The Arbitration Review of the Americas

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Construction Claims: The Role of Financial Experts

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Construction Claims: The Role of Financial Experts

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Summary

INTRODUCTION

The compensatory damages that arise from a defendant's breach of contract are awarded with the purpose of making the claimant whole - that is, to compensate the injured party for the loss that it has suffered. Quantum experts assess the loss suffered by a claimant by comparing the financial position that the claimant is actually in with the financial position the claimant would have been in but for the act complained of. Compensatory damages are awarded to place the claimant in the same financial position it would have been in but for the alleged breach.

The compensation due to the claimant is typically calculated by experts in valuation principles and techniques who seek to determine the financial position of the claimant under the actual and but-for scenarios. This customarily involves building a financial model. The financial techniques these experts rely upon are those used when valuing companies. This is the case even if the matter does not involve the expropriation of an asset, as the determination of the actual and but-for financial positions require experts to construct separate actual and but-for cash flows - the cornerstone of any model. Other tools and techniques generally used in valuation exercises, such as the calculation of appropriate discount rates (including country risk), expected exchange rates, performance ratios and others, are also used when calculating damages for a breach of contract.

The principles described above - which are of a legal nature - apply across industries. Generally, financial experts are willing to calculate damages in most industries. Their expertise is in finance - particularly in valuation principles - and so for technical matters particular to the industry they will rely either on the expertise of the client or on a technical expert hired by the legal advisor. These technical experts assist in the calculation of damages by advising on the technical parameters that are included in the valuation model.

Some financial experts specialise in a certain industry. This typically occurs in industries in which deep, first-hand knowledge of the industry is required in order to calculate damages - say, for example, heavily regulated industries such as public utilities for which a thorough understanding of the regulatory framework (including not only the rules and regulations but also the economic rationale behind them) is required in order to calculate the compensation due to the claimant.

This exchangeability of experts occurs across most industries, with the construction industry a notable exception. For the purposes of this article, I will refer to the experts that calculate damages in construction cases as construction experts and to the experts that calculate damages in non-construction cases as financial experts.

Financial experts will typically have experience across various industries but rarely the construction industry. Likewise, construction experts will typically have the majority of their experience on construction matters, and have an exposure to other industries but usually resulting from a construction dispute. The question that arises is why this occurs if the underlying legal principles to calculate damages that arise for breaches of contract are the same across industries, including the construction industry.

This article is meant to assist construction and financial experts in understanding each other's approaches and the unique challenges that result from a construction delay case and how the expertise of both teams is necessary to best serve the clients.

HEADS OF DAMAGES IN CONSTRUCTION CASES

Experts on construction cases are usually composed of a team consisting of engineers and accountants. Some engineers are expert schedulers - the type of expertise required to determine the delay inflicted on a construction project due to the actions of the defendant (which involves considering whether the event affects the critical path and to what extent).

Construction experts - engineers, schedulers and accountants - will typically consider the following heads of damages.

In construction defect cases, the standard measure of damages for breach of a construction contract is the cost of repairing the defect. However, if a defect cannot be repaired at a cost that is reasonably proportionate to the benefit of the extra works (ie, the reparation results in an economic waste) then damages are calculated as the difference in the value of the work in the actual scenario (ie, as it currently is) and the value it would have had if it had been built according to specifications and without breach to the contract.

The construction expert - an engineer in this case - will calculate damages by considering the specifications under the contract, the standard at which the works were performed and the (reasonable) value of repairs. The engineer might require the assistance of an accounting (construction) expert to verify the costs incurred attempting repair.

In construction delay cases, all three types of construction expert are typically involved (ie, engineers, schedulers and accountants).

Timely completion of large construction projects relies on the appropriate sequencing of work by numerous contractors, often including permits or approvals granted by municipal authorities. The first step in a delay claim is to determine the events that affected completion of individual milestones, including the causes and delays for those milestones, with the objective of calculating the overall delay to the project (which is not necessarily the sum of each individual delay unless they are all on the critical path of events).

The scheduler will determine how the events affected each individual milestone and the overall delay to the project. He will also determine whether the delays are excusable - which means that the delays involve matters that are beyond the control of the contractor - for which the contractor should be able to request an extension of the completion date and avoid penalties for failure to abide by the contract schedule.

