

# An Economic Assessment of Contracts, Requests for Contract Reform, and Damages in International Arbitration

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## 1 INTRODUCTION

In international arbitration, economic experts take legal instructions from counsel and the arbitral tribunal to assess damages. It is important that the economic assessment is conducted in accordance with the relevant legal standards. In this way, the damage calculation is not simply a detached profits calculation or business valuation – even though valuation techniques are drawn upon – but an economic assessment that aligns damages and liability under the relevant contract and applicable law.

The interaction between legal and economic practitioners is not a one-way street. Economists can provide conceptual and factual inputs that help establish *how* the damages quantum should be brought into line with the claimant's loss. Moreover, while claims for damages have a legal basis (and arbitral decisions are fundamentally legal decisions), economics can provide analysis that informs the decision on the merits of a claim, including the key question of whether the claimant has been harmed. After all, at the core of international arbitration lie commercial and investment activities, which are understood through *economic* principles.

In his chapter on assessment of damages in investment arbitration, Wolfgang Alschner (Chapter 14) establishes a theoretical framework for how

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the amount of damages, the host state's liability, and the investor's loss shall be aligned. In this chapter, we provide case examples to illustrate how claims for damages and other requests for relief may be examined using economics with regards to both the merits of a claimant's case (Section 2) and the quantification of damages (Section 3).

## 2 ECONOMIC PRINCIPLES AND THE QUESTION OF DAMAGES

Many economic principles and analyses can help inform decisions on the merits of a claimant's case. Key aspects of the case often relate to activities and concepts that have economic principles at their core – for example, regulation, markets, contracts, and investment risk. In this section, we focus on the latter two, which are often related. We start with contracts, focusing on the principle of the *sanctity of contracts* (which is understood through economic, in addition to legal, principles), and then introduce case examples where contracts and investment risk were important.

### 2.1 Background: Economic Perspective on the Sanctity of Contracts

Contracts are at the heart of well-functioning modern economies. When investments and commercial arrangements go sour, often the dispute is centered on a contract.<sup>1</sup> Economic practitioners can aide tribunals in their evaluation of contract disputes in several regards, including questions related to the alleged harm, given the economic principles involved.

While contracts are legal documents, they also are codifications of commercial relationships. Economic principles are at the core of the contracting process. Contracts allow for individuals, institutions, and governments to enter into arrangements where the risks, rewards, and responsibilities of the parties are clearly defined and enforceable by some mechanism (including, potentially, international arbitration). The contracting system helps engender efficient allocation of resources and risks, which is crucial to economic efficiency.

Breach of contract is a standard example of a contract dispute. For example, investors with concession, license, or other contracts with the state may claim expropriation or creeping expropriation, where claims are made under the parties' contract (or under other relevant treaties or legal regimes).

In other contract disputes, investors or commercial parties may request that a tribunal change or cancel a contract, or they may request a damages payment

<sup>1</sup> This could be a contract between the parties and/or an international treaty (which functions similarly to a contract between states).

where such a payment would be effectively equivalent to changing a contract.<sup>2</sup> However, changing contracts is governed not just by legal but also by economic principles, where the latter can directly relate to a tribunal's evaluation of the merits of the claimant's requests for relief. This leads us to the economically important concept of the "sanctity of contracts."

### 2.1.1 What is the Sanctity of Contracts?

The rule of law in the economic sphere is fundamental to the institutional and societal framework necessary for a successful market-based economy. This is comprised of a mutually consistent, stable, and consistently applied set of laws, particularly in the areas of contracts, taxation, and bankruptcy, and the belief by individuals and institutions in their stability and enforcement. This has been termed "economic legality."<sup>3</sup>

Further, nations and enterprises compete for investment capital. Their ability to interest investors, both foreign and domestic, and to rely on such non-governmental resources, will depend on whether certain preconditions are met. One of the central preconditions (and an important element of economic legality) is the ability to rely on contracts. This holds for investors as well as for the state.<sup>4</sup>

The economic importance of sanctity of contracts in any particular investor–state arbitration is derived, therefore, from the larger importance of the rule of law in the economic sphere. Where contracts are modified, disregarded, or canceled without a legitimate basis by the state, the long-term consequences to the national economy can be substantial. States may find new capital harder to attract, or only available at higher costs.<sup>5</sup>

<sup>2</sup> For example, a party may claim damages, arguing that under its contract it pays too much (or receives too little) money. But receiving damages due to too small or large payments in a contract is tantamount to changing the contract itself.

