

COMPARATIVE ISSUES IN THE ASSESSMENT OF DAMAGES IN INTERNATIONAL
ARBITRATION CONSTRUCTION CONTRACTS AND THEIR IMPACTS ON THE
FORENSIC EXPERTS UNDER ENGLISH, FRENCH AND SWISS LAW

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KEYWORDS

Arbitration, Causation, Construction, Damages, Delay, Dispute, Disruption,
Engineering & Construction Contract, Evidence, Experts, Non-Performance,
Penalty, Risk, Specific Performance, Specification, Standard Forms of Contract,
Time, Tribunal, Valuations.

ABSTRACT

This dissertation considers the context of the English, French and Swiss law
related to compensation in international arbitration, and their relationship to the
methodology of expert witnesses.

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TABLE OF CONTENTS

TABLE OF CONTENTS	3
TABLE OF CASES	6
United Kingdom.....	6
France	7
Switzerland.....	7
TABLE OF STATUTORY INSTRUMENTS	8
France	8
Switzerland.....	8
INTRODUCTION	9
Background and factual context.....	9
The assessment of damages in arbitration	10
A. Governing assessment of damages under English, French and Swiss Laws	12
<i>A 1. Comparative presentation of the principles of the three legal systems</i>	<i>12</i>
A 1.1. English Law	12
A 1.1.1. Compensation for the loss	12
A 1.1.2. Mitigation of damages	13
A 1.1.3. A liberal system of liability.....	13
A 1.2. French Law.....	13
A 1.2.1. <i>Force obligatoire du contrat</i>	14
A 1.2.2. <i>Principe de la réparation intégrale</i>	14
A. 1.2.3. No mitigation principle but a general duty of good faith	15
A 1.3. Swiss Law	15
A 1.3.1. The traditional contract law system	16
A 1.3.2. The rule of “ <i>demeure</i> ”	16
A 1.3.3. Simplified rules applicable to international contracts	17
A 1.3.4. Contractual liability	17
Conclusion.....	17
<i>A 2. Rules applicable to causation</i>	<i>18</i>
A 2.1. English chain of causation is limited by the theory of remoteness	18
A 2.1.1. The chain of causation.....	18
A 2.1.2. The test of remoteness.....	19
A. 2.1.3. Causation is addressed with common sense	19

A 2.1.4. Extent of damages is limited by the but-for the breach situation	20
A 2.2. French chain of causation is limited by foreseeability and thereby stands by the Full Compensation Principle.....	20
A 2.2.1. General principles are settled in tort law	21
A 2.2.2. Causation is narrowed by the Civil Code.....	21
A 2.2.3. Specific interruptions to the chain of causation were reformed recently	21
A 2.2.4. Foreseeability of reparable losses is not required in case of wrongful misconduct of a contractor.....	22
A 2.3. Swiss law settles a legal objective limit to the chain of causation	23
A 2.3.1. A small set of rules governs responsibility for a damage.....	23
A 2.3.2. There is no foreseeability test but an objective limit to the chain of causation (<i>Causalité naturelle – Causalité adéquate</i>).....	24
A 2.3.3. Specific interruptions of the chain of causation.....	24
<i>A 3. Are there sufficient legal rules applicable to assessment?.....</i>	<i>24</i>
A 3.1. English law is the more detailed on calculation	25
A 3.2. At last, freedom on the date and the amount of assessment.....	25
<i>Conclusion.....</i>	<i>26</i>
B. HOW DO ARBITRATORS AND EXPERTS DEAL WITH THESE RULES?	27
<i>Preamble</i>	<i>27</i>
<i>B 1. How do arbitrators and experts deal with principles of law?.....</i>	<i>28</i>
<i>B 2. Causation is a difficult area, is it for arbitrators or experts?.....</i>	<i>28</i>
B 2.1. The difficulty to settle the chain of causation in construction disputes.....	29
B 2.2. The English solution to very complex issues: global claims.....	30
B 2.2.1. Why are global claims an interesting solution?.....	30
B 2.2.2. Specificity of the evidence under a global claim	31
B 2.2.3. The limits of global claim	31
Conclusion.....	32
<i>B 3. Role of arbitrators and experts in quantum and delay.....</i>	<i>32</i>
B 3.1. Application of quantification legal rules	32
B 3.2 Quantum consequences: proof of losses	33
B 3.2.1. Discounted cash-flow (DFC) methods	33
B 3.2.2. On which materials the claim relies?	34
B 3.2.3. The burning issue of quantum of delays in construction.....	35
B 3.2.4. How do arbitrators estimate the compensable loss?	38
Conclusion.....	39
C. WHAT IS EXPECTED IS THAT ARBITRATORS AND EXPERTS REACH A CONSENSUS	40

<i>C 1. Experts tools for difficult cases: scientific models for disruption</i>	40
C 1.1. The “Measured Mile”	40
C 1.2. The “Unexpected Condition Event”	41
C 1.3. Other scientific models	41
Conclusion.....	42
<i>C 2. Arbitrators’ tools</i>	42
C 2.1 Tribunal appointed experts	42
C 2.2. Evidence and the discovery process	43
C 2.3. The “Hot Tub” or “witnesses conferencing”	44
Conclusion.....	44
<i>C 3. Is damage assessment only for the arbitrator or for the expert?</i>	44
C 3.1. The conduct of the expert	44
C 3.1.1. The duties of the experts	45
C 3.1.2. Are experts influenced by their clients?	46
C 3.1.3. Some recommendations	46
C 3.2. The view of the arbitrator.....	47
<i>C 4. Will current initiatives lead to the required consensus between arbitrators and experts?</i>	48
CONCLUSION	51
BIBLIOGRAPHY	52

TABLE OF CASES

United Kingdom

	PAGES
<i>Att-Gen v. Blake</i> , [2001] 1 A.C. 268	12
<i>Banco de Portugal v Waterlow</i> [1932] A.C. 452, 506	13
<i>Barings Plc v Coopers & Lybrand</i> [2003] EWHC 1319	20
<i>Borealis AB v Geogas Trading SA</i> [2010] EWHC 2789	20
<i>British Westinghouse Electric Co Ltd v Underground Electric Rys</i> [1912] A.C. 673, 689	13
<i>Chantiers de L'Atlantique SA v Gaztransport & Technigaz SAS</i> [2011] EWHC 3383	43
<i>City Inn Ltd v Shepherd Construction Ltd</i> , [2003] ScotCS 146	37
<i>Fairchild v Glenhaven Funerals</i> [2003] 1 AC 32	30
<i>Field v Leeds City Council</i> [1999] EWCA Civ 3013	46
<i>Galoo v Bright Grahame Murray</i> [1994] 1 W.L.R. 1360	19
<i>Hadley v. Baxendale</i> (1854) 9 Ex. 341	19, 47
<i>Henderson v Merrett</i> [1995] 2 A.C. 145	13
<i>Henry Boot Construction Ltd v Malmaison Hotel Ltd</i> [1999] 70 Con LR 32, QBD (TCC)	37
<i>Lagden v O'Connor</i> , [2003] UKHL 64, [2004] 1 A.C. 1067	13
<i>Laing Management v John Doyle</i> [2004] BLR 295	31
<i>Obrascon Huarte Lain (OHL) v Her Majesty's Attorney General for Gibraltar</i> [2014] EWHC 1028 (TCC)	29, 33, 37, 43, 46, 47
<i>Omak Maritime Ltd v Mamola Challenger Shipping Co</i> [2010] EWHC 2026	12, 20
<i>Quinn v Burch Bros (Builders) Ltd</i> , [1966] 2 Q.B. 370	20
<i>Robinson v Harman</i> (1848) 1 Ex. 850	12, 20
<i>Rodocanachi v Milburn</i> (1886) 18 Q.B.D. 67, 78	13
<i>Transfield Shipping Inc v Mercator Shipping Inc (The</i>	19

Achilleas), [2008] UKHL 48, [2009] 1 A.C. 61

France

Paris Court of Appeal, 1 ^{re} Ch. A, 22 May 1991, <i>Rev. Arb.</i> 1996.476	38
Cass. civ., 6 March 1876, <i>Canal de Craponne</i>	22
Cass. Civ. 1 ^{ère} , 4 Feb. 1969, <i>Bull. civ. I</i> , No 60 ; <i>Dalloz</i> 1969.601	23
Cass. civ. 3e, 27 March 2012, No 11-11.798, <i>RDI</i> , 2012.773	25
Cass. com., 24 Jul. 1924, <i>Sirey</i> 1925, 1, 321	22
Cass. com., 16 Feb. 1954, <i>Dalloz</i> 1954.334	22
Cass. com., 3 Apr. 1990, <i>Bull. Civ. IV</i> , n° 108	23
Cass. com., 10 Jul. 2007, No 06-14.768, <i>Dalloz</i> 2007.2839	15
Conseil d'État, 30 March 1916, <i>Lebon</i> 125	22

Switzerland

ATF 113 II 246, c. 3, <i>JdT</i> 1988 II 3, c. 3, <i>JdT</i> 1988 II 3	16
--	----

TABLE OF STATUTORY INSTRUMENTS

France

<i>Civ. C.</i> , art. 1104	15
<i>Civ. C.</i> , art. 1150	23
<i>Civ. C.</i> , art. 1195	22
<i>Civil Code (Civ. C.)</i> , art. 1231-2 (former art. 1149)	14
<i>Civ. C.</i> , art. 1231-3 (former art. 1150)	22, 23
<i>Civ. C.</i> , art. 1231-4 (former art. 1151)	21
<i>Civ. C.</i> , art. 1240 (former art. 1382)	21
<i>Civ. C.</i> , art. 1352 to 1352-9	15

Switzerland

<i>Code of Obligations (CO)</i> , art. 42	23, 25, 31
<i>CO</i> , art. 43	17, 25
<i>CO</i> , art. 44	25
<i>CO</i> , art. 97 to 101	23
<i>CO</i> , art. 99	23, 25
<i>CO</i> , art. 102 to 109	16
<i>Civil Procedure Code (CPC)</i> , art. 87	16

INTRODUCTION

2. This dissertation attempts to analyse the way that external parties to international construction disputes – lawyers, expert witnesses and arbitrators – approach their respective roles. It will also examine the problems of the insufficiency of claims-records-based quantifications, and the difficulties for parties to meet evidential requirements.

