

A Comparison Between Contract Price Fluctuations and the Real Increases in Construction Costs

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Introduction

The Contract Price Fluctuation (CPF) system for adjusting the contract sum due to fluctuations in the costs of labour and materials for civil engineering contracts has been in use in Hong Kong since 1977 and was introduced for building contracts in 1989.

The purpose of the CPF system is for the employer and contractor to share the risk associated with post contract labour and material price fluctuations which can decrease as well as increase. A contractor who tenders a fixed price contract assumes the risk that it may later have to pay more for labour and materials than the prices current at the time of tender, however, market forces, coupled with the need for rational and competitive tendering, may persuade an employer to accept a share of the risk of price fluctuations.

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For the CPF system to be feasible the CPF adjustments should reflect any increases or decreases in the costs of labour and materials; i.e. the CPF adjustments should mirror any fluctuations in cost to contractors.

However, the question arises as to whether or not the CPF adjustments do reimburse a contractor for its real increases in construction costs, particularly when the composition of the weighted elements of the CPF system do not truly reflect the work to be carried out.

The Environmental, Transport and Works Technical Circular (Works) No. 21/2003 dated 1 September 2003 implies that the CPF adjustments and the Schedule of Proportions should "produce an equitable method of reimbursement of price fluctuations" (para. 8.3.3a) and to ensure that this occurs the drafter of the CPF provisions should consider the use of more than one Schedule of Proportions.

The Need for a CPF System

When adjustments for price fluctuations were first introduced into the industry, the adjustments were assessed based upon actual increases or decreases in prices. On large projects, this necessitated a huge accountancy exercise comparing the tender prices of labour and materials with the actual prices paid and computing the differences for every relevant purchase or

payroll transaction throughout the project. There were many drawbacks to such a system, not least in dealing with subcontractors.

There were also some unscrupulous contractors who interpreted the rules of the system in such a way that material deliveries (particularly formwork materials) could be so arranged to count more than once.

To avoid these problems and to reduce the administration time to operate the old traditional system, a new system was devised which was based upon tracking:-

- (i) average wage movements of labour; and
- (ii) average movements in the prices for materials.

There was also a non-adjustable element. Thus, the CPF system was born.

The CPF System

The mechanics of the CPF system used in Hong Kong requires that prior to contract award, a tenderer inserts into the CPF Schedule of Proportions its assessment of the value (by percentage terms) or weighting for each element of listed materials and composite labour that go to make up the tender. Pre-determined upper and lower limits are assigned by an employer against each element to reduce the possibility of speculation by tenderers.

The employer then determines the base index and the composition or weighting of each element and this base index, together with the weighted elements, remains unchanged for the duration of the project. The contractor's entitlement to CPF adjustments is then calculated each month by establishing the current indices for each element and converting these using the predetermined weightings to arrive at a monthly index. The monthly index is then compared to the base index to calculate the monthly movements in the indices and then this monthly movement is multiplied by the effective value of work done in that month. This is done throughout the project, therefore, there is a CPF adjustment for each and every month.

Thus, since both the composition of the weighted elements and the base index are fixed for the duration of the project, the monthly CPF adjustments and, in particular, the relative movements, are governed by the movements in the current indices for each element for each and every month. Those indices are, therefore, all important in producing CPF adjustments which reflect price fluctuations for any particular project.

However, the contractor has no control over the compilation of the individual indices as these are produced by the Census and Statistics Department. The performance of the indices, in terms of reflecting the realities of the market are, therefore, of crucial importance

to the contractor in terms of the adjustments to the price created by the CPF system.

The Price is Not Right

The monthly movements in the indices assume a particular importance where the subject matter of the contract involves volatile commodity costs during periods of hyper-inflation. For example, some market prices can rise in an extremely rapid or uncontrolled manner due to an external force, such as the cost of diesel during an oil crisis (the diesel fuel index increased 40% from January 2004 to October 2005), or the cost of sand during a period of high demand and shrinking supply (after years of little movement the sand index increased 30% from June to August 2005; i.e. in just 2 months).

However, in reality, the price of oil and sand increased far more than the increases represented by the indices.

In theory, the incremental movements in the indices should track the real time economic changes that affect not only that particular contract but each particular commodity that makes up the labour and material mix for that particular contract. Accordingly, the cumulative changes in the indices, when measured against a fixed base index, should reflect the realities of the market in which the contract is being performed and the contractor should not, therefore, in theory, be penalised in times of inflation resulting in significant under-recovery when compared to its actual cost increases because the indices did not keep pace with or mirror actual inflation.

Two factors can, however, result in index-based CPF adjustments diverging significantly from real construction cost increases. Firstly, a deficient materials list and, secondly, an unrealistic current monthly index value.

The Materials List

For many tenders, the employer's materials list does not have a logical relationship with the works for that contract. Therefore, clearly, the movement in the CPF indices cannot hope to track the ebb and flow of economic conditions as they affect the actual costs of a particular contract.

By their very nature, construction projects are nonstandard with large variations in quality, size, design, construction technique and material types. In order to attempt to mirror the actual performance of a contract, therefore, the composition of the weighted elements should ideally be tailored for each project and should reflect the actual materials being used. Reliance on an over-arching composition of weighted elements which may not be sensitive enough to reflect the actual increases in the costs of particular commodities may have the effect of dampening the movement and performance of the overall CPF adjustments and, thereby, result in a divergence between actual cost increases and the composite CPF adjustments. The composition of the weighted elements, should ideally be broken down into sufficient detail and should be sufficiently accurate in terms of reflecting what is actually being built. However, bearing in mind that the CPF materials list and the associated monthly indices are produced by the Census and Statistics Department each month, it is conceded that the opportunities for revising the materials which feature in the indices are extremely limited.

