CDR.05

Appraisal of Contractual Claims

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The purpose of this article is to discuss some criteria that can be used when we must give a value to a contractual claim, or more realistically, to several contractual claims belonging either to a single contract or to different contracts, stipulated by an engineering and construction company.

The appraisal of contractual claims is part of our profession. The following cases can be considered for reference.

An engineering and construction company, in general, makes its own appraisal of its own contractual claims. The company personnel know that those appraisals are in general too optimistic, because they are made by the same persons who managed the contracts and did the claims. The company could therefore call an independent expert to rectify the appraisal and give an independent opinion. Sometimes an independent expert is called by the auditors or by the banks, for the same reasons.

The owner or the employer of a project, subject to contractual claims by one or more contractors, can request an independent expert to give an objective appraisal, before deciding whether to go to negotiation or to litigation.

A third party, such as a commercial bank, a merchant bank, or an investment fund willing to buy equity of an engineering and construction company or to lend money to it, can request an appraisal of all its assets, including contracts in progress and contractual claims. This also can be requested by any private investor, for the same purposes.

The usual criteria of value engineering can hardly be applied when trying to give an appraisal to contractual claims. The following are to be taken into consideration.

- There is no reference to any market value; therefore it does not make any sense to try to calculate a value based on the expected market value.
- Contractual claims have no market; in some cases they also are forbidden by the contract or by law from being assigned to other parties.
- Any reference made to the average price of contractual credits is weak. Contractual claims are undefined credits whose amount is unknown, and they are very seldom negotiated on the open market.

Reference to a value based on costs makes sense. As a matter of fact, the claim is in general based on costs. The problem is that not all costs incurred by the contractor are subject to compensation. The fact that the contractor has incurred costs does not give him the right to be compensated. To be compensated, the contractor has to demonstrate that the costs have been incurred for faults of the owner, or for other causes that, contractually or legally, give him/her a right to compensation.

The net present value is unknown. To make a hypothesis on cash flow, we must first make a reliable appraisal of the claims themselves and of the time needed for negotiation, arbitration, or litigation.

To make an appraisal of contractual claims means to put a value to something that is unique, that cannot be repeated, reproduced, or happen twice—either in the same contract or in other contracts. Sometimes, a reference to a similar situation can be made. We could say, as a paradox, that the appraisal of contractual claims is similar to the appraisal of an object of art, of a picture of a famous painter, and so on.

DEFINITION AND CLASSIFICATION OF CONTRACTUAL CLAIMS

General

The hope of having a contract without claims is, in the majority of the cases, only a pure hope. Reality is different. As a matter of fact, "a contract is nothing more than a prediction of the future. Since human beings predict the future with a lamentable lack of success, we have claims. The larger and longer the construction contract is, the more likely the occurrence of claims " (Johnson & Spear).

A good contract should define, in the best possible way, how to deal with claims, how to calculate the amounts, and how to proceed in case of disagreement. A contract (or a law on public works) that stipulates that no claims are allowed is not a good contract; it stipulates something unlikely, which only creates more difficulties in the settlement.

Settlement of Claims

Contractual claims are settled with one of the following methods.

- **Negotiation Between the Parties**—During the execution of the contract or after its completion.
- **Mediation**—This puts a third party in charge to find an agreement between the owner and the contractor. The result of the mediation process is not binding for the parties. The mediator should only try to find out if there is a possibility of agreement. He/she has to consider if the claims are justified or not, but only to the extent needed for the mediation procedure, which is basically still a negotiation.
- **Review**—This is a new procedure, recently accepted by the FIDIC and by the World Bank. It consists of putting in charge an expert, or a panel of three experts. During the execution of the contract, the panel meets monthly to analyze all claims and all reasons for disagreement. They issue an opinion that is not binding for the parties, who are free to go to arbitration or litigation. The review opinion, however, is considered as a strong point and is accepted by the parties in the majority of the cases.
- **Arbitration**—This is done according to the rules stipulated for it in the contract. The award is binding for the parties.
- **Litigation**—A formal legal procedure in the courts, through the different grades provided for by the applicable law.