3. During arbitral proceedings, each step from the reading of the case to the final conclusion requires considerable time and expense. Given the technical aspects of many construction claims, legal professionals often engage experts to help in the preparation or defence of a claim.

Background and factual context

4. In the early 1990's, after 15 years spent as an engineer employed by a leading world industrial company in various parts of the USA, the last project for which I was then the project director ended up in a serious dispute because of the deficiency of a key subcontractor's equipment. As a result, the client sued the company for about three times the contract value. I was subsequently asked to help the various groups of forensic experts and the law firm selected to resolve this dispute of a few hundred million dollars.

5. After two years of intensive work spent revisiting the contract from tender stage up to the time of the on-going dispute, we were able to resolve to the satisfaction of my company's employer all the technical problems and to eliminate all liquidated damages and counterclaims. We were also awarded a large amount of damages from the deficient subcontractor.

6. Upon my return to Europe, I was entrusted with the coordination of the management and resolution of large disputes relating to difficult projects in the rail, marine and energy fields. For more than 25 years I have been responsible for the resolution of major matters while working closely with leading international law firms and consultancies.

7. My experience of the analysis of technical and engineering problems and their related commercial issues has given me a considerable understanding of the management of a team of forensic experts in delay analysis and quantum.

8. My experience has been that some 70% of projects are delayed for various reasons caused by the client, its engineer, the contractor or the subcontractor(s).

9. Usually, the contractor plans a coherent project execution by integrating all the different phases while following the terms of the contract, and any applicable standards and laws.

10. All variations from the contract execution plan defined at the time of the contract's notice to proceed may have an impact on the cost of the project and its timely execution affecting its financial margin or profit.

11. My extensive experience in the resolution of disputes has shown that if the ultimate goal of dispute resolution is to obtain compensation for the damage caused by project disruptions, the assessment of the costs to be claimed as damages is very often underestimated or done only approximately, and only at the end of the claim preparation.

The assessment of damages in arbitration

12. There are numerous reasons why damages are the principal remedy in international commercial dispute settlement. First, it is the primary remedy for breach of contract where the applicable law is common law. Second, where there is a claim in a long-term commercial contract, even legal systems that try to give priority to specific performance may be hesitant to give orders forcing unwilling parties to work amicably together in future. A financial sum equivalent to specific performance is then awarded to put the claimant party in the position it would have been in had the contract been properly performed.

13. Damage claims by the Employer in construction contracts include:

- Damages for breach of the obligation to build to specification, and

- Damages for breach of the obligation to deliver on time.

The second is often subject to liquidated damages.

14. In return, the contractor may claim against the employer for breaches of its obligations such as late or restricted access to site, non or insufficiently compensated changes orders, delays in drawing approvals and unforeseen events.

15. It follows that questions arise:

- Is the assessment of damages a matter for arbitrators or experts?
- Is the law reserved for the arbitrator and the facts for the expert?

16. This research from the perspective of English, French and Swiss law considers the roles of experts and arbitrators in the assessment of damages in international arbitration construction disputes. It then proposes solutions to improve their roles to reach a just outcome.

A. GOVERNING ASSESSMENT OF DAMAGES UNDER ENGLISH, FRENCH AND SWISS LAW

17. Despite their different origins, English, French and Swiss law have generated the same main principle: to compensate the damage caused so as to put the victim in the same situation it would have been but for the breach of contract. I will compare to what extent they are similar first on general principles, second on rules of causation and third on rules of quantum.

A 1. COMPARATIVE PRESENTATION OF THE PRINCIPLES OF THE THREE LEGAL SYSTEMS

A 1.1. English Law

A 1.1.1. Compensation for the loss

18. In the case of breach of contract, English law asserts more than others that the first remedies to apply are those contained in the contract¹. The law of damages only applies by default and provides as follows: first that paying damages is the primary obligation in case of a breach – this is a fundamental difference with the two other laws herein considered; – and second, that damages for breach of contract are a compensation for the loss resulting from that breach². According to this rule, the innocent party must be placed in the same situation it would have been in had the contract been performed, which is done by comparing the situation “but for” the breach with the actual situation³. Though legal rules have been developed, compensating this way is more a purpose than a mathematical equality: “it must be remembered that the rules as

¹ J. Chitty, *Chitty on contracts*, 32th ed., London, 2015, n° 26-001.

² Chitty, *op. cit.*; *Att-Gen v. Blake*, [2001] 1 A.C. 268; *Robinson v Harman* (1848) 1 Ex. 850, 855.

³ *Robinson v Harman* (1848) 1; *Omak Maritime Ltd v Mamola Challenger Shipping Co* [2010] EWHC 2026, 65.

to damages can in the nature of things only be approximately just”⁴. This purpose is similar to French and Swiss laws’ ones.

A 1.1.2. Mitigation of damages

19. Between all three legal systems, English law has the narrowest concept for reducing the loss of the victim⁵, which is named mitigation. Mitigation rules require first that the claimant does not recover avoidable damages⁶; second that the claimant “acts reasonably in the adoption of remedial measures”, and may recover the cost of these measures⁷. Despite the strictness of these rules, there are circumstances where their impacts may be softened. For example, if the claimant is unable to pay for reducing his loss, the judge may override its mitigation duty, provided this inability to pay were clearly foreseeable by the claimant⁸. The better view seems to be presented by Mr Ortscheidt according to whom this duty is not a consequence of causation, as the loss unrepaired is frequently caused by the defendant⁹.

A 1.1.3. A liberal system of liability

20. In the event the claimant has a choice between suing in tort or in breach of contract, according to concurrent liability rules¹⁰, under common law he may choose the most favourable avenue to him¹¹. This is special as French law does not recognise coexistence between two systems of liability.

A 1.2. French Law

⁴ *Rodocanachi v Milburn* (1886) 18 Q.B.D. 67, 78.

⁵ H. Heilbron, ‘Assessing Damages in International Arbitration: Practical Considerations’, *Journal of Damages in International Arbitration*, Jurisnet, LLC, 2014, pp. 17 s.

⁶ *British Westinghouse Electric Co Ltd v Underground Electric Rys* [1912] A.C. 673, 689.

⁷ *Banco de Portugal v Waterlow* [1932] A.C. 452, 506.

⁸ *Lagden v O’Connor*, [2003] UKHL 64, [2004] 1 A.C. 1067.

⁹ J. Ortscheidt, *La réparation du dommage dans l’arbitrage commercial international*, Dalloz, 2001, p. 103.

¹⁰ *Henderson v Merrett* [1995] 2 A.C. 145.

¹¹ Chitty, *op. cit.*, n° 26-006.

21. French principles of *Force obligatoire du contrat* and *Principe de la réparation intégrale* (Full Compensation Principle) both ground contractual liability rules. A general duty of good faith on contracting parties also gives freedom to the court or tribunal to adapt its solution.

A 1.2.1. *Force obligatoire du contrat*

22. French contract law is grounded by principles of Roman law and has evolved until today. It has just been reformed so as to coordinate and integrate new rules resulting from case law and comparative law. Damages may be awarded in the event the contract has been violated. However, according to the Roman law approach, it is only the second remedy in case of a breach of contract, the first being forced execution. This is critical due to the “*principe de la force obligatoire du contrat*”, according to which someone is bound by the terms he accepted. Forced execution may be ordered either by nature (the obligation itself), or by equivalent (an amount of money that stands for the performance of this obligation). This system aims to satisfy the interest the claimant found within the performance of the contract. Damages “*par equivalent*” are the easiest and the most common solution in the event of a breach of contract.

A 1.2.2. *Principe de la réparation intégrale*

23. Consequently, damages in French law are first and foremost the equivalent of the performance of the contract; in addition, they may repair losses resulting from the breach. In the French Civil Code, general rules governing contractual liability are called “*principe de la réparation intégrale*” (Full Compensation Principle)¹². Similarly to English law, Full Compensation is a purpose for the judges; it does not provide the means for judges to meet this expectation! The Civil Code is silent on calculating the amount of damages, and case law is insufficient¹³.

¹² French *Civil Code (Civ. C.)*, former art.1149 and new art. 1231-2.

¹³ Y.-M. Laithier, ‘Les règles relatives à l’évaluation du préjudice contractuel’, *Revue de l’arbitrage*, 2015-2, p. 363.

24. The principle referred to above comes from civil liability (tort law), which is the source of inspiration of some contractual liability rules. Civil liability rules are settled to compensate the damage caused to someone¹⁴, which we traditionally refer to as restoring the balance destroyed by the wrong¹⁵. This general purpose also grounds contractual liability rules presented before.

A. 1.2.3. No mitigation principle but a general duty of good faith

25. Unlike English law, French law has not recognised the mitigation principle; this means it has to be written in the contract and applied as contractual rule. However when the contract refers to *lex mercatoria* or “*principes du droit commercial international*” the mitigation principle may be applied as an international rule, as recognised by French case law. Nowadays a judge or arbitrator working under French law will apply another principle that may give similar results: the duty of good faith, which is a public policy rule¹⁶. The duty to perform the contract in good faith allows judges to consider the claimant’s own performance to reduce the amount awarded against the defendant. In addition, good faith governs the articles of restitution in case the contract is annulled¹⁷. Like the Full Compensation Principle, the duty of good faith is theoretical and gives no means for judges to calculate clearly. The space for judges’ freedom under the principle of good faith, has been limited by a famous judgment that reveals the fear of an unlimited power for the judges to intervene in contractual relations¹⁸.

