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Contractor's plant: Whether to buy or to lease?

*Marius H Muller**

Summary

This article comments on the concepts of buying versus leasing in terms of decision-making theory regarding the procurement of contractor's plant. It was found that leasing offered the better option in the worked example presented herein, but that every plant buying or lease decision would have to be made individually on proven calculation and on merit.
Keywords: Plant, purchasing, leasing, hiring.

KONTRAKTEURSTOERUSTING: KOOP OF HUUR?

Opsomming

In hierdie artikel word die bestaande opsies behandel waarvoor die boukontrakteur te staan kom wanneer hy toerusting aanskaf. Die vraag is: moet hy huur of koop. Uit die voorbeeld wat hier aangehaal word blyk dit dat huur 'n beter opsie bied. Dit is egter ook baie duidelik dat elke geval meriete het en dus individueel bekyk moet word. Kostes moet teen mekaar opgeweeg word, veral met die kontrakteur se doelwit voor oë.
Sleutelwoorde: Toerusting, boukontrakteur, aankope, huur, verhuring.

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This article investigates the options available to the contractor for obtaining plant, either by buying or leasing it. The concepts of buying and leasing are first presented; the theory relating to these concepts is then put forward; following this is a worked example containing explanatory notes concerning decision making. Finally, conclusions are drawn and recommendations are made with regard to the contents of the article.

Concepts of leasing and buying

Buying will be understood to mean the instance whereby the contractor acquires plant by his personal action in return for an agreed payment in monetary value, as opposed to inheriting it. In turn, leasing will be understood to mean the temporary procurement of plant in return for an agreed payment in monetary value (Barber, 1973).

A lease is defined by Ferrara (1979), as a contractual agreement between a lessee and lessor, where the lessee is the user of the equipment and the lessor is the supplier of the equipment.

Table 1

Differences in leases
(after Ross & Westerfield, 1990)

Operating lease	Financial lease
1. Is a short-term lease, usually less than five years	1. Is a long-term lease, usually more than five years
2. Is not fully amortised	2. Is fully amortised
3. Lessor provides maintenance	3. Lessee provides maintenance
4. Has a cancellation option	4. No cancellation option

Leasing can be sub-divided into two types, viz. operating and financial leases. The operating lease is also known as a

maintenance or service lease. The financial lease is also called a capital lease. The most significant difference between the two are listed in *Table 1*.

As the contractor may hire plant for one week or in excess of five years for one particular project, no further distinction will be made between the two types of leases.

At this stage we will briefly consider the different leasing categories (IDC (SA), 199-). They are:

1. *Direct lease*. The lessee contracts a leasing company and obtains the sue of an asset that it did not previously own.
2. *Sales and lease back*. The lessee sells an asset he owns to another firm and immediately leases it back.
3. *Leveraged lease*. This is a three-sided deal among the lessee, the lessor and the lenders.

For now, it suffices to say that for tax purposes and lower rental costs, the leveraged lease is the most advantageous.

Figure 1 is a schematic comparison which highlights the differences between buying and leasing.

Theory of buying and leasing

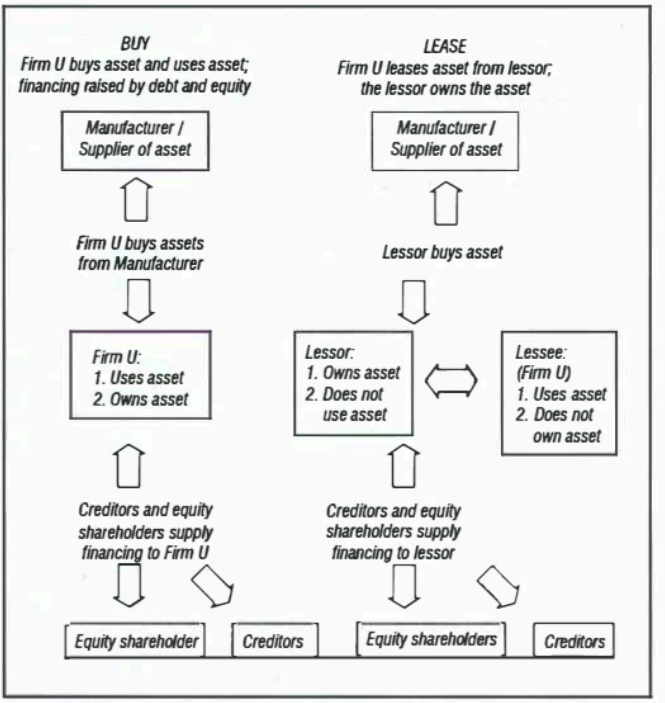
It is important to know when tendering for a job whether one should opt to buy or hire plant. At this stage one should not only consider the specific contract at hand but also rationally consider future contracts and their demands on plant resources.

Nevitt and Fabozzi (1988), and Brealey and Myers (1991), list four sources of supply for contracting plant, viz.:

a) Direct leasing from manufacturers / suppliers
b) Leverage leasing through plant hire organisations

Figure 1

Buying versus leasing (after Bierman, 1982)



c) Acquisition of new plant or second-hand plant

d) Employing existing owned plant.