The scheduler and the legal adviser will also determine whether the events are compensable - in which case the contractor is entitled to recover the costs associated with the delay.

Whereas non-construction experts might be familiar with delays and the associated costs when calculating damages on various industries such as hotels and casinos, the acceptable standard for a large construction project is the use of a critical path method schedule analysis run by a scheduler with expertise in project management and specialised software.

In construction delay cases, the engineer will typically calculate the quantities or additional effort for which damages can be calculated in relation to direct costs and loss of productivity.

Typical contractor direct costs, resulting from delay, include out-of-pocket expenses such as equipment rental costs incurred for keeping (idle) rental equipment on site, idle craft labour and escalation costs of materials, and possibly labour associated with the modifications to the scope of work due to the delay.

The experts will also include costs associated with the contractor's owned idle equipment. Whereas maintenance and insurance costs are out-of-pocket expenses, depreciation - which is also customarily included - is not.

Finally, engineers will also consider any loss in productivity associated with the delay (ie, disruption). Disruption occurs when a contractor cannot achieve the productivity that was originally planned. Generally, a claim for lost productivity refers to the extra labour and equipment cost incurred due to the inefficiencies that result from the delays.

In construction delay cases, the accountant will calculate damages associated with the extra indirect costs incurred as a consequence of the delay. The two indirect costs most often incurred during delays are extended field overhead costs and unabsorbed home office overheads.

Field overhead costs are costs that are required to support the direct work in the field and that are fully chargeable to the project, such as field office rental, salaries of field office staff and office utilities. Field overhead costs used to calculate damages on a delay claim are fixed in that they do not vary with the volume of work performed on site and instead are fully time-dependent. It follows that if the project is delayed, the contractor will incur extra field overhead costs.

Home office overhead costs are similar to field overhead costs in that they are also costs incurred to support the work in the field. They are not, however, fully chargeable to the project as the home office supervises various projects. Whereas field overhead costs represent out-of-pocket expenses (ie, they are costs that the contractor would not have incurred but for the delay), home office overhead costs are not necessarily dependent on the time to completion of any particular project. Rather, the extended duration of a certain project may limit the contractor's ability to work on new projects.

The accountant will also assist in the calculation of the maintenance and depreciation (direct) costs mentioned above by referring to the appropriate industry manuals which can be region or country specific.

HEADS OF DAMAGES IN CONSTRUCTION CASES FOR FINANCIAL EXPERTS

The heads of damages for which construction experts (engineers, schedulers and accountants) typically seek assistance from financial experts are those to which the expertise of the financial expert (with experience in the calculation of damages) are better suited than those of the accounting construction expert.[2]

Truncation And Delay Of The Operation Stage

This situation arises, for example, on design, finance, build, operate and transfer (DFBOT) contracts. On DFBOT contracts the construction consortium is not only responsible for the construction of the asset but also for its operation.

The value of the operation stage is assessed through a standard valuation model - the type of model a financial expert is very familiar with but an accounting expert would typically not be. Delays to the construction phase affect the economics and value of the operation stage in ways that can only be assessed by working with the financial model of the operation stage.

A truncation of the operation period occurs on DFBOT contracts with a fixed concession period. The construction consortium are contractually obliged to build and subsequently operate the asset for a certain term. The contractual terms under which the consortium

prepared their bid incorporated expectations about the future income from the operation stage. A delay during the construction phase will truncate the operation phase and therefore the consortium's expected income.

The losses suffered by the consortium results from considering the net income in the truncated period as well as the expenses and investments that will now not be incurred and will therefore mitigate the loss.

The financial expert might also need to review the reasonableness of the business plan for the operation period prepared by the consortium during the bidding phase. Unrealistic forecasts might need to be adjusted to calculate appropriate compensation. The analysis of the components of the business plan, including both formulas and parameters, and the verification of the reasonableness of the forecast through profitability measures (such as return on equity and assets, for instance) are all standard procedures used by financial experts for the valuation of companies.