A 1.3. Swiss Law

26. Traditional Swiss rules on non-performance are similar to French ones, apart from the special rule of “*demeure*”, which excuses the non-performance of

¹⁴ Y.-M. Laithier, *op. cit.*, p. 361.

¹⁵ J. Ortscheidt, *La réparation du dommage dans l'arbitrage commercial international*, Paris, Dalloz, 2001, n° 124.

¹⁶ Fr. Civ. C., new art. 1104: “*Les contrats doivent être négociés, formés et exécutés de bonne foi. / Cette disposition est d'ordre public.*”

¹⁷ Fr. Civ. C., art. 1352 to 1352-9.

¹⁸ Fr. Cass. com., 10 Jul. 2007, No 06-14.768, *Dalloz* 2007.2839.

one party in the case of the other's delay. However, this additional special rule has since been set aside to simplify the rules governing international contracts (see A. 1.3.3. below).

A 1.3.1. The traditional contract law system

27. Also grounded by Roman law, Swiss law is similar to French law in some general principles. Therefore, the "*principe de la force obligatoire du contrat*" also exists in Swiss law and provides forced execution as a first remedy in case of a breach of contract¹⁹. The claimant is granted special actions to obtain a direct execution of the contract: it is entitled to request the judge either to order the performance of the obligation, or to give consent in place of the debtor²⁰, or to recognise the breach. If forced execution is not possible, contractual liability rules apply: the judge is required to grant damages that compensate or complete the violated obligation.

28. Similar to English law, Swiss law entitles the claimant to choose between contractual liability and tort when the breach of contract is also an infringement of a general duty²¹. Nonetheless this solution is criticised²² and contrary to common law, Swiss contractual liability is generally considered the more favourable avenue for Claimants.

A 1.3.2. The rule of "*demeure*"

29. If an obligation is not performed on time, traditional Swiss contract law does not recognise a breach, but a "*demeure*" of the party²³, which does not exist in France nor in England. "*Demeure*" means delay of a party in performing its obligation on time. At the time at which the obligation falls due and has not been performed, the claimant is not entitled to request damages, but is instead given special remedies. Swiss law distinguishes "*demeure*" of the debtor and "*demeure*"

¹⁹ P. Tercier – P. Pichonnaz, *Le droit des obligations*, 5th ed., 2012, No 1133 and Nos 1143 sq.

²⁰ Swiss *Civil Procedure Code (CPC)*, art. 87.

²¹ P. Tercier – P. Pichonnaz, *op. cit.*, No 1202.

²² See, justifying the critics, judgement ATF 113 II 246, c. 3, JdT 1988 II 3.

²³ Swiss *CO*, art. 102 to 109 ; P. Tercier – P. Pichonnaz, *Le droit des obligations*, Nos 1273 s.

of the creditor. In construction, usual “*demeures*” of the creditors are those of the owner, such as lack of giving access to the site or delay in delivering plans, etc ... For example, if the owner did not give access to the site on time, the debtor cannot claim for damages, but is entitled to request this access before the judge, and to suspend its own obligations. For this reason, strictly, the proper word is not “obligation” but “*incombance*” of the owner to give access to the site on time.

A 1.3.3. Simplified rules applicable to international contracts

30. A new system of remedies to breach of contract appeared under the influence of common law and international conventions²⁴. Traditional rules, especially “*demeure*”, were no longer appropriate for governing the performance of complex international contracts such as international construction contracts. According to these new solutions, non-performance gives access to all remedies: forced execution, compensation of the damage, and reduction or resolution of the contract.

A 1.3.4. Contractual liability

31. Complex international construction contracts usually follow these simplified rules. Contractual liability is therefore the principal recourse in case of a breach of contract, governed by imperative rules (mainly CO, art. 100 and 101 II-III) and secondary (*supplétives*) rules which apply unless parties have agreed to the contrary. According to those legal rules, in case of a breach, the respondent’s contractual obligation is replaced by the obligation to repair the wrong caused by its breach of the contract²⁵, which is a Roman law rule. The judge is able to order a reparation in nature²⁶, but usually the loss is repaired by a compensative sum of money.

Conclusion

²⁴ P. Tercier – P. Pichonnaz, *op. cit.*, Nos 1133 to 1139.

²⁵ P. Tercier – P. Pichonnaz, *op. cit.*, No 1250.

²⁶ Swiss CO, art. 43.

32. We see that the general principle, compensating the damage, is similar in all three jurisdictions. The decisions rendered in international commercial arbitration demonstrate that arbitrators mostly apply this rule, called the “Full Indemnification Principle” by Mr Ortscheidt in his significant study²⁷. Although this is not binding precedent, it reveals the wide-spread use of the rule across several applicable laws.

A 2. RULES APPLICABLE TO CAUSATION

33. To assess damages, one condition is required in all three systems: causation between the wrong (the breach of contract) and the alleged damage. The causal connection between the breach and the loss is the heart of construction disputes: causation is a requirement to secure a damages claim, but also a limitation to it. In English law, it stands by the rule of remoteness which requires a reasonable contemplation of the losses incurred. Similarly, French law requires recoverable losses be foreseeable at the date of the contract, whereas Swiss law lays down an objective limitation to the chain of causation that does not rely on foreseeability.

A 2.1. English chain of causation is limited by the theory of remoteness

34. English law focuses on remoteness of the damage to limit the chain of events included in assessment of the damage, and to leave the judge free to address the factual question of causation.

A 2.1.1. The chain of causation

35. Among losses suffered by the claimant in breach of contract, which are likely to be compensated with unliquidated damages? English law answers with the test of remoteness of the damage that aims to distinguish which among the

²⁷ J. Ortscheidt, *op. cit.*, n° 123.

losses have been implicitly assumed by the contractor. The other losses are considered too remote to be compensated by unliquidated damages. Foreseeability is the legal part of the test, and causation the factual one. In contractual disputes, remoteness of the damage is addressed more often than causation²⁸.

A 2.1.2. The test of remoteness

36. Unless the parties agree on limitation or exclusion of liability clauses, they will under common law each have to bear to the other the consequential losses that arise from the breach²⁹, which is also the ordinary rule in French and Swiss laws. This is the legal aspect of the remoteness test: did the promisor implicitly accept responsibility for the usual consequences (ordinary course of things) of a breach, or was he informed of unusual consequences³⁰? Moreover, there is a factual aspect, the remoteness itself³¹. “Ordinary course of things” is the standard, settled in *Hadley v. Baxendale*³².

A. 2.1.3. Causation is addressed with common sense

37. English common law does not settle rules on a test of causation for cases of breach of contract, so that judges may solve causation issues according to common sense³³. In *Galoo v Bright Grahame Murray*³⁴, the Court of Appeal held that the facts must “in the end” be interpreted “with the court’s common sense”. The judges held that negligence in auditing a trading company gave the *opportunity* to make losses, but did not *cause* those losses, which resulted from trading. Although this case law gave an important freedom to judges, I find it interesting as it entitles judges to make an equitable settlement on causation. For example, the act of the plaintiff that caused his own loss will normally break the

²⁸ H. Heilbron, “Some legal issues”, p. 15.

²⁹ Chitty, *op. cit.*, No 26-107.

³⁰ Those criteria date back to *Transfield Shipping Inc v Mercator Shipping Inc (The Achilles)*, [2008] UKHL 48, [2009] 1 A.C. 61.

³¹ Chitty, *op. cit.*, No 26-110.

³² (1854) 9 Ex. 341.

³³ Chitty, *op. cit.*, No 26-058.

³⁴ [1994] 1 W.L.R. 1360.

chain of causation. Nonetheless, common sense requires one to maintain the chain of causation if this act follows the defendant's breach of contract. In *Quinn v Burch Bros (Builders) Ltd*³⁵, the defendant failed, in breach of contract, to furnish suitable equipment to the claimant, an independent contractor. Even though the utilisation of this unsuitable equipment by the claimant was the cause of its loss, it followed the defendant's breach of contract, so that the Court of Appeal maintained the chain of causation. To conclude on this point, I refer to Evans-Lombe J.'s dictum³⁶ quoted in *Borealis AB v Geogas Trading SA*³⁷: "ultimately, the question of whether there has been a break in the chain of causation is fact sensitive... it is almost impossible to generalise." Causation in common law is a question of fact.

A 2.1.4. Extent of damages is limited by the but-for the breach situation

38. Both *lucrum cessans* (actual loss suffered by the injured party) and *damnum emergens* (loss of profit and benefit) may be compensated. The principle was stated in *Robinson v. Harman*³⁸ and confirmed in *Omak Maritime*³⁹. In the last case, the High Court held that: "*the fundamental principle stated by Baron Parke in Robinson v Harman... requires the court to make a comparison between the claimant's position and what it would have been*". This method aims to compare the actual situation to the but for situation: a rule that is comparable to the French Full Compensation Principle (a discussion of which follows), concluding that the French assessment of contractual damages is similar as it too focuses on the foreseeability of the damage incurred.

A 2.2. French chain of causation is limited by foreseeability and thereby stands by the Full Compensation Principle

³⁵ [1966] 2 Q.B. 370.

³⁶ *Barings Plc v Coopers & Lybrand* [2003] EWHC 1319 (Ch) at [838].

³⁷ [2010] EWHC 2789 (Comm) at [47].

³⁸ *Robinson v Harman* (1848) 1 Ex. 850.