<sup>3</sup> "Legality and Market Reform in Soviet-Type Economies," John M. Litwack, *Journal of Economic Perspectives*, vol. 5, no. 4 (Fall, 1991), pp. 77–79.

<sup>4</sup> While important in all sectors, this precondition is particularly essential with investments in infrastructure projects, where *after the investment is sunk*, the investor faces the risks – generally over a long-term horizon – of recovering its costs plus a return on the investment, and the counterparty faces the risk of service (un)reliability over the same extended period.

<sup>5</sup> Absent the sanctity of contracts (and the legal mechanisms to enforce the principle), states may have the incentive to breach contracts, given the immediate benefits that accrue to the state of such actions. However, states have enacted legal regimes (and entered into treaty regimes) that respect the sanctity of contracts, given the overall economic benefits of it. This is somewhat analogous to the theories of Bagwell and Staiger, who have modeled the GATT overarching international trade agreement as a way to engender more efficient trade among countries, where without an overarching agreement such as GATT, the incentives in unilateral trade negotiation would generally lead to a less than optimal economic outcome for the states. GATT stands for

On the other hand, *investors* might use international arbitration to request reform or cancellation of their contract, or to request damages that are tantamount to changing their contract.<sup>6</sup> If investors are (without a legitimate basis) allowed to change contracts with the state to their unilateral benefit, e.g., through a tribunal's award in an international arbitration proceeding,<sup>7</sup> this precedent could also be problematic. Other investors with similar contracts with the state may seek (and be successful at gaining) similar contract changes and/or damages. In the short term this would be detrimental to the state treasury. In the longer term, this could hurt economic development, as the risk of after-the-fact contract revision may deter the state from entering into contracts with investors who would have developed infrastructure useful for the populace.

The sanctity of contracts is respected when contract reform or cancellation is limited to three basic areas:

- 1) When reform or cancellation follows the terms of the contract itself;<sup>8</sup>
- 2) When the parties freely negotiate to change or cancel the contract;
- 3) When modification or cancellation *external* to the terms of the contract is allowed under a consistently applied legal regime that governs the contract.

Often the third option corresponds to contract reform or cancellation in the case of contract infeasibility, and this situation is of interest in this chapter. From an economic perspective, in general this is an appropriate standard, as it is generally economically inefficient to hold a party to a contract which is financially infeasible<sup>9</sup> for it to complete, *at least when certain preconditions are met*. We discuss this important qualification in the example below.

the General Agreement on Tariffs and Trade. See "An Economic Theory of GATT," Kyle Bagwell and Robert W. Staiger, *The American Economic Review* Vol. 89 No. 1 (March 1999).

<sup>6</sup> As discussed in note 2, a party might claim damages, alleging it pays too much (or receives too little) under its contract.

<sup>7</sup> If it is within its authority, the tribunal may order the modification of a contract. Or, as is more likely, the tribunal may award damages that are financially equivalent to changing the terms of a contract.

<sup>8</sup> For example, long-term commercial contracts may include price adjustment clauses, which stipulate price reviews (e.g., periodically, or when certain conditions are satisfied), or loyalty clauses, which may stipulate wider contract reform (e.g., when circumstances change so that some contractual provision becomes unreasonable for either party, or the original balance of the contract is materially affected).

<sup>9</sup> Financial infeasibility is perhaps more accurately dubbed "financial impracticability" (where technically the contract could be fulfilled, but only under great cost; we will say more on this point in Section 2.2).

Contract reform could allow the economic activity to continue where it would not absent that reform – by the same investor or, if the contract is canceled, by a new investor. Or if alternatively the economic activity is financially infeasible by any party, then cancelation can remove a debilitating financial commitment and thus allow an otherwise economically productive business entity to continue operating. The potential for judicial contract reform, however, should balance the sanctity of contracts against the merits of that reform.

