, procedural, and quantification challenges and to avoid insufficient or incongruent analyses, misunderstandings, and misconceptions when claiming and awarding damages, and to illustrate best practices in damages analysis and the award of damages. Any

[7] Manuel A. Abdala, Pablo D. López Zadicoff, and Pablo T. Spiller, 'Invalid Round Trips in Setting Pre-Judgment Interest in International Arbitration' (2011) 5(1) World Arbitration and Mediation Review 1–21.

statements and analyses contained in this book are of a purely academic and illustrative character and may not be used as a statement or opinion of the authors in any arbitrations and related procedures where they are involved. Chapter 6 of this book was contributed by economic experts Professor Pablo T. Spiller and Santiago Dellepiane; all other chapters were written by Dr. Herfried Wöss and Adriana San Román Rivera.