³⁹ *Omak Maritime Ltd v Mamola Challenger Shipping Co* [2010] EWHC 2026.

39. In France, tort law is the more detailed on the subject of causation, but the Civil Code strictly narrows causation in contract disputes. An important English-inspired reform inserted a legal interruption to the chain of events. There are two particular rules governing the scope of reparable losses in the case of wrongful misconduct by a party.

A 2.2.1. General principles are settled in tort law

40. As previously mentioned, the French general rules on causation belong to tort law. According to article 1240 (former 1382) of the French Civil Code⁴⁰, anyone who by his fault causes a loss to someone else must repair it. Therefore the general system as to recoverable losses is a fact generating a loss: a fact (*fait générateur*), a loss, and causation between each of them.

41. Contrary to English law, concurrent liability does not exist in French law, according to which contractual liability supersedes tort law. This means that the claimant has no choice but to sue pursuant to a contract where applicable.

A 2.2.2. Causation is narrowed by the Civil Code

42. In case of a breach of contract, both French and Swiss laws are based on the Roman rule according to which only foreseeable damages are likely to be repaired⁴¹. Following Pothier's works, the Civil Code incorporated this rule in its former article 1151 (new article 1231-4), according to which a contractor is entitled to claim for the reparation of a damage if it is the "immediate and direct consequence of the non-performance of the contract"⁴².

A 2.2.3. Specific interruptions to the chain of causation were reformed recently

⁴⁰ "Tout fait quelconque de l'homme, qui cause à autrui un dommage, oblige celui par la faute duquel il est arrivé à le réparer".

⁴¹ J. Ortscheidt, *op. cit.*, p. 46.

⁴² Fr. Civ. c., new art. 1231-4 : "Dans le cas même où l'inexécution du contrat résulte d'une faute lourde ou dolosive, les dommages et intérêts ne comprennent que ce qui est une suite immédiate et directe de l'inexécution de la convention."

43. In a similar way to English and Swiss law, the chain of causation may be interrupted by the fault of the victim (contributory negligence), the intervention of a third party, or by force majeure. *Imprévision* used to exist only under French public law⁴³. On the contrary, it was banned from French civil law by an old famous judgment⁴⁴. Finally, *imprévision* has been admitted in French civil law from the recent reform of the Civil Code that created a legal rule of *imprévision* in article 1195⁴⁵. French law here aimed to follow a sort of international standard for contract law, based on the common law of frustration. It is obviously progress, but parties must be careful with the difficult procedure settled in article 1195 to interrupt the contract for French *imprévision*. They should rather draft a specific and detailed clause. On the contrary, the French legal definition of force majeure is narrow and strict - so strict in fact, that it is very difficult to make it apply!

A 2.2.4. Foreseeability of reparable losses is not required in case of wrongful misconduct of a contractor

44. In contractual disputes, the only reparable losses are those foreseen or foreseeable at the date of the agreement⁴⁶. The French *Cour de cassation* detailed that foreseeability encompasses both the cause and the extent of the loss⁴⁷. This is particular to the French system as for example, Belgium, another Civil law country, seems to require only foreseeability of the cause and not of the extent of the loss⁴⁸.

45. The principle of foreseeability is excluded to punish the wrongful misconduct of the respondent during the performance of the contract. In this case, foreseeability of the loss is not required to make it recoverable. Under

⁴³ Fr. Conseil d'État, 30 March 1916, *Lebon* 125.

⁴⁴ Fr. Cass. civ., 6 March 1876, *Canal de Craponne*.

⁴⁵ Ordonnance 2016- 131, 2 Feb. 2016.

⁴⁶ Fr. *Civ. C.*, new art. 1231-3 (former art. 1150).

⁴⁷ Fr. Cass. com., 24 Jul. 1924, *Sirey* 1925, 1, 321. Nonetheless, it was later held that variations in the monetary expression of the loss have not to be taken into account (Fr. Cass. com., 16 Feb. 1954, *Dalloz* 1954.334).

⁴⁸ J. Ortscheidt, *op. cit.*, p. 47.

former article 1150 of the French Civil Code, the condition of “*dol*” was largely construed as including both deliberate non-performance (*inexécution dolosive*)⁴⁹ and serious fault that shows the inability of the debtor to perform its obligations⁵⁰ (*faute lourde assimilable au dol*). This construction of the rule was integrated in 2016 in new article 1231-3⁵¹. For this reason, there are significant cases where foreseeability of the loss is not required⁵².

A 2.3. Swiss law settles a legal objective limit to the chain of causation

46. The Swiss Code of obligations sets out few rules on the scope of reparable damages. Its main specificity is that foreseeability is not required to limit reparable losses. On the contrary, interruptions to the chain of causation are similar to ones under English and French laws.

A 2.3.1. A small set of rules governs responsibility for a damage

47. There are few legal rules governing liability, so contract rules are of significant importance under Swiss law. Contractual liability rules⁵³ refer to general rules on the assessment of damages⁵⁴, which are very general and require the claimant to prove the valuation of his damage, or the judge will assess it equitably⁵⁵. Despite a controversy, the usual construction of those rules is that general rules (CO, art. 41 to 61) govern torts and rules of non-performance of the contract (CO, art. 97 to 101) govern contractual liability⁵⁶. The latter only settle some conditions of assessment of damages, so that again, the judges have significant freedom.

⁴⁹ Fr. Cass. Civ. 1ère, 4 Feb. 1969, *Bull. civ. I*, No 60 ; *Dalloz* 1969.601.

⁵⁰ Fr. Cass. com., 3 Apr. 1990, *Bull. Civ. IV*, n° 108.

⁵¹ “*Le débiteur n’est tenu que des dommages et intérêts qui ont été prévus ou qui pouvaient être prévus [...] sauf lorsque l’inexécution est due à une faute lourde ou dolosive.*”

⁵² J. Ortscheidt, *op. cit.*, p. 47.

⁵³ Swiss Code of Obligations (CO), art. 97 to 101.

⁵⁴ Swiss CO, art. 99.3.

⁵⁵ “*Equitablement en considération du cours ordinaire des choses et des mesures prises par la partie lésée.*” (Swiss CO, art. 42.II).

⁵⁶ About this construction: P. Tercier – P. Pichonnaz, *Le droit des obligations*, No 1185.

A 2.3.2. There is no foreseeability test but an objective limit to the chain of causation (*Causalité naturelle – Causalité adéquate*)

48. The Swiss assessment of unliquidated damages differs from English and French law as regards foreseeability. We presented earlier that English and French judges consider foreseeability by the parties at the date of their agreement on their mutual obligations. Swiss judges, on the contrary, listen to the history of the performance of the contract and focus on the breach to evaluate causation. To be compensated, a loss must be linked to the breach according to two aspects, which are the same as in tort law⁵⁷. First, the non-performance of the obligation must be a necessary cause of the loss (*causalité naturelle*). It is a *condicio sine qua non* to the loss. This issue is addressed on a case by case basis. Second, this causation is effective only if it is qualified (*causalité adéquate*). According to this rule, only losses which would have resulted from the ordinary course of things and life experience are relevant. This is a pragmatic legal limit to the obligation of compensatory damages⁵⁸. Contractual clauses may adapt those rules to extend or restrain contractors' liability.

A 2.3.3. Specific interruptions of the chain of causation

49. We saw before that French and English law recognise similar specific interruptions of the chain of causation. Likewise, in Swiss contract law, the fault of the victim (contributory negligence), intervention of a third party, and force majeure may interrupt causation⁵⁹.

A 3. ARE THERE SUFFICIENT LEGAL RULES APPLICABLE TO ASSESSMENT?

50. While English law is the more detailed on assessment issues, all three jurisdictions give an important freedom to judges to decide the final amount.

⁵⁷ P. Tercier – P. Pichonnaz, *op. cit.*, No 1223.

⁵⁸ *Ibid.*

⁵⁹ D. Guggenheim, *Le droit suisse des obligations, II : Les effets des contrats*, 1995, pp. 146 sq.

A 3.1. English law is the more detailed on calculation

51. Among the three sets of law, French law is the least precise and therefore gives the most freedom to the judges and arbitrators in the assessment of damages⁶⁰. On the contrary, the English judge has to choose and justify the most appropriate method of calculation: reduction in profits or effects in the valuation of the business⁶¹. English construction law tends to choose the cheaper amount for the debtor⁶², whereas French contract law chooses the most expensive sum for the debtor⁶³.

52. In addition, French law requires the certainty of the damage to be proved⁶⁴, which is not necessary under Swiss and English law. The first refers to general rules of tort law as to the proof of the amount⁶⁵, which in principle must be established precisely, but will by default be calculated equitably by the judge⁶⁶. The last, English law, created a global-claim approach that aims to repair complex damages that cannot be proved precisely.

A 3.2. At last, freedom on the date and the amount of assessment

53. English law provides as a normal rule that damages are assessed at the date of the breach, but this rule is flexible, especially according to the mitigation principle⁶⁷. Similarly, assessment of damages under French law is done at the date of the breach according to Full Compensation Principle; therefore, judges may estimate the damage at an earlier date. Swiss *causalité adéquate* requires damages to be assessed at the date of the breach; the judge is also entitled to reduce the amount according to some circumstances⁶⁸. There are no detailed

⁶⁰ Y.-M. Laithier, *Revue de l'arbitrage*, 2015.

⁶¹ Chitty, *op. cit.*, No 26-017 & 26-172.

⁶² H. McGregor, *Damages*, n° 29-014.

⁶³ For example, Fr. Cass. civ. 3e, 27 March 2012, No 11-11.798, *RDC*, 2012.773.

⁶⁴ J. Ortscheidt, *op. cit.*, p. 19.