### 2.2 Example: Request for Relief from Financing Risks

Generally the concern with sanctity of contracts, particularly in investor–state arbitration, is that one party will attempt to upset the economics of the deal once the investment is sunk. The case described below differs from this usual scenario in that the investor requested contract modification even though it had yet to build the infrastructure project it had contracted to build.

In this investor–state international arbitration (on which one of the authors worked), the claimant essentially claimed that performance under its contract was infeasible under Perú’s civil code,<sup>10</sup> which allows for judicial reform or cancelation of a contract if it can be shown that an *extraordinary* and *unforeseeable* event has made it *excessively onerous* to perform under the contract.<sup>11</sup> Basically, this was a contract infeasibility argument. Clearly, it is a legal question (requiring a legal decision) whether a performance under a contract is infeasible according to a country’s civil code. But, as we will show below, economic analysis can help inform the legal decision.<sup>12</sup>

Before diving into the economics of the case example, let us take a step back and discuss the preconditions for contract reform in this example.<sup>13</sup>

<sup>10</sup> Claimant had a concession contract with the Government of Perú to build, own, and operate transmission lines in Peru (and ultimately transfer them back to Perú).

<sup>11</sup> *Caravelí Cotaruse Transmisora de Energía S.A.C. v. Republic of Peru*, ICSID Case No. ARB/11/9.

<sup>12</sup> Most of the material in this section is taken from the reports filed by NERA’s expert on behalf of the Republic of Perú in the *Caravelí* case.

<sup>13</sup> We also consulted literature to assess the economics of contract reform, including: “Impossibility and Related Doctrines in Contract Law: An Economic Analysis,” Richard A. Posner and Andrew M. Rosenfield, 6 *J. Leg. Studies* 83 (1977), (“Posner”), “Commercial Impossibility, the Uranium Market and the Westinghouse Case,” Paul L. Joskow, 6 *J. Leg. Studies* 119 (1977) (“Joskow”), and “The Comparative Law and Economics of Frustration in Contracts,” Marta Cenini, Barbara Luppi, and Francesco Parisi, *Leg. Studies Research Series Research Paper No. 09–20*, University of Minnesota Law School (2009) (“Cenini”). The first two focus on American and English common law, and the latter performs a comparative literature review considering mostly European countries.

- Excessively Onerous: Definitions of *onerous* include “involving, imposing, or constituting a burden.”<sup>14</sup> But for contract reform in this example, it is not enough for a contract to be a financial burden – it must be *excessively* so. Considering this concept, one sees language such as “extreme hardship” and “extreme and unreasonable difficulty, expense, injury or loss.”<sup>15</sup> Prof. Joskow references how “[Thomas] Hurst indicates that the courts have been reluctant to allow excuse merely because the cost of performance has increased and the contract become unprofitable.”<sup>16</sup> Judge Richard Posner characterizes US court decisions as holding that “hardship is not enough.”<sup>17</sup>
- Unforeseeable: Definitions of *foreseeable* include “being such as may be reasonably anticipated”; “lying within the range for which forecasts are possible.”<sup>18</sup> So, *unforeseeable* is a stricter standard than merely *unexpected*.
- Extraordinary: Definitions of *extraordinary* include “going beyond what is usual, regular, or customary” and “exceptional to a very marked extent.”<sup>19</sup> This criterion is also related to the first two: an ordinary event likely would be foreseeable and fail to cause excessively onerous financial harm.

Economists can help evaluate whether the preceding three standards have been met from an economic perspective. NERA was appointed as expert by the respondent, the Government of Perú. The event that claimant cited was the 2008 financial crisis, and specifically its effect on the availability and cost of financing – claimant signed its contract shortly before the collapse of Lehman Brothers. Claimant had won a fixed-price contract in a least-cost bid for a concession to build, own, and operate electricity transmission lines and then transfer them to the state after the concession, but at the beginning of the crisis claimant essentially had not started construction nor had it secured financing. Claimant’s damages were based on its theory that it needed a higher payment in its contract to offset the effects of the financial crisis on its financing of the project.