Some contracts allow a choice between arbitration and litigation. In other contracts, it is not completely clear when arbitration or litigation clauses are to be applied. It is beyond of the purposes of this article to discuss the possibility that the applicable law is not easy to define. This can happen in international contracts.

The criteria to be used for an appraisal are the same whether the claim is going to be settled through any of the above procedures. However, the results can change according to the procedure, and the time needed to obtain the said result is completely different.

TECHNICAL CLAIMS

Extra Work

These are additional work required by the owner. In general, there should be a change order instead of a claim. In some cases, however, the claim exists because the work has been ordered without completing the correct procedure, or because the price was not agreed upon, or for other reasons.

Even in a lump sum contract, if the owner requires additional work, he/she has to pay for them. A good contract, even if it is a lump sum contract, should have a unit price list, or a fixed criterion, to be used in cases of additional works.

The only case where additional work is not to be compensated is when it is requested to have the work completed according to the standard of craftsmanship applicable. In this case it is not considered as extra work.

Extra Costs

This is for work performed with technical difficulties, unknown at contact time, and not included in normal contractor's risk. This is very common in underground or marine works, since such difficulties are in general related to the characteristics of the soil.

ECONOMIC CLAIMS

Delay Claims

These are claims for delay, suspensions, and longer contract time.

When a contract goes into delay—the first problem is to define whether the delay is subject to penalties or liquidated damages to be paid by the contractor; or, it is an excusable delay, which allows the contractor to extend the contract time without any kind of compensation; or, it is a delay to be compensated by the owner to the contractor.

This is a very difficult question to be decided. Responsibilities are generally extremely mixed up. The real fault belongs to the various parties in proportions that are not easy to define.

If the delay is due to a total suspension of work, the situation is generally more clear. It becomes more confused in cases of partial suspensions and extremely confused in cases of general delay without formal suspension. This is why such claims are brought to a third party (arbitration, litigation, or mediation) for settlement. Only seldom are the concerned parties able to settle these claims directly.

In case the delay has to be compensated, the compensation to be given to the contractor should be calculated by taking into consideration:

- the amortization of equipment and other fixed costs;
- the general expenses, namely the first and second level indirect costs; and
- the loss of profit, if applicable, according to the law.

In some cases, compensation has to be considered for the direct number of workers the delay involved, and any mobilization and demobilization. The amounts can be calculated as a fixed daily amount or as a fixed percentage of the contract, as it is sometimes stipulated.

In Italy, for instance, law 741/1981 establishes for public works a fixed percentage of 10 percent for loss of profit and of 13 to 15 percent of the contract amount (less the profit) for general expenses, without considering the first and the second level. There is also a fixed criterion to calculate the division of direct costs into number of workers, equipment, transportation, and material.

In other cases the compensation rates can be defined in

the contract itself. This definition is subject to the general legal rules relevant to any clause of limitation of responsibility.

Claims for Penalties

This is when the owner has applied to the contractor a deduction for penalties or liquidated damages and the contractor requires the cancellation. In general, the above claims are mixed together, since the owner applies the penalties saying that the delay is due to contractor's fault, while the contractor requires the cancellation of the penalty as well as the compensation, saying the delay is the owner's fault.

Claims for Acceleration

This is when the contractor, to catch up for a previous delay, is forced to take acceleration measures to meet the contract dates. Acceleration measures can be working on two or three shifts, increasing the number of workers and equipment, etc.

If the contractor makes claims for compensation of such extra-costs, the heart of the matter is to establish who is responsible for the previous delay.

If the acceleration is made, without a previous delay to catch up, only to reduce the contract time, it gives right-to-compensation only if it is stipulated in the contract, or if it is due to a precise request of the client.