⁶⁵ Swiss *CO*, art. 99.

⁶⁶ Swiss *CO*, art. 42 II.

⁶⁷ CHITTY, *op. cit.*, No 26-014.

⁶⁸ Swiss *CO*, art. 99 II and in tort law, art. 43 and 44.

rules of calculation in any of the three, so that this points out the freedom of the judge.

CONCLUSION

54. Mr Laithier pointed out that French law on the assessment of damages was so poor that the assessment is done randomly⁶⁹. We are able to say at the end of this comparison that not only French law, but also English and Swiss law, even though more detailed, leave a lot to the judge's interpretation of the facts, and entitle him to modulate the amount without rules of calculation, by focusing on mitigation, good faith or circumstances. This conclusion will help us to address the issue of how arbitrators and experts deal with these rules.

⁶⁹ Y.-M. Laithier, *op. cit.*

B. HOW DO ARBITRATORS AND EXPERTS DEAL WITH THESE RULES?

55. All three of the abovementioned points (general principles of liability, specific rules on causation, and rules on assessment) give freedom to judges and experts and I will present hereinafter how they approach these issues.

PREAMBLE

56. An astonishing paradox unfolds before our eyes: the arbitrator may withdraw himself at the moment of approaching the most important question for the parties⁷⁰: how much? I believe that establishing the correct figure requires cooperation between the arbitral tribunal and the experts and not a deliberate delegation. Usually, however, arbitrators decide on the applicable principles of law and rely on the causation presented by the experts and the associated costs.

57. In large complex contracts, the quantum requested generally consists of two important steps which are both marked by uncertainty. They are:

- To imagine a story that did not happen and,
- To turn it into a monetary quantum⁷¹.

58. An ongoing arbitration case illustrates why it is difficult for the arbitrator to quantify the loss. In this case, the contract was interrupted for years because contractor A claimed that the land attributed by the client was insufficient to perform the contract. Both parties pleaded termination and consecutive damages. This project was actually put out to tender again and was resumed by another contractor, B, who was again severely delayed by 3 or 4 years for the same reasons: insufficiency of land and substantial archaeological discoveries. The difficulty for arbitrators and experts is to quantify the real delay

⁷⁰ L. Aynès, 'L'évaluation du préjudice par l'arbitre' (2015) *Revue de l'arbitrage* 2015-2, 489.

⁷¹ V. Ramsey, 'Presenting evidence of causation: How to succeed', 28 January 2008.

that would have occurred if the first contract had not been terminated. The arbitrators with the help of the experts have to “imagine” the real time contractor A would have spent to perform its contractual obligations under the original un-relaxed contract and its corresponding amounts.

59. The following sections will explore the respective roles of experts and arbitrators during key moments of proceedings: causation and quantification of damages.

B 1. HOW DO ARBITRATORS AND EXPERTS DEAL WITH PRINCIPLES OF LAW?

60. I noted above that the rules applicable to the contract are, in order of precedence: imperative rules of the applicable law, contractual clauses and legal rules applicable by default. These rules govern the interventions of all participants to proceedings, including arbitrators and experts. French law of procedure firmly forbids the experts to take any position on legal issues; in the end, legal issues belong to the arbitrators.

61. Since 1980s, prominent civil law professors and arbitrators⁷² have developed the theory of *lex mercatoria*, a spontaneous set of rules created by international arbitration practice. The authority of an arbitral tribunal to apply a non-national system of law such as the *lex mercatoria* will depend upon the agreement of the parties and the provisions of the applicable law⁷³.

B 2. CAUSATION IS A DIFFICULT AREA, IS IT FOR ARBITRATORS OR EXPERTS?

62. Settling the chain of compensable losses is often very difficult in international construction disputes. English law has allowed the solution of global claim in the event of difficulty in identifying a clear causation link.

⁷² B. Goldman, ‘*Lex Mercatoria*’ (1983) 3 *Forum Internationale* 21; E. Gaillard, ‘Transnational law: A legal system or a method of decision making?’ (2001) 17 *Arb Intl* 62; Ph. Kahn, ‘Les principes généraux du droit devant les arbitres du commerce international’ (1989) *Clunet* 305.

⁷³ *Redfern and Hunter on International Arbitration. Student Version*, 6th ed. (2015) No 3.188.

B 2.1. The difficulty to settle the chain of causation in construction disputes

63. The heart of construction disputes is the issue of causation between the breach and the losses. The claimant must prove on a balance of probabilities that the breach has caused the loss. This is difficult as risk is often neglected or under-evaluated during contract tendering. A risk is the probability of the realisation of a harmful event. It is a task for both experts and arbitrators to determine among the risks, which were foreseeable (English and French laws) and which normal (Swiss law). I assume that the counsel's presentation of facts and their use of expert's testimony take a large part in success or failure on liability.

64. As an example, contractors may sue a client and its engineer for defective specifications and drawings on which they rely. In the *OHL* case⁷⁴, the contamination expert witnesses Mr Wouters and Mr Hall tried unsuccessfully to link risks and causation of related costs and delays. The judge answered: "*I formed the strong view that Mr Wouters adopted a very blinkered view as to what was foreseeable ... contaminants in the groundwater was not 'Unforeseeable'*". The tendering documents contained an "Environment Statement" which was not considered seriously by *OHL* for its bid.

65. More importantly, arbitrators keep a large freedom in establishing liability for losses. The following case from the court on judge's conduct shows how arbitrators may take freedom to adapt the solution according to the facts of a complex issue. In *Fairchild v Glenhaven*⁷⁵, a case where three separate claimants contracted lung cancer as a result of asbestos exposure during their work with different employers. The issue for the House of Lords was to decide from which employer, if any, were the claimants entitled to claim damages from their exposure to asbestos. They held that where a claimant could satisfy the

⁷⁴ *Obrascon Huarte Lain (OHL) v Her Majesty's Attorney General for Gibraltar* [2014] EWHC 1028 (TCC).

⁷⁵ *Fairchild v Glenhaven Funerals* [2003] 1 AC 32.

burden of proof that one employer had materially contributed to their damage by materially raising the probability of the claimant contracting mesothelioma, that claimant could claim total compensation. It would have been unjust to deny the claimant any remedy. Thus for facts where the “but for” test cannot be used or applied fairly, a substitute test “materially increased risk” may be used. Lord Hoffman said in para. 54: *“the essential point is that the causal requirements are just as much part of the legal conditions for liability as the rules which prescribe the kind of conduct which attracts liability or the rules which limit the scope of that liability.”* He also said at Para 51 to 52: *“The question of fact is whether the causal requirements which the law lays down for that particular liability have been satisfied. But those requirements exist by virtue of rules of law. This involves deciding what, in the circumstances of the particular case, the law’s requirement are.”*

B 2.2. The English solution to very complex issues: global claims

66. Global claims are an interesting solution to very complex situations and settle a suitable system of evidence, which has also some limits.

B 2.2.1. Why are global claims an interesting solution?

67. Construction claims present a multitude of causes in terms of variations, breaches of contract and issues leading to claims which cannot be proved on an individual basis. Construction contracts are very complex and it is often difficult to prove that a particular breach has caused a particular loss or delay and that they can be recovered under a clause of the contract. How then does a party find a way to build a causal bridge between the as-planned and the as-built contexts?

68. The global claim runs into difficulties where it can be shown that some of the causal events do not lead to the loss or delay, or that there are some causal effects which are the responsibility of the claimant. Some guidance can be

derived from *Laing Management v John Doyle*⁷⁶, which sets out the principles which were accepted to be applicable in English Law⁷⁷. French law does not recognise the global claim approach, and nor does Swiss law except under exceptional circumstances per article 42⁷⁸ of the Swiss Code of Obligations.

B 2.2.2. Specificity of the evidence under a global claim

69. The first requirement is a proper analysis of the facts. A selection of the stronger events in terms of liability causing a substantial degree of cost and delay must be done. The analysis of the facts should also describe what the effects were. The global claim must be divided into separate parts, either in different areas of the project, specific activities or particular windows of time.

70. The global claim must be presented in a logical approach in order to assist the tribunal to understand the factual position. A global claim accumulating a myriad of allegations and evidence in the hope that the tribunal will be impressed by the complexity and will award a substantial award is likely to fail. The use of sophisticated computer-generated analysis must be explained thoroughly to allow the tribunal to understand the evidence presented. The analysis must be based on valid major assumptions and the results explainable.

B 2.2.3. The limits of global claim

71. However, in a large number of instances global claims are presented for other reasons⁷⁹: they can be easier and quicker, less expensive, avoid inadequacies of the tender, lack of notification and submission of detailed particulars, progress reports do not exist, programme submitted to the client is inadequate to support an itemised claim, costs have not been recorded or allocated in a way to prove damages. All large projects will be delayed and

⁷⁶ [2004] BLR 295

⁷⁷ Ramsey, 'Presenting evidence of causation', *op. cit.*

⁷⁸ *Ibid*, p. 35.

⁷⁹ W. Burns, 'Global Construction claims in the U.K.' (2016) Navigant.

disrupted to some degree and it is important to have an intended as-planned baseline and an actual as-built programme.

Conclusion

72. No expert can hope to navigate among what has been presented above without clear instructions from the legal team associated to them in the calculation of damages. Without this preparation, arbitrators face a difficult job when evaluating expert evidence on damages to finalise their award.

B 3. ROLE OF ARBITRATORS AND EXPERTS IN QUANTUM AND DELAY

73. Many lawyers and arbitrators are not themselves experts in accounting! It can be difficult for them to understand how they may use and interpret quantum and delay expert evidence in fixing damages. Quantum follows the legal solution, this is why I will first present the respective roles towards the law, and then towards quantum consequences.