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<sup>15</sup> Posner, footnote 6, quoting Justice Traynor and Joskow, p. 152, quoting “Restatement of Contracts” (1932).

<sup>16</sup> Joskow, p. 160. Thomas Hurst is a law professor. <sup>17</sup> Posner, footnote 9.

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Specifically, claimant suggested that its payments should increase so that it would be in the same financial situation (by its own estimation) that it would have been in assuming pre-crisis financing costs. Yet, claimant's modeling of the project after the financial crisis without contract reform still forecasted it would have sufficient cash flows to pay its debt costs and pay the return of and a return on the capital invested by its equity holders, though a smaller return than it had forecast before the crisis. So, even without additional payments, claimant's project would continue to be financially viable. In line with the literature references on contract reform or cancelation referenced above,<sup>20</sup> we showed from an economic perspective that the effects of the crisis *on the claimant specifically* (i.e., effects of potentially higher interest rates) were not excessively onerous. Claimant could have engaged in the economic activity it had contracted to undertake without extreme negative financial effects on it or its shareholders – the project would even have earned a return. So, we showed that the contract was not infeasible – far from it – and that therefore there should be no damages.<sup>21</sup>

The tribunal sided with respondent and awarded no damages. However, the tribunal in its award did not comment directly on whether the contract was excessively onerous, and instead rejected damages due to an ancillary legal reason. Still, the award at least hints that the tribunal might have supported our arguments that the contract was not excessively onerous in a discussion about a separate claimant request.<sup>22</sup>

### 2.3 Example: Request for Relief from Regulatory Risks

A contract represents an agreed allocation of risks and rewards. With freely negotiated contracts in a competitive environment, risks generally fall on the party best suited to bear them. Correspondingly, the parties agree on rewards

<sup>20</sup> Please refer to notes 15, 16, 17.

<sup>21</sup> We also performed an analysis of historical interest rates to support additional arguments we made about the foreseeability and (lack of) extraordinariness of the rise in interest rates that claimant relied upon, based upon our economic understanding of these concepts. These arguments also supported our conclusion that, from an economic perspective, claimant's situation did not satisfy the criteria for contract reform. In evaluating the "excessively onerous," "unforeseeable," and "extraordinary" criteria, it was important to evaluate not the financial crisis as a whole, but, rather, the specific effects of the crisis on claimant.

<sup>22</sup> The tribunal rejected claimant's request for compensation for penalties related to its cancelling of an aluminum supply contract for its building of the transmission lines. In rejecting this request, the tribunal cited claimant's contract, which required that work on the project continue even during disputes. We would have found it surprising if the tribunal that cited the contract in this regard had nonetheless ruled that performance under that contract was excessively onerous, if the case had reached that point.

under the contract that compensate for the risks and obligations undertaken. From an economic perspective, this balance is efficient.

As Judge Posner writes:

The contracting parties' chosen allocation of risk must be the most efficient one possible (subject, of course, to the constraints imposed by the costs of information and other transactional frictions), since, if it were not, a reallocation of risks by the parties would be possible that would increase the utility of at least one of the parties without reducing the utility of the other.<sup>23</sup>

Often in investor–state arbitration, the state or investor attempts to unilaterally change its contract in its favor. On many occasions, this is related to issues of risk. For example, we again consider the previous case of an investor with a contract to build, own, and operate electricity transmission lines. A clause in claimant's contract explicitly placed the financing risk on claimant. By presumption, claimant was the superior bearer of this risk. We showed that claimant's request for increased payments would effectively transfer this risk from claimant to the state, and without providing any corresponding benefit to the state. As this would undo the balance of risks and rewards in the contract, we considered this to be economically inefficient.

When a risk is specifically addressed in a contract, then it is clear which party is responsible when the risk materializes.<sup>24</sup> But not all risks are (or practically can be) addressed by contracts. Of course, disputes including international arbitration arise related to these contractually *unaddressed* risks. When such a risk transpires and the harmed party makes a claim, economists can aid tribunals by evaluating whether the risk was part of a normal investment risk taken on in similar investments. A tribunal might be reluctant to award damages if the relevant risk was (or should have been) known by the investor.<sup>25</sup>

For example, one of the chapter's authors worked on an arbitration involving an investor in a developing country that owned a local regulated utility. We were expert for respondent (the state). Claimant claimed creeping expropriation and requested damages. Claimant asserted that its utility would have been far more valuable had the government implemented a proposed tariff reform and been

<sup>23</sup> Posner, p. 98.