The construction consortium might be granted an extension of the operation period as a means to compensate for the delay in the construction phase. It is important to note that, even if the consortium is granted an extension equivalent to the delay in the construction phase, the consortium will not have been fully compensated. Although the value of the operation phase remains unchanged (in financial terms, it is the net present value of its cash flows that remains unchanged) the NPV arises later and this affects the financial position of the consortium in present day terms.

The compensation for a delay in the commencement of the operations phase (which was partially compensated through an extension equal to the delay in the construction phase) results from considering the original financial model and the delay to the NPV.

A financial model can also be used to calculate the extension to the operation phase that is required to compensate the consortium fully (an extension which will necessarily be longer than the delay to the construction phase if the operation phase was profitable).

Delay To The Construction Phase

The financial expert will not only be involved in the delay to the operation phase - which necessarily requires the analysis of a financial model - but will also be involved in the calculation of damages in the construction phase due to the delay in the project.

The original bid for the construction and operation (in a DFBOT contract) - or for the construction phase of a project that does not include an operation phase - will be calculated based on a financial model for the whole project. The bid will therefore consider the income, costs and investments that collectively ensure the profitability of the overall project. The construction phase is typically described in terms of milestones - each with its own costs, share of investments (if these are used for more than one milestone) and income. Whereas this accounting-based approach works well for construction experts when they calculate damages for extra costs incurred, it is generally not appropriate when considering damages that arise due to a delay in the project.

Under a pure delay scenario (ie, one that does not involve any extra costs during the construction phase), the margins for each milestone will remain unchanged as the costs and income will also remain unchanged. Still, the construction consortium will suffer a loss due to the delay.

The most straightforward scenario is one in which the costs and investments are incurred according to schedule by the consortium, but payment is delayed. Under such a simple scenario, one could be tempted to calculate the compensation due by considering an interest rate for late payment. The trouble with this approach is that one might conclude that the loss is fully mitigated if the costs and investments were delayed in a similar manner to the income. This conclusion is incorrect as the NPV for the milestone arises later and, just as with the NPV for the operation phase, the delay affects the financial position of the consortium in present day terms and is therefore claimable.

In effect, each milestone's NPV should be considered as that of the financial model for the operation stage - and the aggregate of the NPV's for all milestones plus that of the operational phase should be considered to calculate the overall loss due to the delay.

Although it would appear that a financial expert with the duty to calculate damages associated with the delay in the margins for the construction phase could work without much interaction with the construction team as the calculation involves mostly business valuation concepts, financial experts should be aware that they will have to rely on the construction team for information on the construction phase that is fundamental to the analysis of this head of damage.

Extra Financing Costs

The loss that arises from the delay in obtaining the construction margins is often referred to as a financial cost. The description is, in principle, accurate when considering a milestone for which the costs and investments occurred on schedule but the income was delayed - the trouble arises if the costs and investments were not financed through debt but with the consortium's own equity (ie, the investor's own funds).

There are also no financing costs, but still a loss, if the costs and investments were delayed in line with the income - which is why I prefer to consider all such claims by reference to the delay in the margins and the appropriate cost of capital which considers both debt and equity.

If all the financing schemes arranged by the consortium involved taking on debt when capital is required and paying it off once they get paid, then most if not all financing costs would be covered through the analysis of the delay on the margins and by considering an appropriate cost of capital.

Instead, most big construction projects will involve complex financial schemes to support the funds requirements and match those with the ability of the investors to provide funds and the scheme chosen by the licensor to disburse the accrued income as the milestones are fulfilled.

For example, a construction consortium might arrange a financial scheme under which it commits to taking funds and pay them back under a certain (fixed) schedule. The financing institution will typically request guarantees from the consortium to ensure that it will comply with the financing schedules - a guarantee that the financial institution requires to obtain funds from investors (eg, by issuing bonds).

A delay in the construction schedule will result in a loss to the consortium due to the time-value of money effect discussed earlier, and to any penalties levied by the financial institution. Guarantees will typically be called upon (totally or partially) if the financing scheme is not adhered to. Furthermore, even before the guarantees are called upon, the

financing institution can request the guarantees to be increased to reflect the increased risk of the consortium not complying with the deadlines - which results in a further loss as a consequence of the increased financing costs.