The contractor, when considering his tender price and options available for plant usage must remember that the cost involved with this plant is very similar to that of a leasing company. It thus comes down to employing financial calculations to see which option is the best, not only for the present, but for the future as well. According to Harris & McCaffer (1986), facts to consider about the plant expenditure include:

1. Initial capital cost and residual value
2. Interest and service charges on the investment
3. Monetary policy, including investment, initial and annual tax allowances
4. Maintenance and repair costs
5. Cost of administration, insurance, licensing and legal documentation
6. Cost of fuel and other consumable items
7. Cost of operating and supervisory personnel.

If a contractor opts to purchase plant, he has further issues to consider. One of them is overhead costs. These have to be borne whether or not the machines are being used. The objective is to minimise these costs so as to reduce the unit costs of the plant. This can be best achieved by having the highest possible utilisation of each item of plant and a supportive maintenance team.

A further matter for consideration is obsolescence and after-sales service.

With improved technology and design, manufacturers are updating and upgrading plant continuously, and plant that seems effective and efficient today may prove to be less productive tomorrow. Although after-sales service may be of an acceptable standard, it is also an object of uncertainty to the plant owner.

Also, how it is decided and who decides what type of plant is required, what size fleet will be purchased, and, if this size is determined on projected future demands, how accurate are those projections? If plant is purchased it will also be necessary to have vehicles available to transport the plant to different building sites. In addition to this, the mechanical and spare-parts workshop will also have to be moved to the different building sites. These can of course be hired.

A further headache the future plant owner has to consider, is what the residual value of the plant will be, if any, and whether there will be a demand for the plant on a second-hand market.

Once the plant has been purchased the contractor will require skilled operators who in turn may have to be trained. It will be beneficial to the contractor to employ skilled operators so as to obtain maximum benefit from the plant. The opposite of this scenario is that of leasing plant with a hire-driver who is already familiar with the plant.

Another positive factor in favour of leasing is tax (only applicable in certain countries) and inflation benefits. While using leased plant, the contractor can claim tax rebates for his costs. This is usually as a trade-off against depreciation rebates he would have received had he purchased the plant. Leasing could also evade inflation in that it may not have escalation clauses written into the contract. This stands opposed to loans which in this case may have been taken to purchase plant.

Although the text thus far has been biased towards leasing, it is necessary to note that at times the contractor may have no other option than to hire plant, for example, when the deadline has been shortened. Conversely, he may prefer to hire, but if no plant is available, he will have to purchase plant.

Mead and Mitchell (1971) found that in the United Kingdom, contractor's plant constituted two-thirds purchased and one-third hired plant. This high purchasing ratio of two-thirds is acceptable if the plant will be continually used throughout its economic life. Also, if the contractor is involved in specialised works, for example pile driving and finally if the two-third comprises mostly small plant, for example excavators, dumpers, etc.

Decision making about leasing and buying a worked example

Consider the decision confronting MHM Construction Company. They have determined that they need a new excavating machine. NLC makes an excavating machine that can be purchased for R10 000 MHM will save R6 000 per year in reduced labour costs for the next 5 years if it uses the machine. MHM has a company tax rate of 34% and a 5 year fully amortised straight line depreciation policy. However, the leasing corporation has offered to lease the same machine to MHM for lease payments of R2 500 per year for 5 years. With the lease, MHM would remain responsible for maintenance, insurance and operating expenses.

The following assumptions are applicable to the calculations:

1. The stated company will realise sufficient profit during the five years period to effect viable tax benefits to the company.

2. The tax benefits are due in the same year as the expenses are incurred.

3. The rate of inflation and the prime rate do not change significantly during the five years period.

4. Lease payments are due annually at the end of each year.

5. The scrap value of plant after year five is taken as nil.

Calculations

1) Depreciation tax benefit = tax rate x depreciation expense per year

$$R680 = 0{,}34 \times \frac{(10\,000)}{5}$$

2) After-tax cash flows:

Buy = 6 000 x (1 – 0,34) + (0,34)(2 000) = R4 640
Lease = 6 000 x (1 – 0,34) + (0,34)(2 500) – R2 500 = R2 310

Table 2 shows the direct cash flow consequences of buying the machine and also signing the lease agreement

Table 2

Cash flows to MHM for using NLC excavating machine: BUY versus LEASE						
YEAR	0	1	2	3	4	5
Cost of machine	(10 000)					
After-tax operating savings		3 960	3 960	3 960	3 960	3 960
Depreciation tax benefit		680	680	680	680	680
TOTAL LEASE	(10 000)	4 640	4 640	4 640	4 640	4 640
Lease payments		(2 500)	(2 500)	(2 500)	(2 500)	(2 500)
Tax benefit of lease payments		850	850	850	850	850
After-tax operating savings		3 960	3 960	3 960	3 960	3 960
TOTAL		2 310	2 310	2 310	2 310	2 310

Table 3 (on page 25) subtracts the direct cash flows of buying the excavator from those leasing it.