Claims for Disruption

This is the most difficult of all possible claims. The contractor is claiming that it could not work efficiently, due to the owner's fault (lack of drawings or late approval of drawings, lack of material to be supplied by the owner, interferences between other contractors, and so on), and therefore requires the compensation of the additional workhours. In general, this claim is connected to a claim for a longer contract time.

FINANCIAL CLAIMS

Claims for Interest Charges

This claim is related to the late payment of the monthly statements or to the late approval of the monthly statements. Interests is due to the contractor, while we must define the rate (unless stipulated in the contract or defined by the law). Some confusion can be due to the calculation of accrued interests, which is allowed in some countries and not in others.

Claims for Cost Escalation

This claim arises when a contract had a duration longer than was foreseen, for causes not due to the contractor, and during that time the costs of materials, workers, and the other costs have increased due to a high inflation rate or other causes. This is a difficult claim, unless a precise clause has been stipulated in the contract. Of course, the cost escalation shall not be compensated if the delay is due to the contractor. This gives rise to a further problem.

In some contracts, a proper contract escalation clause is stipulated. Also in these cases, claims can be due to disagreement about the way of applying the clause (this was very common in Italy until 1994). In that year, a new law on public works declared illegal any clause of contract escalation; however, a lot of previous cases are still pending).

Exchange Ratio Claims

This claim arises when the exchange ratios of the currencies, relevant to the contract, change during the contract time, more than what logically would have been expected. This is a difficult claim, unless a precise clause has been stipulated in the contract.

Other Claims

The kind of claims that can be found in a construction contract are only limited by the creative capacity of both parties, the owner and contractor.

The above cases are only intended as a guideline, taking into consideration the most common cases. In reality, the claims have to be studied case by case, one by one.

Definition of the Face Value: Basic Amount, Contract Escalation, Cost Escalation, and Interests

In various letters, tables, and summaries made at different times, significant discrepancies can be found regarding the value of the claim itself, so the first step is to define its face or nominal value.

It has to be noted that a claim is often generated indeterminately. For instance, if the contractor has identified a problem that cannot be quantified yet, it initiates the claim with a provisional or undetermined value.

Later on, when the extra work is completed or extracts are quantified, the claim can be calculated. The nominal value of the claim, namely the capital or principal amount requested by the contractor for compensation, shall be:

$C = C_0 + R$ (face value, principal amount, capital)
where:

- C_0 is the basic amount calculated as per contract price list or as per the criterion chosen according to the contract; and
- R is the amount due for the contract escalation clause, if any, relevant to the time elapsed from contract signature or from the reference date stipulated in the contract to the date of execution of the extra work or to the date when the extra costs have been incurred.

We do not consider the intermediate steps. In the final account, if not settled before that, the contractor shall recalculate the claim as:

$V = C + E + I$

where:

- I is the interest charges because the works, not included in the payment certificates, have not been paid at execution time; and
- E is the compensation due for the depreciation of the money from then to now.

The same calculations can be made in any time until payment is received, so the general formula shall be:

$V = C + E(t) + I(t)$

The main dates to be considered are the date of the preliminary handing over or final account, the fate of the final handing over and at time of actual settlement.

- at preliminary handing over $V_p = C + E(t_p) + I(t_p)$
- at final handing over $V_f = C + E(t_f) + I(t_f)$
- at actual settlement $V_s = C + E(t_s) + I(t_s)$

In case of legal procedure or arbitration, the nominal value of the suit or arbitration itself shall be:

$V_n = C + E(t_n) + I(t_n)$

where:

- t_n is the time corresponding to the official start of the procedure (date of the summon or request for arbitration).

In most countries, the legal fees as well as the arbitration fees are calculated in the nominal value. The amount to be charged to the losing party is calculated on the amount actually granted by the writ or by the award. The difference remains at plaintiff's charge.