B 3.1. Application of quantification legal rules

74. Construction and engineering projects are often complex, they inevitably contain a number of different documents setting out the requirements and specifications for the project. They are listed with an order of precedence clause, they can be cumbersome to interpret and have possible inconsistencies between them.

75. As an example of the above, *OHL*⁸⁰ is related to the construction of a tunnel under the runway at Gibraltar where the soil condition was referred to as being contaminated by the client in the pre-tender document, which was attached to the contract. The contractor later claimed delay and associated costs due to unforeseeable huge quantity of contaminated material. The judge said

⁸⁰ *Op. cit.*, p. 29.

"The problem here for tendering contractors is and was the foreseeable uncertainty of precisely what and where in terms of quantity and location the contaminated soil would be... I find that OHL did not in fact anticipate, expect or in practice plan for encountering... contaminated material at all... I find that the quantities could have been reasonably foreseen by an experienced contractor at the time of tender". If experts had taken into account the request to tender, the risk matrix and applied good common sense, the judge might have been more accommodating to their case.

B 3.2 Quantum consequences: proof of losses

76. Arbitrators cannot do anything without proof of alleged losses. Legal rules do not give solutions, so methods of calculation are developed. The problem is which materials are best suited to proving the loss. I will illustrate these issues with the analysis of quantum of delay and conclude by explaining how arbitrators finally estimate the damage.

B 3.2.1. Discounted cash-flow (DFC) methods

77. Where the alleged breach is not governed by liquidated damages, for example an owner's claim for loss of the use of a plant, the claimant may very well have recourse with one of the three DFC methods. It is recommended that arbitrators take a practical approach to valuation questions, which incorporates all relevant facts as well as elements of common sense and reason⁸¹. The valuation of the damage is a matter of reality and certainty. It consists of translating into a sum of money the reality by using various methods that are normally accepted⁸²: the Income-Based Approach, The Market-Based Approach and the Asset-Based Approach.

⁸¹ S. Pratt, *Valuing a business. The Analysis of Closely Held Companies*, 4th ed., 2000, p. 445.

⁸² M. Kantor, *Valuation for Arbitration: Compensation Standards, Valuation Methods and Expert Evidence*, The Hague, 2008, p. 13.

78. The discount cash flow method is an income-based approach that calculates the present value of future cash flows generated by the investment. A discount rate is then applied to this value to reflect the time-value of money and the risks associated with the cash flows. This approach is appropriate only when there is a good record of the business' historical performance.

79. The market-based approach compares the subject company to similar businesses, business ownership interests, and securities that have been sold in the market if there is a reasonable basis for comparison and reliance upon a similar business.

80. The asset-based approach is founded on the principle of substitution, i.e. using the liquidation value that a willing buyer would pay for the assets in a liquidation sale. This approach is used when the investment is not profitable, rendering a cash flow analysis difficult.

81. A few key issues raise quantification difficulties: the date of valuation of losses, the interest rate and the DFC method. Significantly, the Yukos Oil Company case of expropriation in Russia, filed at the Permanent Court of Arbitration in 2017, resulted in an award of over USD 50 billion to the shareholders. The valuation at the time of expropriation was 22 billion and at the time of the award, approximately a decade later, the valuation was 67 billion. Reliance on local indexes may be questionable in this case since in Russia the economy is not market driven and is tempered and the price of oil fluctuates greatly. When the proceedings are very slow, as in this case, it is not fair for the claimant to benefit from the statute of limitation and the length of the arbitration proceeding to be awarded an inflated compensation for the harm.

B 3.2.2. On which materials the claim relies?

82. When looking at the quantum issues, in my experience the most common issue is that claimants postpone costs valuation to the end of the process when in fact they should be prepared at the outset. The process can be hugely complex, both legally and factually. The underlying data is critical for the expert's evidence because he is dependent upon the fact he is given. The

quantum and delay experts have to cope with the underlying data from their clients, and they have to verify it or the old adage of “rubbish in, rubbish out” principle will happen.

83. Proof of damages varies but we know it needs to be based on concrete proof. Either the damage is based on a concrete proof such as invoices or clear records such as purchase orders, wasted costs and expenditure spent on reliance of the contract or instead on an abstract measure i.e. valuing the business as a going concern by assigning a present value to future prospects. It represents either the loss of profits claim or a loss in value of the business. If both are sought, it is important to avoid double-counting. The method of calculation will depend on the nature of the claim and the type of business according to one of the three methods cited in the preamble, albeit not the core of this dissertation.

84. Companies have their own particular accounting set-up and in most cases the costs of operating a business, overheads cannot be deduced with any cost units, unlike operating expenses such as raw materials, purchases and labour. In most cases, overheads or indirect costs are a given percentage of the direct cost that is imposed by the bid company director on the project bidders.

85. Many contractors fail to keep good detailed cost control systems, stating that it is too expensive and cumbersome to put the data in the system. It necessitates the development of new codes and training for the personnel. In the course of a project, contractors frequently do not segregate the specific costs spent on potential claims, or they do not realise they are in substantially changed circumstances until it is too late. A good cost control system involves reacting quickly to set-up new cost accounts to capture the quantity, the associated costs, the additional time spent and the productivity of the change work.

86. Since many lawyers and arbitrators are not at ease in accounting or financial analysis, it can be difficult to apprehend how they may use and unfold quantum expert evidence. The tribunal must come to a just and balanced decision and not a mere compromise.

B 3.2.3. The burning issue of quantum of delays in construction

87. Time is money, and the only reason why claimants quantify delay is to avoid liquidated damages for delay, and/or claim costs. Disputes about delayed completion of construction contracts are usual. They represent a mix of delay and disruption causing increase of overheads in terms of staff and office costs. They often involve cross-claims and questions of causation. The contractor might blame the employer for issuing too many change orders and/or failure to provide the necessary information and assistance as contemplated by the contract.

88. The Society of Construction Law (SCL) produced in October 2002, with a revision in 2017, a guideline relating to delay and compensation. It is said that some arbitrators are ill prepared to digest the cumbersome analysis submitted to the tribunals. V. Ramsey said: "*Claims based on either delay or disruption are often difficult for a party to present and for ... tribunal to assess given the factual complexity of major construction project*⁸³". To quantify delays, the SCL recommends four different approaches that could be used according to the documentation available. They are the as-planned versus as-built, the impacted as-planned, the collapsed as-built and one recommended for the complex projects called the time impact analysis. According to renowned experts in this field, each of these types of analysis gives a different result for the same study. This is due to the fact that in all cases some missing tasks or sequences of work have been assumed for lack of proper records and when the assumptions and the methods are different the results diverge.

89. There are non-excusable delays caused by contractors for which a contractor is responsible, e.g. failing to commence work on time, poor workmanship and coordination of work, lacking proper equipment, allocating improper labour and materials. Excusable delays could be those such as design errors by the client, client's change orders, unanticipated weather, labour disputes and acts of God. Whether a delay is excusable or not is a matter of contract law or substantive law. An excusable delay may be classified as

⁸³ *Keating on Construction Contracts*, 8th ed., 2006, p. 270.

compensable delay and the party will be entitled to an extension of time and additional compensation for the cost of delay. Concurrent delays occur when there are two or more independent delays during the same time period. In such case, approaches to establishing the party responsible vary. These include the apportionment⁸⁴, the American approach, the dominant cause approach, the application of the "but for" test and the *Malmaison*⁸⁵ approach.

90. Evidentiary problems are magnified by the fact that often, contractors do not keep updated a rigid and detailed programme. In the absence of such document, it is difficult to compare what was planned and what did in fact happen. As said by the judge in *OHL*⁸⁶: *"One of the problem for programming experts in construction case is that often they have to make assumptions about the facts, albeit they are not always agreed or admitted... One of the very real forensic problem her is the absence of OHL's disclosure over this period ... In conclusion, as at termination, OHL was entitled to no more than 7 days extension of time..."* A mere 7 days was awarded out of 474 days claimed by OHL.

91. For the experts in the field of delay analysis the task can even be more obscure. Making a claim for delay and disruption under a construction contract can be problematic⁸⁷. Beside the difficult areas of causation, concurrency and duration of delays, there are some case law solutions under English law. By contrast, French and Swiss case law is practically non-existent. The delay experts have to rely again on the data of their client. It is customary for the conduct of large complex projects to develop an initial programme showing the sequence in which the contractor plans to carry the works.

92. Factual materials available to the experts vary greatly from one project to another. In large projects, the suspicion between contractors and sub-contractors about who among them is responsible for a delay drives them to

⁸⁴ *City Inn Ltd v Shepherd Construction Ltd*, [2003] ScotCS 146.

⁸⁵ *Henry Boot Construction Ltd v Malmaison Hotel Ltd* [1999] 70 Con LR 32, QBD (TCC).

⁸⁶ *Op. cit.*, p. 29.

⁸⁷ Ramsey, 'Problem of Delay and Disruption in International Construction Arbitration', *Kluwer Law Int.* (ICC 2006), pp. 193-212.

develop and hide their own sequence of work. It is also not uncommon for a contractor to develop various programmes of the same project, one for the employer, one for their partners and a “hidden” internal one showing their delays caused by their problems while hoping that these will be recovered via mitigation or acceleration.

B 3.2.4. How do arbitrators estimate the compensable loss?

93. Arbitrators consider this phase as the most delicate⁸⁸. In theory the legal liabilities have already been established as well as the limits of the damage. Usually their concern is to get the evaluation wrong. The counsels and their parties are anxious. As for the experts they have reasons to be worried. The diverse financial submittals must be explained to the arbitrators, and the quantum experts must be aware of the legal principles related to the assessment of the harm. We explained before that under French law, arbitrators have a astonishing liberty to assess the damages⁸⁹, even a gross calculation error is not likely to engage his responsibility⁹⁰.