<sup>24</sup> Again, turning to Judge Posner, "Where the terms of a contract assign to one or the other party the risk of loss from a particular event or group of events, those terms control." Posner, p. 117.

<sup>25</sup> Of course, if a risk is known, this does not necessarily imply that there cannot be legitimate damages when that risk materializes. There may still be a legal or contractual basis for damages. For example, an investor might be aware of the risk that its property could be physically seized by the government without compensation, but there still presumably is a legal basis to claim damages in this situation.

more effective at reducing “theft” by non-paying customers. While a finding of expropriation is ultimately a legal finding, there are, again, important economic and commercial principles that underlie the relationship between investor and state. The key question we evaluated was whether, from an economic perspective, claimant had been harmed, considering both the financial position of the utility and the relevant risks in claimant’s investment.<sup>26</sup>

A few years prior to its claim, claimant had purchased its utility from another company. We showed<sup>27</sup> when it purchased the company that there was a risk that the proposed tariff reforms would not be implemented and theft would not be reduced to desired levels. These highly specific risks were not explicitly addressed in any contract or investment treaty between the nations involved, as far as we were aware. The question we posed was whether these were normal risks that investors in this situation would take on. We considered that:

- The utility was making substantial losses at the time of the purchase. We considered it was not reasonable to expect the company almost immediately to become a robust financial enterprise based on potential tariff reform by the government.
- The investor appeared to know the risks involved, as it structured the transaction to insulate it from absorbing the utility’s losses should it lose more money. Further, the purchase price was just a small nominal fee.
- It is well known that the history of privatization and restructuring around the world (and in developing countries in particular) has been marked by difficult challenges, missteps, starts and stops, and, sometimes, outright failure.

So, we showed that claimant took on these risks when it purchased the utility (and the low nominal investment amount appears to reflect these risks). Therefore, we showed that, from an economic perspective, claimant was not harmed and should not be awarded damages. Further, we considered it would be economically inefficient if investors could purchase (at very low cost) utilities operating in financially unfavorable regulatory environments and then in quick order sue the government for full value under an idealistic view of what the regulatory regime should have been.<sup>28</sup> This case ultimately settled.

<sup>26</sup> There are other regulatory and tariff arguments relevant to this case that also go to the question of harm, but for simplicity this example focuses on the risks of the initial investment.

<sup>27</sup> In fact, this case settled prior to us submitting an expert report, so we present here the arguments we were developing, but for simplicity we still write “we showed . . .” or “we considered . . .”

<sup>28</sup> Of course, the demonstration of economic inefficiency itself may not have any bearing on whether claimant is entitled to damages. However, the economic effects of a request for relief can provide important context to a tribunal.

## 2.4 Conclusion

In conclusion, claims for damages and other requests for relief may pose relevant economic issues. For example, economic evidence may help to establish whether or not standards for reform or cancelation of a contract are met, as illustrated by the above assessment of a request for relief from financing risks based on an “excessive onerosity” standard. While no damages were awarded in that example, economic experts can further assist in the quantification of damages in the scenario where liability and harm are established. The following section introduces examples of economic analysis to quantify damages commensurate with the respondent’s liability and the claimant’s loss.