Even the writ or the award shall use the formula, "value plus interest and depreciation charges till the date of complete settlement," to be referred to the nominal value V_n or, in some cases, to the value at the time of the writ or award. This variation of the value with time elapsed can be extremely important in countries with a high inflation rate or high interest rate, as well as in countries where the legal procedures are time consuming.

It should be noted that such interest and depreciation charges are different from interest on late payments and contract escalation. In fact, while interest on late payments and contract escalation is clearly due under provisions of the law or contract, such interest and depreciation charges are only due if the basic claim is due and in proportion. If it is due partially, this is not properly a proportion and the amount should be recalculated considering in detail the items due for payment and relevant time span.

Furthermore, interest calculation and depreciation charges are not defined in a simple manner. For instance, in Italy, as in other European countries, the principal amount of the claim shall be calculated as the price of the additional works, plus contract escalation applied to the date when the works have actually been done. In the case of the claims for longer time or disruption, the criterion will be the same, while the procedure shall be less defined since the contract price and the contract escalation are not completely defined.

After the principal is known, the total amount can actually be calculated in different ways.

- In theory, the correct calculation should be to apply the cost escalation on the principal from the date when the amount became due to the date of the payment. On top of that, one must calculate the legal interest (namely the interest charges, applying the legal interest rate, without accrued interest) for the same span of time on the escalated value of the principal.
- However, the calculation is sometimes made in different ways, such as to calculate the legal interest on the original value of the principal and to sum this interest to the escalated amount. This procedure does not make any sense, but it is often used.
- In other cases the cost escalation is calculated up to the date of the writ and the legal interest after that date. This is to say that the amount has become due at the date of the writ instead of becoming due when the work has been performed or when the damages have been incurred.
- A further, restrictive criterion, is to calculate only the legal interest charges from the date when the amount became due, namely when the works have been performed or when the damages were incurred. In general, we have been applying this criterion as the prudential one. In most countries, however, if applied by the judge, there is a high probability that it may be reversed by the court of appeals or by the supreme court.

Things become more complicated if the contract stipulates a different interest rate, such as prime rate, a rate referred to as LIBOR, or something else. In this case, the right to calculate both cost escalation and interest is not granted, since the rate is considered as comprehensive of both charges; on the other side, in some cases, accrued interest can be allowed.

QUICK APPRAISAL

In some cases, such as in case of an appraisal needed for merging, or other operations on equity, as well as on decisions relevant to financing, or issuing of guarantees or other bonds, the time is short.

A thorough evaluation is impossible; there is no time to look at raw material, drawings, project control data, and so on. We only have the book of the claims, the basic contract documents, and we know the status of the claim, nothing more.

Rank - Sub rank	Description	Coefficient
AAA	Claims where an award or judgement in favour has been obtained. The award is binding and is not subject to further appeal or authorisation.	90.0%
AA	Claims where an award, judgement or agreement between the parties has been obtained, subject to appeal or approval by higher authorities.	80.0%
A	Claims clearly due under the law or the contract, whose reduction could only be due to mistakes in calculation or to final negotiation (such as interest charges or cost escalation).	70.0%
B	Claims for extra works, contractually due, whose amount has to be checked technically and then negotiated.	50.0%
C	Claims due in principle, subject to discussion item by item and negotiation, such as claims for disruption.	25.0%
D	Weak claims, with limited possibility of success.	10.0%
E	Ungrounded claims or claims where not enough information is available.	0.0%

Figure 1—Ranks and Subranks

We have suggested, in some cases, an easy parametric criterion, considering five different ranks, one of which divided into three subranks.

Ranks and subranks are as shown in figure 1.

The value to be considered shall be the face value for claims under A, B, C, D, E, and the value of the agreement or award for claims under AA or AAA.

Rank E includes both the ungrounded claims and claims where not enough information is available. Of course, the number and type of ranks and subranks, as well as the percentages of evaluation, based on experience, must be agreed upon with the client. In fact, this is not an appraisal. It is only an impression.

