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Contributor Feature: Plant and Machinery Valuation - Cost Approach Methods

Whenever we consider a transaction, regardless of the industry, good or service, more often than not, we have three prices to consider:

1. **What the seller thinks the value is**
2. **What the buyer wants to pay for it, and**
3. **The true value of the goods and/or services**

This rings true whether you're selling your personal car, or transacting large assets such as machinery and heavy equipment for industries like construction, mining and manufacturing which are referred to as plant and machinery.devices which has fundamentally changed consumer buying behavior and flexibility required to adapt within organizations.

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Plant and machinery valuation is carried out to provide the best and most logical advise when it comes to determining the correct value of the assets prior to buying, selling, financing or insuring it. Finding the right value comes down to selecting the right cost approach method for the asset.

Broadly speaking, there are three cost approach methods:

(a) **Replacement cost method**: a method that indicates value by calculating the cost of a similar asset offering equivalent utility,

(b) **Reproduction cost method:** a method under the cost that indicates value by calculating the cost to recreating a replica of an asset, and

(c) **Summation method:** a method that calculates the value of an asset by the addition of the separate values of its component parts.

Replacement Cost Method

Generally, replacement cost is the cost that is relevant to determining the price that a participant would pay as it is based on replicating the utility of the asset, not the exact physical properties of the asset. 45 International Valuation Standards General Standards – IVS 105 Valuation Approaches and Methods

Usually replacement cost is adjusted for physical deterioration and all relevant forms of obsolescence. After such adjustments, this can be referred to as Depreciated Replacement Cost.

The key steps in the replacement cost method are:

(a) calculate all of the costs that would be incurred by a typical participant seeking to create or obtain an asset providing equivalent utility,

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(b) determine whether there is any deprecation related to physical, functional and external obsolescence associated with the subject asset, and

(c) deduct total deprecation from the total costs to arrive at a value for the subject asset.

The replacement cost is generally that of a modern equivalent asset, which is one that provides similar function and equivalent utility to the asset being valued, but which is of a current design and constructed or made using current cost-effective materials and techniques.

Reproduction Cost Method

Reproduction cost is appropriate in circumstances such as the following:

(a) the cost of a modern equivalent asset is greater than the cost of recreating a replica of the subject asset, or

(b) the utility offered by the subject asset could only be provided by a replica rather than a modern equivalent.

The key steps in the reproduction cost method are:

(a) calculate all of the costs that would be incurred by a creation of an exact replica of the subject asset,

(b) determine whether there is any deprecation related to physical, functional and external obsolescence associated with the subject asset, and

(c) deduct total deprecation from the total costs to arrive at a value for the subject asset.

Summation Method

The summation method, also referred to as the underlying asset method, is typically used for investment companies or other types of assets or entities for which value is primarily a factor of the values of their holdings.

The key steps in the summation method are:

(a) value each of the component assets that are part of the subject asset using the appropriate valuation approaches and methods, and

(b) add the value of the component assets together to reach the value of the subject asset.

Considerations

The cost approach should capture all the costs that would be incurred by a typical participant. IVS 105 Valuation Approaches and Methods

The cost elements may differ depending on the type of the asset and should include the direct and indirect costs that would be required to replace/ recreate the asset as of the valuation date. Some common items to consider include:

(a) direct costs:

1. materials
2. labour.

(b) indirect costs:

1. transport costs
2. installation costs,
3. professional fees (design, permit, architectural, legal, etc),
4. other fees (commissions, etc),
5. overheads,
6. taxes,
7. finance costs (e. g. interest on debt financing), and
8. profit margin/entrepreneurial profit to the creator of the asset (e.g. return to investors).

An asset acquired from a third party would presumably reflect their costs associated with creating the asset as well as some form of profit margin to provide a return on their investment. As such, under bases of value that assume a hypothetical transaction, it may be appropriate to include an assumed profit margin on certain costs which can be expressed as a target profit, either a lump sum or a percentage return on cost or value. However, financing costs, if included, may already reflect participants' required return on capital deployed, so valuers should be cautious when including both financing costs and profit margins.

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When costs are derived from actual, quoted, or estimated prices by third party suppliers or contractors, these costs will already include a third parties' desired level of profit.

The actual costs incurred in creating the subject asset (or a comparable asset) may be available and provide a relevant indicator of the cost of the asset. However, adjustments may need to be made to reflect:

(a) cost and inflation variables between the date on which the cost was incurred and the valuation date, and

(b) any exceptional costs, or savings, that are reflected in the cost data but that would not arise in creating an equivalent.

Proper valuation and inspection of assets will give you complete asset descriptions, life estimations, condition reports, and their attributed values, all of which provides substantiated evidence and research to make better, more informed business decisions.

The Savills Plant and Machinery Department offers one of the most experienced departments in the MENA Region. They have vast experiences in many asset classes and the valuation requirements needed for financial reporting, loan security, and insurance replacement assessment.

ABOUT THE AUTHOR

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Mike is responsible for the plant and machinery valuation department within the MENA region. Having more than 40 years' experience within both the EMENA and APAC regions, Mike draws on vast experience to provide optimal results for Savills and Logistics Executive Group clients.

Mike has been in Dubai since 2013 and began working for Savills Middle East in 2021. Prior to this he was a head of department and partner for an established regional valuation firm and has therefore, developed a strong global client base.

Mike is an RICS Registered Valuer, specialising in Machinery and Business Assets. He is also a member of the Australian Property Institute, as well as being an active member of the Australian Auctioneers and Valuers Association.

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