### 3 STYLIZED EXAMPLES OF DAMAGE CALCULATIONS

#### 3.1 *The Fundamental Standard for Damage Assessments*

In damage assessments, the legal instructions typically ask the expert to analyze the following key question: What would have been the pecuniary situation of the injured party if the breach (or other harm) had not occurred? In other words, what would the world have been like but for the breach, which is generally referred to as the but-for world. The but-for principle aims to make the injured party whole by undoing the financial consequences of a contract breach. As stated by Michael Pryles:

The principle behind damages awards is well understood. If a claimant can prove that it has suffered a loss due to the respondent’s breach of contract or other wrongful act, the claimant will be put in the same pecuniary position as if the wrongful act had not occurred. However, putting the principle into practice is less simple.<sup>29</sup>

The task of the quantum expert is therefore to compare the actual situation against the counterfactual situation, where the counterfactual situation is defined by the but-for world. Based on this comparison, the injured party is compensated for the difference between its actual financial position and the counterfactual. However, as Michael Pryles notes, putting this into practice “is less simple.” The following sections present two stylized case examples to give some specificity, at the conceptual and practical levels, as to how this may be put into practice.

<sup>29</sup> Reprinted with the permission of JurisNet LLC, Huntington, New York 11743, [www.arbitrationlaw.com](http://www.arbitrationlaw.com) from *World Arbitration & Mediation Review*, Volume 1, Number 1, (2007), p. 16, “Lost Profit and Capital Investment” by Michael Pryles.

The examples cover the common claims for damages of (a) lost profits (e.g., due to a commercial contract breach), and (b) loss of shareholder value, which may result from the loss of an entire business (e.g., due to an expropriation). We illustrate the theoretical process for a damages calculation and introduce specific techniques, where these techniques are already established in economics and business valuation. We also discuss how legal standards may guide certain important calculation choices.

### 3.2 *Example: Calculation of Lost Profits*

In some cases, calculating lost profits may be relatively straightforward – for example, if the injured party had a supply contract that covered basically all of its output and specified a precise price and delivery schedule, and similarly it had its input costs also specified under contract, making the lost profits a relatively mechanical calculation in case of a breach of that supply contract. But cases are rarely so detached from legal standards, and they are rarely so simple; typically, a number of microeconomic questions arise in the construction of the counterfactual for lost profits calculations.

For example, the contract breach (or other harmful act) may interrupt the claimant's activities in such a fashion that the claimant's business strategy but for the breach is unknown (at least unknown with respect to its activities related to the breach). Generally there could be multiple business strategies; so, one important question is how to replicate the claimant's business strategy in the counterfactual. Assuming the claimant's objective is to maximize profits, this question asks to identify the optimal (or profit maximizing) business strategy in the counterfactual. This can be viewed as solving for the optimal strategy in a "constrained optimization problem," with some counterfactual constraints differing from the constraints faced in the actual situation. Another consideration is that the optimal strategy may depend on the strategies of other market participants, who may have also adopted different strategies in the counterfactual. This can be viewed as a "strategic game," with the "payoffs" of the injured party's strategy depending on responses of other market participants.

As a stylized example, consider a damage claim of lost profits in a construction dispute. In this case, assume that construction works at a production facility have not been performed in accordance with the construction contract and, as a result, production has been materially affected over a certain period. The producer is entitled to lost profits over this period, during which actual profits have been lower than they would have been otherwise – i.e., lower than the counterfactual profits. To assess counterfactual

profits, one must consider the production possibilities but for the breach of the construction contract – i.e., if the construction works had been performed in accordance with the contract. This assessment involves determining the incremental increase in the facility's capacity and potential utilization levels as well as feasible input–output combinations of the facility in the counterfactual (these are *counterfactual production constraints*).

Another question for analysis is whether the producer is a price taker in its input and output markets, or whether market prices would have been affected by an incremental change in quantities of inputs or outputs in the counterfactual (these are *counterfactual price constraints*). This assessment may involve an analysis of the relevant market, in terms of products and geographies, as Malashevich and Kobe explain in their chapter on the practice of the use of economics in competition law (Chapter 7). The definition of the relevant market may be a contentious issue, with potential material effects on the counterfactual price assumptions for the lost profits calculation. However, this determination may be made more objective by using established precedents, such as previous decisions by the competition authorities, or an analysis using standard economic methods – e.g., an application of the Small but Significant and Non-transitory Increase in Price (SSNIP) test.<sup>30</sup>

Once counterfactual production constraints and price constraints have been identified, the optimal production strategy of the facility can be determined subject to these constraints and in accordance with the applicable legal standards. In lost profits assessments, the optimal counterfactual strategy is typically determined *ex ante*, e.g., counterfactual production decisions on inputs and outputs may be based on forecast prices of inputs and outputs. This is in line with the economic principle not to assume hindsight when modeling historical decision-making processes (except as a simplifying assumption if this assumption does not materially impact on the calculation results).