The above criterion has been studied for a European investment bank that needed to evaluate the claims of a major European construction company, working mainly in public works such as road construction, railway, and urban subway construction. Therefore, it does not have general validity.

However, if such criterion is used by a sound experienced professional, it can give a rough idea, although not fully reliable, regarding the real value of the claims.

It can be enough or not, according to the specific case, according to the importance this appraisal has on global business. However, this first impression can be very helpful in deciding whether or not to go on with a detailed appraisal.

THOROUGH APPRAISAL

Prudential Appraisal

In most cases, the client requests a general prudential appraisal, without specifying in detail what detailed criteria are to be used to define prudential.

In our case, a *prudential* appraisal means that the claims have to be evaluated as the amount we are to receive through the due process of negotiation, arbitration, or litigation, considering the less favorable of them.

The value to be considered is the minimum reasonable value, id est the value obtained from the most restrictive possible approach that is still within the limits of the laws and correct business practice.

In case of reasonable doubt, the value shall be put as zero. Of course, the most prudential appraisal could put everything as zero, but this would be wrong. In fact, losing business for fear of the risk cannot be considered as an act of prudence.

If we are on owner's side, instead of being on the contractor's side, the criterion of prudence obviously shall be reversed.

Objective Appraisal

If we are to make an objective appraisal, our position is different. We are to think as if we were the judge. It means that our way of thinking cannot be restrictive, instead it has to be objective.

In case of a law to be applied, we shall not try to find the most restrictive way of interpretation, but we shall try to find the objective interpretation to be applied to the case under consideration.

This is why an objective appraisal is more difficult than a prudential appraisal. The value is generally higher than the previous one, while our responsibility is higher.

An objective appraisal can be done only after we have a complete and deep knowledge of the contracts and relevant claims, as well as of the way they are actually evolving (negotiations in progress, meetings with lawyers, etc.). It could take months instead of taking weeks.

Statistical Appraisal

In some cases the client requires a statistical appraisal, in order to have an expected value and a variance.

This is very easy if we have plenty of qualified people to do the work. Then, we can have the same group of contractual claims evaluated by four or five different people, independently of each other. This generally is not possible, since

the availability of both time and people do not allow us to do this.

In reality, we can only have, calculated by the same person:

- the pessimistic value (V_{min}), which is the prudential value above defined;
- the optimistic value (V_{max}), which is the prudential value on defendant's point of view;
- the objective value (V_{obj}); and
- the mean value.

$$\frac{V_{\min} + V_{\max} + V_{obj}}{3} = V_m$$

We can try to calculate a kind of variance, although this is not completely correct from a statistical point of view, as the mean of the squared deviations

$$\frac{(V_{\min} - V_m)^2 + (V_{\max} - V_m)^2 + (V_{obj} - V_m)^2}{3} = \Delta V$$

or the standard deviation

$$\sqrt{\frac{(V_{\min} - V_m)^2 + (V_{\max} - V_m)^2 + (V_{obj} - V_m)^2}{2}} = \sigma$$

or, in case we have a contract with several claims

$$\sqrt{\frac{\sum (V_{\min} - V_m)^2 + \sum (V_{\max} - V_m)^2 + \sum (V_{obj} - V_m)^2}{n-1}} = \sigma$$

It will be reasonable, although not completely correct from a statistical point of view, to say that with 68 percent probability, we shall get from our claims the amount

$$V_m \pm \sigma$$

with 95.5 percent probability the amount

$$V_m \pm 2\sigma$$

and with 99.7 percent the amount

$$V_m \pm 3\sigma$$

EXAMPLE—POWER STATION

Description

Let us consider an example based on figures, referred to a real case. We have to make a statistical appraisal of a group of contractual claims whose face value is shown in the table 1, where the prudential evaluation of the parties, plaintiff, and defendant are shown. We were called to prepare a statistical evaluation for a third party.