94. Sometimes a party will put the experts in a difficult situation if he has already advanced a figure for the damage in previous exchanges with the opposite party. It does not help the arbitrators when two appraisers assess the same damage in a ratio of 1 to 10.

95. Without bifurcation, which consists of assessing the legal liability of each party prior to the quantum issues, the arbitrators will have to sort among four submittals which cover all claims. In the first round of submittals by each party the quantum will be mixed with the alleged prejudice, then in the second round, the experts will criticise the adverse quantum. They will have to go through the four reports, which can be used to assess a prejudice whose contours are ultimately different from those on which the experts will have

⁸⁸ B. Jarrosson, ‘L’évaluation du préjudice par l’arbitre’ (2015) *Revue de l’arbitrage* 347.

⁸⁹ See Sect. A 3.

⁹⁰ Cf. Paris Court of Appeal, 1^{re} Ch. A, 22 May 1991, *Rev. Arb.* 1996.476.

worked. Often, the damage deemed compensable by the arbitrators will not correspond to the vision that each party had.

96. The question then comes: have the experts replaced the lawyers in this part of the dispute resolution? It should be kept in mind that if the arbitrators resort to experts, it is because their own knowledge is insufficient. However, they could say to the experts: if you want to be helpful, present your submittals in a way that we can understand them. So between arbitrators and experts, there should be collaboration and not a subcontracting of tasks.

Conclusion

97. I do not want to give the false impression that arbitrators decide only in equity and that the experts are useless. It is a question of considering all the elements, which contribute to the evaluation of the damage. Many of the issues encountered by arbitrators and experts in the course of assessing damages are similar. The ability to understand and evaluate accounting data and associated models used is essential, as well as professional judgement to sustain a robust conditional demonstration based on the evidence available.

C. WHAT IS EXPECTED IS THAT ARBITRATORS AND EXPERTS REACH A CONSENSUS

98. Experts and arbitrators have developed specific tools to address quantification issues, which leads me to analyse the respective role of each in quantification, and to make propositions to improve coordination between the two.

C 1. EXPERTS TOOLS FOR DIFFICULT CASES: SCIENTIFIC MODELS FOR DISRUPTION

99. Construction claims include a significant alleged damage component for lost productivity. It can be the single most important cost component in the overall claim request. The use of scientific models can be a valid approach to calculating and proving lost productivity. If they seem to be easy to use, the claimant should recognise a claim situation as soon as possible in order to select the appropriate model and use it to collect data.

C 1.1. The “Measured Mile”

100. In the 1960s, NASA developed the Work Break Down Structure (WBS), which is used in complex long-term projects. We covered previously the English “Global” claim method, as a mean to prove damage when they cannot be proven on an individual basis. One key aspect of damage is the loss of productivity (LOP) caused by changes of a contract, which with deletion or addition of work can have effect on the design, procurement, manufacturing and testing and commissioning of the project. The courts held that LOP is different to schedule delay damages. The “Measured Mile” approach is one method among others for measuring LOP. The aim is to compare the productivity on the un-impacted part of the works with the productivity on the impacted part. When disruption is caused by the employer, the contractor may obtain a compensation. When applying for a LOP, it is necessary to isolate the issues that can affect productivity

but are unrelated to the client's liability. The contractor has a duty to manage his own efficiency and his failure to do this should not be compensated. This must be the reason why the success rate for LOP is low because there is in general no strict methodology used by the experts in this field or actual records available to them. The use of LOP requires a thorough analysis of the compared periods highlighted above.

C 1.2. The “Unexpected Condition Event”

101. The University of Strathclyde in Glasgow has performed and published some studies on Unexpected Condition Events: *“The role of feedback dynamics in disruption and delay on the nature of disruption and delay (D&D) in major projects⁹¹”*. Such a study was used on a project in 2002 performed by a major rolling stock supplier in England. Their manufacturing site was congested by the slow down of the assembly lines. A delay of 2 days of a key component was creating a delay of 7 days on the assembly line. This fact was accepted empirically but not explained. The manufacturing of trains is sequential: it has a certain degree of flexibility, but it seems that this flexibility has a limit beyond which the production chain is obstructed. A model of site congestion was developed by selecting a proven software, a site of trains manufacturing for the study, an analysis of the assembly line and the network of links in the handling of the delayed key component within the manufacturing process. The developed model was then compared to similar approaches used in the automobile industry and finally it was tested on similar events on other manufacturing sites in other countries. The model was finally used in amicable dispute resolutions in the Juniper and Coradia contracts in England⁹².

C 1.3. Other scientific models

⁹¹ *Journal of Operational Research Society*, 2000, vol. 51, 291.

⁹² GEC Alstom, South West Trains, *Railway Gazette*, 1 June 1997.

102. During an interview on 2nd July 2018 with a prominent Swiss construction arbitrator⁹³, he mentioned that the USA is probably the most advanced jurisdiction on issues related to quantum and attribution of extension of time, followed by England and Germany. These countries have dedicated courts for such matters, like the Technology and Construction Court (TCC) in England. Since the late 1980's the USA has developed and used in construction claims the use of scientific models⁹⁴ such as: labour productivity rating, motion analysis, productivity delay, learning curve, production function and miscellaneous activity planning.

Conclusion

103. We have seen that there are important differences between the three legal systems when it comes to the assessment of damages, and yet one has the impression that quantum and related delay experts proceed as if the applicable law does not affect the expert's role. The aforementioned tools are, of course, useful but they should also take into account the relevant principles of law addressed in Section A. Regrettably, it seems that experts often proceed as if their discipline and method are the same regardless of the applicable law.

C 2. ARBITRATORS' TOOLS

104. Let's consider what tools are available to arbitrators in this field.

C 2.1 Tribunal appointed experts

105. The 1996 Woolf report⁹⁵ inspired by the French model of tribunal appointed expert may be pursued further. The report identified reasons for the lengthy delays and high costs of litigation, including the uncontrolled

⁹³ Partner in Lalive & Partners, Attorneys at law, Geneva.

⁹⁴ J. Adrian, *Construction Claims, A Quantitative Approach*, Englewood Cliffs, 1988, p. 129- 162.

⁹⁵ Lord Woolf, *Final Report to the Lord Chancellor of the Civil Justice System in England and Wales*, 1996.

proliferation of expert evidence. Woolf saw a tendency for the experts to view themselves as being within the camp of the party by whom they are appointed, leading to a risk to them giving partisan evidence. Parties had a tendency to hire multiple experts, hoping to reinforce a weak case, leading to quantity in reports, not quality. He proposed a number of reforms to support the expert's aim of assisting the court impartially and independently. The IBA Rules in taking of evidence require experts to submit a statement of independence.

C 2.2. Evidence and the discovery process

106. In *OHL*, the judge noted at paragraph 109: "*There is a dearth of disclosure from OHL in its running costs*", and at paragraph 223: "*There is no help within the evidence as to how OHL did address its pre-contract, if it did at all*".

107. The role of experts is very different between the common law and the civil law systems. Under French law, the tribunal-nominated expert has considerable authority, which is quite surprising for an Englishman where the cross-examination of the experts limits their authority. In the USA, the search for the truth is based on full discovery, an exchange of information between the parties, even if it goes against their own interests. The advantage of this process is that it gives more transparency to a fair dispute resolution. Unfortunately, this process is extremely slow and expensive. In France, even if some texts underline this possibility, it is not used in practice⁹⁶.

108. In *Chantiers de l'Atlantique v Gaztransport & Technigaz*⁹⁷, a document requested by the claimant could not be found during the arbitration process. Subsequently, it was revealed during the appeal that an incomplete prior draft had been located. The judge Flaux noted: "*it may be that, if one was looking at the answer under English law, it would be open to criticism*".

⁹⁶ Report of the French Cour de cassation, *L'expertise française sous le regard international*, dir. A. Garapon, 2004-2005.

⁹⁷ [2011] EWHC 3383 (Comm).

C 2.3. The “Hot Tub” or “witnesses conferencing”

109. In 1999, an Australian study⁹⁸ showed that 35% of judges had a perception of bias on the part of expert witnesses. Australian courts have been known as the most experienced with the “hot tubbing”, consisting of interrogating all the parties’ experts concurrently. However use of expert evidence in this way has produced a number of concerns such as considerable court time, judges being submerged by a number of details, technical evidence being difficult to understand, and experts feeling their knowledge is not accorded appropriate respect and weight. This process is sometimes reluctantly agreed to by the parties’ counsel, the reason being that it forces the experts to find a consensus which is considered as a concealment of truth. In fact, it enables the arbitrator to hear all the experts at the same time on the same issue, reducing the likelihood of the tribunal misunderstanding what the experts are saying.

Conclusion

110. What we have seen is that there is clearly more scope for both counsel(s) and arbitrator(s) to be more sensitive to the particular requirements of the applicable law and to give directions to the relevant experts to adjust their methods and opinions to reflect the difference of approach found in the law to be applied.

C 3. IS DAMAGE ASSESSMENT ONLY FOR THE ARBITRATOR OR FOR THE EXPERT?

111. I will focus first on the expert and then on the arbitrator to consider who has the final role in proceedings.

C 3.1. The conduct of the expert

⁹⁸ Freckelton, ‘Australian Judicial Perspectives on Expert Evidence: An Empirical Study’, *The Australian Institute of Judicial Administration*, 1999.

112. The selection of the right expert is key in the field of dispute resolution. They are three methods to engage experts in the determination of a dispute.

- The parties to the dispute may instruct their own experts, who present their reports to the tribunal. This is the most common approach in complex construction claims.
- The parties can appoint one expert to decide the dispute.
- The tribunal can appoint its own expert.