Depending on the applicable legal standards, the economic impact of the optimal counterfactual production strategy may have to be evaluated *ex ante as of the time of the breach* or *ex post using hindsight information as of the time*

<sup>30</sup> The SSNIP test is widely used by competition authorities to determine the relevant market. The test may be applied as follows: Start with the smallest possible market. If a hypothetical monopolist can *profitably* increase the price(s) of the output(s) by a certain amount over a certain period (e.g., 5–10% for at least one year), the candidate market is the relevant market. If, on the other hand, this increase is not profitable as customers substitute the monopolist's output(s) with products outside the candidate market, then the candidate market is not the relevant market, and the SSNIP test is applied to the next largest candidate market that includes these substitutes. This process continues until the hypothetical monopolist's price increase is profitable and, hence, the relevant market is identified.

of the assessment. So, one would calculate counterfactual profits using either *forecast* prices or *outturn* prices for the inputs and outputs, which have been determined by the (ex ante) optimal counterfactual strategy. Returning to the stylized example at the production facility, lost profits are calculated by comparing counterfactual profits against profits at the facility despite the defects in the construction works. If ex ante applies, one compares expected (as of the date of the breach) future counterfactual profits and “given-the-harm” profits; if ex post applies, one compares counterfactual profits using hindsight information<sup>31</sup> and actual historical profits.<sup>32</sup>

In practice, real cases are often more complex than the stylized example above, e.g., there may be multiple breaches or a continuous breach of contract instead of a single date of breach, complicating the modeling of the counterfactual and the implementation of ex ante approaches to calculating lost profits. In such situations, it becomes evident that the economic expert and counsel need to coordinate so that a feasible calculation approach can be developed in accordance with the applicable legal standard. Further, as Alschner points out in Chapter 14, the legal standards for the damage assessment may vary not only with the law applicable to the case, but also with the legal assessment of liability in the particular case.

In summary, this stylized example has illustrated how, given the applicable legal standard, economics can assist in the calculation of lost profits, including the construction of the counterfactual, when a breach of contract or some other wrongful act reduces the profits of a business. In Section 3.3, we turn to cases in which the claimant’s losses may amount to the loss of an entire business; we illustrate how established techniques may be applied to the valuation of lost shareholder value.

### 3.3 Example: Calculation of Lost Shareholder Value

Calculations of lost profits and calculations of the loss of an entire business are related, since the going-concern value of the business derives from its potential

<sup>31</sup> This could be information as of the date of the expert report, the hearing, or the award. Of course, expected future lost profits may still form part of an ex post assessment, as harm may continue to affect profits after the date of assessment.

<sup>32</sup> “Profits” are typically defined to exclude non-cash items, such as depreciation and amortization, as any differences in non-cash items between the actual situation and the counterfactual situation do not affect the financial position of the injured party, except for their indirect effect on the injured party’s tax position. Lost profits, however, are typically assessed before corporation taxes, with the rationale for this standard being that the award is subject to corporate taxation. However, legal instructions should be taken on these issues for each case, as different legal standards may apply from case to case.

future earnings. This theory is embodied by the Discounted Cash Flow (DCF) method, which discounts future earnings (cash flows) of the business to determine its value in present-value terms as of the valuation date. The application of the DCF method requires but-for analysis to establish the counterfactual and attention to legal standards, e.g., the choice of the valuation date may depend on the case at hand and the applicable legal standards, similar to the earlier discussion of lost profits valuation.