The contract was relevant to the civil works of a major power generating plant; the amount of the contract, including some addenda already stipulated, was 165.000 = kDM (thousands of German Marks).

Claims as Referenced in Table 1

1. Increase of unit costs of workers: the contractor was claiming that, besides the increases due to the labor contract, he/she was substantially forced by the client and by the local authorities, under pressure from the unions, to grant to the locally hired workers further increases to cope with local situations beyond their contractual obligations.
2. Compensation for the work was suspended three times for a total of 112 days, due to the fact that the client did not perform correctly some licensing procedures. Suspension was due to a decree issued from the local authorities, after a writ of the court.
3. Disruption of work and longer contract time.
4. Delays of payments, due to late issuing of payment certificates.
5. Work performed after new prices were approved for those work categories, but still accounted for with old prices.
6. Work relevant to categories not provided for in the contract, new prices imposed by the client and rejected by the contractor.
7. Interest charges for delay in payment.

8-11. Extra work.

12. Interest charges for late accounting of work.

Table 1—Evaluations Compared

Claim no	Face value	Appraisal Plaintiff		Appraisal Defendant	
	k DM	k DM	%	k DM	%
1	15 026	4 987	33.19%	5 250	34.94%
2	23 696	2 710	11.43%	8 293	35.00%
3	35 665	9 282	26.03%	12 482	35.00%
4	1 372	725	52.84%	1 372	100.00%
5	8 016	2 760	34.43%	6 012	75.00%
6	1 229	210	17.09%	920	74.90%
7	391	212	54.29%	394	100.61%
8	6 512	1 320	20.27%	4 884	75.00%
9	1 213	577	47.58%	910	74.98%
10	3 175	1 202	37.87%	953	30.01%
11	9 037	6 325	69.99%	9 036	99.99%
12	283	142	50.00%	212	75.00%
Total	105 617	30 452	28.83%	50 718	48.02%
Escal / int	48%	14 617	49%	24 852	
		45 070		75 570	

Evaluations Compared

Table 1 shows the evaluation made by both parties. The following are to be considered.

- The plaintiff's evaluation was made by analyzing each claim, item by item, and evaluating each item with the prudential criterion previously defined.
- The defendant's evaluation was parametric. They applied to each claim a coefficient that, according to what they declared, was based on their experience and

previous records.

- The total value of the defendant's evaluation was equal to 48 percent of the face value. This is really extremely high, even more so when considering that their evaluation was parametric instead of being analytical. In our experience, the average amount actually obtained from contractual claims is around 30 percent; in more detail, we can say that 30 percent could be considered as an upper limit in case of negotiation, while in the case of arbitration or a judiciary procedure the average amount granted to the contractor, according to our experience, is 25 percent to 40 percent.

From the above it was clearly understood that the defendant's evaluation could not be seriously taken into consideration.

Table 2—Adjusted Appraisal

Adjusted appraisal					
Claim no	Face value	Evaluation			
		Pexim.	Reasonn.	Optim.	Mean
1	15 026	2 293	5 242	9 502	5 679
2	23 696	2 095	2 710	2 956	2 587
3	35 665				
Longer time		2 780	7 200	9 540	6 507
Disruption		6 164	7 398	14 266	9 276
4	1 372	960	1 235	1 372	1 189
5	8 016	2 484	2 760	3 036	2 760
6	1 229	189	210	231	210
7	391	270	352	391	338
8	6 512	1 188	1 320	1 452	1 320
9	1 213	519	577	635	577
10	3 175	1 082	1 202	1 323	1 202
11	9 037	6 326	8 134	9 037	7 832
12	283	127	142	156	142
Total	105 617	=	38 480	=	39 618
				Std Dev	1 625
			Range corresp. to 99.7% probability		
				Minimum	Maximum
				34 743	44 493
			Range corresp. to 95.5% probability		
				Minimum	Maximum
				36 368	42 868
			Range corresp. to 68% probability		
				Minimum	Maximum
				37 993	41 243

Adjusted Evaluation

We then decided to reconsider in detail all the claims, trying to apply a statistical criterion.