113. In the assessment of damages, experts have some duties but aren't they influenced by the parties and counsels they work for? I will suggest some recommendations for improvement.

C 3.1.1. The duties of the experts

114. Two recent efforts in arbitration to provide comprehensive guidelines for party-appointed experts are the *Protocol for the Use of Party-Appointed Expert Witnesses in International Arbitration* issued by the Chartered Institute of arbitrators in 2007 and Article 5 of the 2010 issue of the *IBA Rules in taking of Evidence in International commercial Arbitration*. The *Protocol* is more detailed and has an express duty "to assist the Arbitral tribunal to decide the issues in respect of which expert evidence is adduced". Both require an express declaration of the genuineness of the opinion expressed.

115. The primary role of the expert is to testify before the tribunal; despite the special feature of their role, they are still a type of witness. They write reports, appear at hearings to answer questions and their evidence and credibility may be challenged. As with other witnesses, the tribunal must evaluate and measure the expert's evidence as it considers appropriate. The expert has the prerogative of expressing an opinion on a subject within his own expertise. He also enjoys the duty of assisting the tribunal and, if he has the privilege of being tribunal-appointed, of communicating directly with the tribunal. The most important duty is the duty to be objective in expressing an opinion.

116. Contrary to a tribunal-appointed expert, a party-appointed expert is not required to be independent from the parties. An employee of a regular contractor to a party may be qualified as an expert's witness. In *Field v Leeds City Council*⁹⁹, the judge said: "... there is no overriding objection to a properly qualified person giving opinion evidence because he is employed by one of the parties. The fact of his employment may affect its weight but that is another matter".

C 3.1.2. Are experts influenced by their clients?

117. Shall a good expert advise its client on the opportunity to claim if the case is unjustified? In *OHL*¹⁰⁰ the English court, while prepared to take a commercially sensible approach to the contract interpretation, held that from the amended extension of time of 474 days requested by OHL only 2 days were justified. The Judge Akenhead made some intriguing comments about the experts. He described one health and safety expert as "eccentric". Further at paragraph 295 he stated: "*The programming experts adopt different approaches to this period... Mr X takes different periods... Mr Y takes 3 sub-periods and identifies different causes of delay, ... I do not accept much of either of these analyses*". He also stated: "*The exercise however for the Court is, in circumstances where there is little material dispute as to what in terms of design or work was done and when, primary one of logic, albeit based on the evidence. Programming experts, at least good ones, help the Court to concentrate on the logic not only of the original (baseline) programme to which the contractor in question was working but also what was driving progress or lack of it on key part of the work at key times.*" Were they, as the judge said, good experts – which I believe they were – or were they under the influence of their clients?

C 3.1.3. Some recommendations

118. An expert that works too closely with the lawyer for one party may lose its objectivity and act more as an advocate than an expert.

⁹⁹ [1999] EWCA Civ 3013.

¹⁰⁰ *Op. cit.*, p. 29.

119. I make some suggestions from my past experience: firstly the delay analysis must be reduced to the critical delays, as said by the judge in OHL: *“I will only address those... which are said to impact on critical delay, ... non-delay related claims... will have to wait for another day.”* Secondly, delay experts make a lot of assumptions about the facts but ultimately the logic must follow the facts, as an example a contractual suspension of works by a contractor can be a tactical step to put pressure on a client.

C 3.2. The view of the arbitrator

120. For many, assessment of the compensation for loss would be a purely mathematical exercise, from which legal thinking is absent. This vision is simplistic: first, assessment of damages is linked as closely as possible to the harm suffered taking into account the circumstances of the case like in *Hadley v. Baxendale*. Second, from an economic and social point of view, businessmen need to be reassured by a predictable legal system.

121. It is questionable whether the method of assessing prejudice is still a matter of law and whether the lawyer should be kept away. It is not the case, even if their expertise is not comparable with that of the financial analysis, there are legal rules which determine how damage is evaluated. The relationship between financial and economic analysis and the rules of law have been summarised by Lord Russell, as cited before¹⁰¹: *“The judge must stand back, when he has done his arithmetic, and ask himself whether the figure achieved by his findings is fair to both the plaintiff and the defendants”*.

122. To conclude, the arbitrator has the final power. However, in order to reach a fair solution, the arbitrator must participate to proceedings and work alongside the experts, otherwise he may have to choose between one on the two expert’s analysis, which is probably a wrong and unfair solution.

¹⁰¹ See below, Sect. A.

C 4. WILL CURRENT INITIATIVES LEAD TO THE REQUIRED CONSENSUS BETWEEN ARBITRATORS AND EXPERTS?

123. An adequate and fair way of compensating damages is a fundamental element of any legal system. As stated by T. Frank,¹⁰²: *“Any legal system, which is not perceived as fair will eventually cease to evolve and may shrivel... Legitimacy thus is the first aspect of fairness to which we must turn our attention.”*

124. We have seen in the sections above that arbitrators and experts have key roles to determine the loss within the applicable laws and the due measure of damages in order to keep an efficient economy that creates welfare. Panels and conventions are regularly organised to discuss how far an expert can reasonably go in evaluating a client’s claim.

125. How do you get reasonable approaches from the perspective of counsel, arbitrators and experts?

- The first and standard approach is to let adversarial experts present their numbers, albeit high on one side and low on the other.
- The second approach is a modified one consisting a panel of experts. This can be a daunting prospect for counsel as lawyers prefer to keep control of the case as much as possible.
- The third approach is a session of cross-examination or “hot-tubbing” of the experts trying to have them agree on some points. The latter method requires a strong tribunal and participating experts. The experts are usually trained for such a process and most experienced experts will have been through this.
- A fourth approach could be for the parties to leave to the tribunal the choice of one number between the claimant and the respondent. This may force the parties to be reasonable in their submittals to the tribunal.

¹⁰² T. Frank, *Fairness in International Legal Institutional System*, General Course on Public International Law, 1993, p. 240.

- The fifth approach is tribunal-appointed experts. This approach has its advantages and disadvantages. The parties' counsel may feel that the tribunal-appointed expert gets too much credit and becomes in fact the tribunal. The two sides may also have their own experts and in such a case the appointed one would translate what he receives from the parties' experts. One disadvantage is that if the tribunal-appointed expert is not qualified, it will be difficult to convince the tribunal that has selected him.

126. Does the intervention of the experts result in increased costs to the arbitration¹⁰³? It appears that in fact it significantly increases the cost and time of the arbitration, and results in an increase in damages awards due to the fact that arbitrators are guided by sophisticated approaches to valuation. When arbitrators relied on their intuition, did they not show more caution?

127. Whatever the future may be, a number of current trends in the management of construction projects are happening.

- We are seeing increasing contract management discipline being imposed by most companies. The role of the contract management is now considered key to prevent disputes by placing great emphasis on the contract obligations.
- The management of complex projects is currently being followed by a core team, ensuring that project specifications are being followed according to a risk register and enabling more accurate follow-up of expenditure and time programme.
- Significant structural changes will continue to develop with contractors, suppliers, consultants and clients adopting new roles.
- Most firms and institutions produce new rules and guidelines to become more skilled in management.

¹⁰³ O. Delaunay, "L'apport de l'expertise financière de partie dans les litiges économiques", *Option Droit et Affaires*, 9 Apr. 2014.

- A number of new managerial tasks such as risk management, ethics and compliance and environmental management should improve the conduct of complex projects.
- At the end, the long and costly disputes that we have seen in the last few decades, some for more than a billion pounds, might force the construction industry to improve as the market may reward better performance and forces competitors to change in order to make a better business which in turn will give them a better profit.

128. The potential areas which require more reform:

- Requiring the parties to apply for leave from court so that expert evidence can be adduced on a given question,
- A clear statement of independence,
- The weight attached to the evidence of an expert proven to be partisan,
- Transparency in the exposure of communications between lawyers and their experts,
- Processes for a conformity of views at the start of the arbitration whereby experts are not committed at the outset to firm views but rather are allowed to confer in order to identify areas of agreement or disagreement.

129. Despite the efforts of experts and arbitrators to reach a fair and equitable assessment, I believe that there remains a lot of work to be done. A view that was confirmed through discussions with prominent Swiss, English and French construction arbitrators¹⁰⁴ consulted during this research.

¹⁰⁴ Partners at Lalive, White & Case and Orrick.

CONCLUSION

130. As this paper illustrates, the different approaches to compensatory damages in civil and common law jurisdictions often lead to similar results but via different paths. Even if the assessment of damages is principally driven by the facts of a case, arbitrators identify and apply the legal principles applicable to damages such as the foreseeability and the duty to mitigate. In order to optimise the effectiveness of expert testimony on damages, the tribunal and the parties can consider a wide variety of methods and approaches. With advanced planning and agreements of the procedures at the start of the arbitral process, the tribunal will be able to resolve the parties' differences in a sound manner by reducing the risks of computational errors in the final award.

131. We saw at the outset that there are some important distinctions and differences between the three laws on key aspects of the principles of assessment of damages and yet we find that experts typically pursue their methodologies without regards to the applicable law or as if these differences had no effect on their methodologies.

132. The continuing development of these procedures for the most effective use of expert witnesses in arbitral proceedings is a must. At the end of the day, an award of compensatory damages can wipe out the consequence of a wrong if the claimant has prepared the old mantra "Records, Records, Records". But it is rare that the clock can be completely rewound in particular when looking in the future where there is inevitably element of uncertainty.

133. I suggest that experts and arbitrators should work together to arrive at a consensus. Eventually, it seems to me that the final decision rests with the arbitrators: if experts try to overestimate the damage, arbitrators have a legal duty to be unbiased and must restrict or sanction experts' embellishments. Most arbitrators strive to achieve fair and equitable awards.

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