As a stylized example, consider an unlawful expropriation of an investor's business by the host state. As Alschner explains in his chapter referencing the *Chorzow Factory* case (Chapter 14), the expert may be asked to calculate lost business value as of the time of expropriation (*ex ante*) and also as of today (*ex post*). The valuation date matters if *ex post* information differs materially from *ex ante* expectations – e.g., if outturn prices differ materially from forecast prices, or if today's forecasts differ materially from earlier forecasts. The choice of the valuation date(s) may be a normative issue, e.g., the legal standards may call for different treatment of unlawful expropriation and lawful expropriation. Legal standards may reflect certain policy choices, e.g., compensation of the injured party, deterrence of unlawful behavior, etc., and disciplines such as economics and finance have also contributed to the debate of legal standards, e.g., standards for compensation and, in particular, the valuation date.<sup>33</sup> Similarly, in any particular case, quantum experts may help counsel and the arbitral tribunal develop a methodology for calculating compensation for lost business value whilst taking legal instructions (e.g., on the state's liability), especially in more complex cases. For example, economists may help determine whether, due to alleged creeping expropriation, the value of an enterprise may have been already significantly reduced at the time direct expropriation occurs.

To establish the value of a business, arbitration can draw on established valuation methods in mergers and acquisitions (M&A). In M&A transactions, as discussed by Breckenridge, (Chapter 13, this volume), investors and their advisors typically apply the DCF method as the primary method to determine the value of a business on the basis of its future earnings potential. Future earnings are discounted at the cost of capital of the company, or at the cost of capital of the specific business, if the latter more accurately reflects the opportunity cost of capital. Both the business plan of projected earnings and the cost of capital are key inputs in the DCF valuation. The first input requires an evaluation of the future earnings, which is conceptually equivalent to the

<sup>33</sup> A discussion of policy reasons for particular legal standards falls outside the scope of this chapter.

calculations of future lost profits. The second input requires a determination of the cost of capital of the business to evaluate any future lost profits in present value terms as of the valuation date.

In addition to applications of the DCF method, comparator methods such as trading and transaction multiples are well established in the M&A practice. Trading multiples relate stock market valuations of listed companies to their earnings, and transaction multiples relate the price at which a company was purchased to the company's earnings. (The "comparator" company is sometimes the same company that is being valued, but at an earlier time – e.g., a time in the past it was purchased.) These comparator multiples (e.g., in the form of an EBITDA multiple) are then applied to the earnings of the business under analysis (e.g., its current EBITDA). Comparator methods are generally used to provide crosschecks on the DCF results, and may help examine the key valuation assumptions that underlie the DCF results. The advantage of the DCF method is that it takes into account the specific business plan and specific cost of capital of the company under analysis, whereas comparator methods rely on the assumption that the comparator companies are (or the same company at a historical point is) in fact comparable. Nonetheless, while the DCF method is generally the primary method among these three methods in M&A, the choice of methods and the weight of their results may depend on the available data in the particular transaction.

Likewise, each of the established methods in M&A practice may provide useful insights into the value of the business in arbitration proceedings and serve as a crosscheck on the results of the other methods, with the reliability of each method depending on the assumptions that underlie each and the available evidence to support these assumptions.

While there are certainly situations where the assumptions needed in a DCF model are so uncertain that a different method is likely to yield a more robust answer, generally DCF is the most transparent and direct valuation method to determine the value of a going concern. DCF incorporates specific assumptions about the business under analysis, and it is flexible as one can easily apply a DCF model in different scenarios. Specifically, the DCF method can be used to value the business transparently and consistently at different points in time. For example, as Alschner points out in his chapter, the arbitral tribunal may require a calculation from the experts to separate non-compensable losses from recoverable losses in the course of the arbitral proceedings. Given the advantages of the DCF method, and in light of the objective to align the claimant's loss and the respondent's liability, where feasible, deference should be given to the DCF method for the valuation of a going concern.

### 3.4 Conclusion

In conclusion, the fundamental but-for principle has established the framework for damage assessments. As illustrated above, legal standards (e.g., for the date of valuation) guide important calculation choices and thereby align the damage assessment with the respondent's liability. Current arbitration practice draws on economic principles and techniques as well as on valuation methods from business practices to calculate damages in terms of lost profits or, more generally, lost shareholder value commensurate with the claimant's loss. For the latter, we express deference (where feasible) to DCF methods for the valuation of a going concern, as the DCF framework may be the most suitable tool to assess damages commensurate with the respondent's liability in arbitral proceedings.

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