The adjusted evaluation is shown in table 2.

The following are to be considered.

- The adjusted evaluation consists of a pessimistic value, an optimistic value, and a reasonable value, which is actually the compensation we would have granted to the contractor if we were the judge.
- Table 2 shows the mean and the standard deviation of the above evaluations. It would not make any sense to make the pessimistic sum and the optimistic sum, since some assumptions would have been in contradiction (to be reminded that the way of calculating the standard deviation is not fully correct on statistics point of view).

According to the above, we can calculate the range corresponding to 68 percent, 95.5 percent, and 99.7 percent probability. In our opinion, the one making more sense is the second one, namely

$$V_m \pm 2\sigma$$

The statistical evaluation was then based on the consideration that, with 95.5 percent probability, the final result shall be within the range

$$39816 \pm (2 \times 1625) = 36368 \div 42868 \text{ kDM}$$

It is worthy to note that what we called a reasonable evaluation is included in the said range and more or less corresponds to the mean value.

We can now summarize the values as follows:

- previous prudential evaluation: kDM 30452;
- new statistical evaluation: kDM 36368 to kDM 42868; and
- new objective evaluation: kDM 38480.

Table 3—Quick Appraisal

		Quick appraisal			
Claim no	Face value	Rank	Coeff	Value	Prudential value
1	15 026	C	0.25	3 757	4 987
2	23 696	D	0.1	2 370	2 710
3	35 665	C	0.25	8 916	9 282
Longer time					
Disruption					
4	1 372	B	0.5	686	725
5	8 016	B	0.5	4 008	2 760
6	1 229	B	0.5	614	210
7	391	B	0.5	196	212
8	6 512	A	0.7	4 559	1 320
9	1 213	B	0.5	607	577
10	3 175	B	0.5	1 588	1 202
11	9 037	B	0.5	4 519	6 325
12	283	B	0.5	142	142
Total	105 617			31 959	30 452

If we were requested now for a new prudential evaluation, we could assume the minimum value of the range corresponding to 95.5 percent probability, namely 36368 kDM. The statistics allowed us, in this case, to increase our appraisal some 20 percent.

If we had applied the criterion of quick appraisal, the result would have been as shown in table 3.

Cost Escalation and Interest Charges

It is known that a claim is subject to cost escalation as well as to interest charges to be calculated with reference to the date when the amount became due. However, the procedure to calculate the final amount is subject to some different interpretations.

In the previous appraisal, both parties calculated only the interest charges at the contractual interest date considering, for each claim, the actual dates the claim was referred to. They obtained similar amounts of 48 percent and 49 percent. According to the above, we have suggested to keep the

restrictive criterion and therefore the increase of 48 percent for all cases. Since the interest rate stipulated in the contract was higher than the legal interest rate and comparable to the market rate, it was assumed that it was meant to also cope with cost escalation.

In general, the situation is more complicated, since we must calculate all interest and escalation charges. In case we are doing a prudential evaluation, we suggest considering only the legal interest charge.

In case of a statistical or objective evaluation, we could consider the following.

- A minimum value corresponding to the legal interest charge.
- A maximum value calculating the legal interest on the original value of the principal and to sum this interest to the escalated amount. Although this procedure does not make any sense, it is often used in case of negotiation, while the complete calculation of both interest and escalation charges is granted only by a complete judiciary action; and
- In case a criterion is stipulated in the contract, the value is to be referred to this.

EXAMPLE 2—WASTE TREATMENT PLANT

The second case is relevant to a waste treatment plant. It was a turnkey contract whose value was 23,235,000 .

At provisional handing over, a lot of claims were not yet settled. They are shown in table 4.

Table 4 shows the face value (in this case, due to the low inflation rate and to the short contract time, there was not any problem of cost escalation), the appraisal based on objective criterion, and the resolved value. Note that the appraisal was actually used as a basis for a mediation.