Delays That Mitigate Losses

When a construction project is delayed, the construction margins are also delayed, which results in a loss to the construction consortium. Delays in the construction phase will also typically delay the occurrence of certain costs that are not associated to milestones (and therefore are unrelated to expected incomes and margins) and as such create a windfall profit for the consortium. These costs are generally associated to the supervision of the works - a cost incurred by the consortium that will often not increase (or decrease) with the delay but will nevertheless be incurred later and therefore create a windfall profit for the consortium, which should be accounted for as mitigating the overall loss.

FURTHER (POTENTIAL) AREAS OF INTEREST FOR FINANCIAL EXPERTS

I described above the typical heads of damages for which construction experts will generally seek assistance from financial experts, and prior to that the heads of damages that construction experts analyse without external assistance. Some of the latter heads of damages - in particular those related to the work performed by the construction expert with an accounting background - will be familiar to the financial expert, as belonging to her area of expertise. It is therefore worth noting the different approaches that construction experts and financial experts might consider for these to prevent inconsistencies or potential weaknesses in cross-examination.

I explained above that in construction delay cases the accountant construction expert will calculate the indirect costs that result from an extension to the project's deadline as a consequence of the extra overhead (fixed) costs that are time-dependent (such as field overhead costs and unabsorbed home office overhead).

Field overhead costs are costs that are required to support the work in the field and are fully chargeable to the project, such as office rental, salaries of field office staff and office utilities. Field overhead costs are fixed in that they do not vary with the volume of work performed on site and instead are fully time-dependent. It follows that if the project is delayed, the contractor will incur extra field overhead costs.

The construction accountant will generally calculate the extra indirect costs by first calculating a daily rate for the indirect costs (eg, by considering the total indirect costs for a certain period and dividing this by the number of days in the period) and then multiplying the daily rate by the number of delay days. The construction accountant will consider the losses that result from delays already incurred as historic losses.

A financial expert instead will typically calculate damages by reference to actual and but-for scenarios, as explained above. This means that from her point of view there is no historic damage associated to idle staff (assuming that the deadline for the overall project has not elapsed) - the reason being that those fixed costs would have also been incurred in the counterfactual scenario. From the financial expert point of view, the loss arises in the future as the construction consortium will have to incur further fixed costs (until the delayed deadline), which would not have occurred in the counterfactual scenario.

Generally, one would not expect the difference between these two approaches to be significant. Future indirect losses will be discounted by the financial expert to calculate the

overall compensation, whereas an accounting expert might apply an interest rate to the historic losses, thus increasing the damages figure.

Accounting experts will customarily analyse past events (ie, the idle period) in detail (eg, to calculate an appropriate daily rate), whereas the financial expert will analyse expected future costs more closely (eg, by reference to the company's own management projections for such costs).

The calculation of losses in relation to the extra indirect costs associated with the cost of staff (eg, salaries) is another area in which accounting and financial experts tend to consider things differently. A financial expert will typically consider that costs must represent out-of-pocket expenses in order to be considered as an extra (claimable) cost - the rationale being that if it is not an out-of-pocket expense then the actual and but-for costs would be similar and no losses arise.

The construction accounting expert will instead consider a rather more sophisticated approach and would consider some of the costs associated with staff salaries even if those do not represent out-of-pocket expenses. This occurs, for example, when analysing home office overhead costs.

As explained above, home office overhead costs are similar to field overhead costs in that they are also costs incurred to support the work in the field. They are not, however, fully chargeable to the project as the home office may supervise several different projects.

Whereas field overhead costs represent out-of-pocket expenses (ie, they are costs that the contractor would not have incurred but for the delay), home office overhead costs are not necessarily dependent on the time to completion of any particular project. Rather, the extended duration of a certain project may limit the contractor's ability to work on new projects. Under this rationale, construction accounting experts will calculate the losses that arise from the extra indirect costs by reference to approaches customarily used in the construction business, such as the Eichleay formula or Hudson formula.

Differences can also arise when considering losses that occur as a consequence of extra direct costs, such as those associated to idle equipment. If the extra equipment is owned by a subcontractor then the construction company will typically receive an invoice for the idle time - it is straightforward to consider such cost for the overall claim.