There is another limiting factor and that is the limited

number of materials in the indices published by the Census and Statistics Department. To put it mildly, the indices are very basic and do not cover the types of materials often used in modern construction projects.

For instance, there are no indices for carbon steel plate, stainless steel, toughened or tempered glass and cast iron pipes and fittings to name just a few materials in common use in the industry.

The Monthly Index

Further, if the current monthly index for a particular material does not reflect the current market price or the fluctuations in the current market price, but represents an amalgamation of prices, or some other form of averaging intended to smooth erratic movements, then the CPF adjustments are again unlikely to reflect the contractor's actual increases or decreases in cost. Measuring market trends in distinct monthly increments will only ever mirror actual price movements if the CPF materials indices are sufficiently broad enough to reflect actual market trends as they affect particular commodities. An index figure based on an amalgamation of different material prices may not generate what could be termed a fair price to the contractor, since, whilst some of the materials may be subject to rapid price movements, the actual effect of these increases may be diluted by other more stable index components. The result is that the CPF adjustments do not reflect the contractor's actual cost increases or decreases.

'...the formula will likely generate a mixture of both gains and losses ...'

To what extent then should the contractor expect to recover its actual increases in the costs of materials and labour via the CPF adjustments?

In short, the contractor should not expect to recover its actual costs but, if the composition of the weighted elements properly reflects a project, then the adjustments should mirror actual price changes by averaging over all the elements. The main advantage of the CPF system is that it is designed to protect both parties against unanticipated or unpredictable changes in material and labour, prices and, whilst it is not intended to turn the parties contractual arrangement into a cost reimbursement form of contract, it is intended to reduce the risk of inflation borne by a contractor.

However, this may not happen as the employer, whilst receiving a reduced price at tender stage, may then deny the contractor the quid pro quo of protection against actual material and labour price increases where the movements in the monthly indices do not reflect the realities of the market and the prices that the contractor actually forced to pay. Where an under-recovery occurs as a result of a deficient composition of the weighted elements for the CPF materials list or an unrealistic current index value, the contractor will suffer losses, since both factors are largely determined by the employer and are out of the contractor's control. The contractor appears to lose out in such a scenario and may have to revert to claims to recover its unreimbursed cost increases.

Conversely, of course, there may be instances where a

contractor over-recovers from the CPF adjustments, whereby, through prudent sub-contract buying or by virtue of the performance of the indices, a contractor benefits when his actual costs are lower than the payments generated by the CPF adjustments.

A further consideration for a contractor expecting to recover its actual costs is that, since the amounts paid to the contractor for the CPF adjustments are partly governed by the values (percentages) of the weighted elements of the CPF materials list and labour which are inserted into the tender CPF Schedule of Proportions by the contractor, the contractor is, therefore, partly responsible for the outcome of the eventual CPF adjustments. Clearly, therefore, it would not be equitable for an employer to be subsequently liable for the difference between the actual costs incurred and the CPF adjustments, when the contractor may be partly responsible for any divergence as that was the way in which the contractor bid the tender.

The reality with adopting any formula approach for CPF adjustments is that both parties have accepted the risks associated with, not just the formula approach, but the way in which the CPF system is operated and that includes the degree to which the Census and Statistics Department are capable of compiling monthly indices that reflect the realities of the Hong Kong market in its macro environment. To a large extent, the formula will likely generate a mixture of both gains and losses when measured against a contractor's actual costs and, barring any hyper-inflationary spikes in the prices of materials, the general trend of both increases and decreases in the indices should, in general, track the overall market trends.

Notwithstanding the deficiencies that are inherent with any CPF formula approach, the use of an index based system which attempts to keep pace with inflationary and deflationary trends is, it is suggested, an appropriate method of ascertaining price adjustments for use in medium to long term projects and is fairer to both parties, as opposed to the contractor accepting all the inflationary risks, with the almost impossible task of attempting to predict future price trends.

'...the amount of reimbursement should be governed by due consideration for what is fair.'

The Environment, Transport and Works Bureau Technical Circular (Works) No. 21/2003 dated 1 September 2003 provides information on the CPF system for civil engineering and building contracts. Section 8.3.3 envisages contracts with two or more diverse elements (for example site formation works followed by building works) having two or more Schedules of Proportions so that the CPF adjustments can more closely follow price movements. The Circular does not refer to any other situations that may likewise prevent "*an equitable method of reimbursement*" from being achieved. However, it is interesting that the Circular does recognise that the amount of reimbursement should be governed by due consideration for what is fair. Where a single Schedule of Proportions may not produce an "*equitable*" method of reimbursement, then two separate Schedules of Proportions should be considered.

Conclusions

An unmodified CPF system with a non-representative Schedule of Proportions, coupled with price increases during periods of hyper-inflation, may result in CPF adjustments that are patently unfair. Whether this could amount to a breach of an implied term or warranty that the CPF system would produce "*an equitable method of reimbursement*" is a question for the lawyers!

New Staff

A big welcome to Steve Kobylanski who has joined BERA as a Senior Consultant in our Dubai office. Steve has more than twenty-four years' experience in the construction industry within the commercial and contractual management of building and civil engineering projects. He has previously worked in the UK, Gibraltar, Hong Kong and Taiwan and now joins us in the burgeoning construction activities in Dubai and elsewhere in the UAE.



Professional Development

Congratulations to James Longbottom, Managing Director and to Patrick O'Neill, Managing Consultant who have both recently attained Fellowship grade of the Hong Kong Institute of Surveyors and Royal Institute of Chartered Surveyors, respectively.

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