What can be concluded from the analysis in Tables 2 and 3 are listed below Table 3.

Table 3

Direct incremental cash flow consequences for MHM for the lease offered by leasing corporation						
YEAR	0	1	2	3	4	5
LEASE minus BUY						
LEASE						
Lease payment		(2 500)	(2 500)	(2 500)	(2 500)	(2 500)
Tax benefits of lease payments		850	850	850	850	850
BUY (minus) cost of machine	(10 000)					
Lost depreciation tax benefit		680	680	680	680	680
TOTAL	(10 000)	(2 330)	(2 330)	(2 330)	(2 330)	(2 330)

- Operating costs are not affected directly by leasing. Whether buying or leasing, MHM will always have an after-tax saving of R3 960
- If MHM leases, it will save R10 000 in year 0
- If MHM leases, it will have to give up its depreciation tax benefits
- If MHM leases, it must pay R2 500 for 5 years. This means an after-tax lease payment of R1 650 per year
- Leasing Corporation's position is exactly the opposite. An initial cash outflow of R10 000, but an inflow in years 1 to 5 of R1 650 + R680 depreciation tax benefit.

So far it has been found that the net cash flow of leasing versus buying for years 0 to 5 is:

0	1	2	3	4	5
R10 000	(R2 330)	(R2 330)	(R2 330)	(R2 330)	(R2 330)

If the discount rate = 7,58%; the Net Present Value (NPV) can be calculated as:

$$NPV = R10\,000 - \sum_{t=1}^{5} \frac{2330}{(1{,}0758)^t}$$

$$= R593{,}09$$

It appears that the lease is a good deal; but this conclusion may be premature. However, company tax is 34%, the correct discount rate = 7,58 (1 – 0,34) = 5%.

The correct NPV is thus:

$$NPV = R10\,000 - \sum_{t=1}^{5} \frac{2330}{(1{,}05)^t}$$

$$= (R87{,}68)$$

Analysing this we find that leasing is not such a good idea. Furthermore, MHM could purchase the excavator at R10 000 + R87,68 = R10 087,68. This means that MHM would have R87,68 available to re-invest elsewhere. If they decide to lease, the extra R87,68 would have to be used to finance the leasing agreement.

Conclusions

Leasing in theoretical as well as practical terms has been discussed. The former proved to be in favour of leasing and the latter in favour of buying. The greatest factor in favour of buying is that the depreciation tax rebate is lost in the form of opportunity costs when leasing (Posner, 1990).

Leasing, on the other hand, in countering this drawback does have other cost re-imbursements. The first is tax shielding. When the leasing company is in a high tax bracket, it receives a higher depreciation tax return. The company can therefore forward this benefit to the lessee in the form of lower leasing costs. Secondly, a lease contract increases the value of a firm in that it transfers the risk of uncertainty of

the residual value of the plant to the lessor. Thirdly, transaction costs can be lower for a lease contract than for buying the asset and financing it with debt or equity.

Other benefits of leasing are that the balance sheet and income statements of a company will look different as it employs less capital if it does not purchase the equipment. Also, leasing can provide 100% financing on condition that no advance lease down-payment needs to be made. Finally, leasing can be used to circumvent capital expenditure control systems set up by bureaucratic firms. This simply means that, so as not to be held up by management decisions as to whether an expensive machine should be purchased or not, the leasing arrangement can be written off as an expense.

Recommendations

A careful comparison is normally required to decide between leasing and purchasing. Purchasing equipment will also depend on whether the cash is available or whether a loan can be raised. If you lease you also do not have maintenance costs or administration, insurance or licensing costs connected with the ownership of these items of plant (Wall, 1978).

The plant hire company's decisions about buying is very different from that of the construction company, because the hire company makes its profits from hiring the equipment it owns to the hirer, while the construction company uses equipment it owns or that it hires or leases to do work from which they make their profits.

Even if the construction company loses money on owning equipment it can still make a profit from using it correctly. The opposite is also true, namely that the company can "make" a profit on its plant and lose it on construction.

A good balance is required such that the correct plant rates are charged to ensure that the construction com-

pany makes a profit and gets enough work, rather than making money on its plant but not getting sufficient work because its plant rates are too high to be competitive in the market.

In general terms, plant is one of the resources available to the construction company; the others being labour, materials, money and management. As such the construction company must maximise its use of these resources to maximise its return on its investment, in the long-term.

1. Based on facts, figures and views contained in this exercise, leasing should be opted for over buying.
2. It should, however, not be used where the NPV is so much below zero that the respective finance could be re-invested at a better rate of return.
3. If the NPV is not too far below zero, the company concerned should use its economic intuition as to whether it would prefer the extra funding, meaning that they would have to buy a plant and would then be responsible for all the acquired responsibilities, for example, drivers, mechanics, workshops etc. or whether they would rather lease and thereby have more resources available for resource demand as and when needed.

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