Instead, if the equipment is owned by the construction consortium, the losses must be calculated - typically by both engineering and accounting experts. The construction experts will often consider the following two costs associated to the idle equipment.

The extra cost of maintenance is customarily obtained from industry manuals. From a conceptual point of view, the financial expert will agree that the extra maintenance costs during the idle period should be considered for the calculation of losses. The financial expert will generally not have access or enough knowledge about industry manuals and would instead attempt to look at the costs actually incurred to maintain the equipment - if the accounting records are itemised enough.

Construction experts will also often include a depreciation cost to calculate the total losses associated to a delay - which they can also often obtain from an industry manual. The rationale for including a depreciation cost is that the equipment depreciates while being idle.

A financial expert will instead look, as usual, at the actual and but-for cash flows. The actual scenario is one in which the construction company incurs extra maintenance costs and sells the equipment later and at a reduced price due to the further depreciation. The but-for scenario is one without the extra maintenance and with no delay to the sale of the equipment. The difference in damages calculated by the construction and the financial expert is often subtle.

CONCLUSIONS

Quantum experts are generally willing to work across various industries. Although some experts will specialise in certain industries - typically heavily regulated industries such as public utilities - most will feel comfortable relying on the client's industry expertise to calculate damages on various industries. This exchangeability of experts occurs across most industries but one: the construction industry.

Construction disputes require specialised knowledge that is best served by a team of engineers, schedulers and accountants - all with experience in the sector and therefore knowledgeable of the unique reports, databases and information available on construction projects that are necessary to calculate damages.

Quantum experts for most other industries are typically financial experts knowledgeable in financial matters, and particularly in the valuation of businesses and financial modelling.

It is worth noting that the expertise considered fundamental to calculate damages across most industries has not traditionally been considered a core skill on construction claims - as neither the construction engineer, scheduler or accountant would normally have experience developing business models or cash flows.

In construction defect cases, the standard measure of damages for breach of contract is the cost of repairing the defect. The construction expert - an engineer in this case - will calculate damages by considering the specifications under the contract, the standard at which the works were performed and the (reasonable) cost of repairs. The engineer might require the assistance of an accounting (construction) expert to verify the costs incurred attempting the repairs.

In construction delay cases, all three construction experts are typically involved (ie, engineers, schedulers and accountants).

The scheduler will determine how the events affected each individual milestone and the overall delay to the project. The engineer will calculate damages in relation to direct costs and loss of productivity. Finally, the accountant will calculate damages associated with the extra indirect (fixed) costs incurred as a consequence of the delay.

In construction delay cases that include the operation of the assets after construction - particularly if complex financing schemes are arranged - the construction team will typically require the assistance of a financial expert.

Construction experts and the financial expert should not attempt to split heads of damages and work on a standalone basis with a view to subsequently adding up the various losses. Although some heads of losses will naturally fall to the construction team (such as the impact of the delay on the overall schedule, the direct and indirect costs and losses to productivity) and other heads of losses will naturally fall to the financial expert (such as the loss due to the delay to the commencement of operations, the delay in obtaining

the construction margins and any losses associated to the financial schemes that were arranged) both teams must have fluent communication to ensure that: the financial expert is aware of the unique reports, databases and information that are available on constructions matters and that are necessary to calculate damages; and both teams are aware of each other's preferred approaches to avoid inconsistencies and potential complications during cross-examination if one expert were to be examined about the other expert approaches (say, on matters that, in principle, are within the area of expertise of both a financial expert and a construction accountant such as the calculation of the extra indirect costs).

Understanding each other's approach and generally working together can represent a challenge for some construction and financial experts. Construction experts who have already worked with financial experts and financial experts who have already been involved on construction matters are in a better position to understand each other's approaches and rationale when calculating damages. Construction and financial experts who belong to the same consultancy will, unsurprisingly, have more fluent communication channels which will help avoid inconsistencies and more generally complement each other's expertise.

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Notes

1. Some of the methodologies often used are Total Time, Impacted as Planned, Collapsed as Built, Contemporaneous Period, Windows, As Planned - As Built, Time Impact Analysis.
2. It is understood that whereas the expertise of the accounting construction expert and the financial expert overlap in certain areas, the expertise of the engineers and schedulers is completely unrelated to those of a financial expert.

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