Also, it is worthy to note that:

- extra work was settled at 59.1 percent of the face value (please compare with table 3 on quick appraisal, rank B, 50 percent); and
- longer contract time was settled at 28.1 percent of the face value (please compare with table 3, rank D, 25 percent).

COUNTERCLAIMS AND OTHER COSTS

In some cases, there are counterclaims from subcontractors or from the client.

Table 4—Face Value, Appraisal, and Resolved Value

Claim no. and title	Face value	Appraisal	Resolved value	Appraisal to face value	Resolved to face value
7, Extra works	25,211	0	0		
8, Extra works	66,762	33,381	42,000		
15, Extra works	195,608	195,608	195,000		
23, Extra works	131,323	41,000	84,000		
24, Extra works	183,677	35,000	35,000		
Total extra works	**602,581**	**304,989**	**356,000**	50.6%	59.1%
21, Undue retention of penalties	1,215,256	874,225	874,225		
Total penalties	**1,215,256**	**874,225**	**874,225**	71.9%	71.9%
10, Overhead	1,915,613	580,641	580,641		
13, Financial costs (capital, bonds)	127,996	23,794	23,794		
11, Equipment	1,404,783	333,130	740,000		
12, Disruption	1,123,826	0	0		
14, Loss of profit	1,404,782	333,134	333,134		
Total longer contract time	**5,977,000**	**1,270,699**	**1,677,569**	21.3%	28.1%
16, Watchmen	20,887	10,443	0		
Total other claims	**20,887**	**10,443**	**0**	50.0%	0.0%
18, Start-up	50,000	0	0		
19, Manpower	169,487	75,545	75,500		
21, Electricity and water	382,487	180,000	320,000		
22, Waste disposal	469,341	229,136	230,000		
Total start-up	**1,071,315**	**484,681**	**625,500**	45.2%	58.4%
Grand Total	8,887,039	2,945,037	3,533,294	33.1%	39.8%

Counterclaims From the Client—Counterclaims from the client can be dealt with the same criteria above. Of course, prudential criterion is to be reversed in favor of the client.

Counterclaims From the Subcontractors—Counterclaims from subcontractors can be dealt with the same criteria above. Of course, a prudential criterion is to be reversed in favor of the subcontractor.

In some cases, the claims from the subcontractors are referred to the same as claims of the contractor toward the client. In these cases, the evaluations can be related to each other (taking into consideration the fact that the contract clauses could be different).

In those cases, namely when the claims and the counterclaims from subcontractors are related to the same matters, a kind of partnership can be stipulated to avoid a double arbitration, entitling the subcontractor to an agreed percentage of the final result, whatever it shall be.

Net Present Value

After we have completed the appraisal, we can calculate the net present value of our contractual claims. In general, two alternatives are considered, pessimistic and optimistic, taking into consideration the shorter and longer possible time of completing the whole procedure. If needed, additional alternatives could be taken into consideration (case of negotiation, litigation, etc.) with the relevant estimated times.

For doing so we must use the normal well-known formulas, including:

- financial input due to payment of claims;
- financial output due to counterclaims from the client or from subcontractors;
- financial output due to the cost of the legal procedures, to the fees of lawyers and consultants; and
- financial output due to the costs of managing the procedure.

The rate of discount to be applied to calculate the net present value is given by the general situation of the company or by the client. In general, this is not a rate to be assumed from contract or through consideration relevant to the claims themselves.

We have shown that contractual claims can be appraised by a qualified professional by means of a proper study of the case itself, the contract, the applicable law and procedures, and the general situation of both contract and country. The appraisal, if correctly done, can have a good degree of reliability and can be used for economic and financial purposes such as business decisions and other decisions.

This statement is based on our experience, namely to several tenths of different contracts. A wider research, collecting data from several experiences in different countries, is being planned.

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