Mobile dental units: leasing or buying? A dollar-cost analysis

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Abstract

Introduction: The decision to acquire a mobile dental unit is based on a standard capital budgeting analysis. The next step is to determine whether to obtain the use of the mobile dental unit by borrowing and purchasing or by leasing. As a financing mechanism, leases are simply another way of borrowing money to pay for the asset.
Objective: To compare lease vs. debt as financial vehicles to acquiring a mobile dental unit.
Methods: An estimate for a new mobile unit was obtained. Lease and loan proposals from financial lenders were collected. A cost of capital rate was chosen for comparison. Cash flows associated with borrowing and leasing vs. buying were determined for two different scenarios: for profit (FP) vs. not-for-profit (NFP), at 5 years. A dollar-cost analysis was utilized to determine the option with the lowest capitalized value.
Results: There was a net advantage to buying vs. leasing for both for FP and NFP organizations. Due to tax advantages, owning and leasing were substantially less expensive for FP than for NFP. Slight decreases in the monthly lease payments would make leasing competitive to the buying approach.
Conclusion: Exploring alternative financing vehicles may allow dental programs to expand their services through the acquisition of a mobile unit. Though programs generally own assets, it is the use of the asset which is important rather than the ownership. Dental programs can find leasing an attractive alternative by offering access to capital with cash-flow advantages.

Introduction

Mobile dental units (MDU) can be useful in providing care to underserved populations (1). However, acquiring a MDU is a costly venture that may fiscally burden organizations. The decision to acquire a MDU is made based on a capital budgeting analysis, which was described by the authors in a previous publication (2). Next, the organization must determine whether to finance the MDU by leasing or purchasing. Leases and loans are simply two different approaches of asset financing. The former finances the use of equipment, while the latter finances the purchase of equipment. The estimated size of the US healthcare equipment leasing market in 2005 was $7 B; this figure was projected to exceed $8 B by 2007 (3). Leasing mobile units for healthcare delivery is a common arrangement among manufacturers and financial institutions; however, MDU are rarely leased (J. Garner, International Financial Services Corp., personal communication, March 13, 2009; J. Schneider, Armor Mobile Systems, personal communication, April 7, 2009).

Few publications have documented the financing of MDU. A comprehensive literature search in PubMed using key words "mobile units + financing + dental" returned 67 articles, of which none addressed the acquisition aspect. Only one source, a prominent online manual on mobile dentistry, briefly discusses purchasing and leasing (4). The objective of our analysis is to compare lease versus debt as financial vehicles to acquiring a MDU. We believe our analysis will be a useful reference in the decision-making process to acquire a MDU.

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Table 1 Dollar-Cost Analysis

a. Own for profit (OFP)						
	0	1	2	3	4	5
Cost mobile	($450.000)					
Depreciation tax savings (40%)		$36.000	$57.600	$34.560	$20.736	$20.736
Maintenance cost	($2.000)	($2.000)	($2.000)	($2.000)	($2.000)	
Maintenance tax savings	$800	$800	$800	$800	$800	
Residual value						$112.500
Net cash flow	($451.200)	$34.800	$56.400	$33.360	$19.536	$133.236
NPV (3%)	($190.914)					
b. Lease for profit (LFP)						
	0	1	2	3	4	5
Mobile lease payment	($99.780)	($99.780)	($99.780)	($99.780)	($99.780)	
Lease payment tax savings	$39.912	$39.912	$39.912	$39.912	$39.912	
Maintenance cost	($2.000)	($2.000)	($2.000)	($2.000)	($2.000)	
Maintenance tax savings	$800	$800	$800	$800	$800	
Buyback option					($45.000)	
Buyback option tax savings					$18.000	
Residual value					$112.500	
Net cash flow	($61.068)	($61.068)	($61.068)	($61.068)	$24.432	
NPV (12%)	($202.246)					
c. Own not for profit (ONFP)						
Cost mobile	0	1	2	3	4	5
Maintenance cost	($450.000)					
Residual value	($2.000)	($2.000)	($2.000)	($2.000)	($2.000)	
						$112.500
Net cash flow	($452.000)	($2.000)	($2.000)	($2.000)	($2.000)	$112.500
NPV (3%)	($362.391)					
d. Lease not for profit (LNFP)						
	0	1	2	3	4	5
Mobile lease payment	($99.780)	($99.780)	($99.780)	($99.780)	($99.780)	
Maintenance cost	($2.000)	($2.000)	($2.000)	($2.000)	($2.000)	
Buyback option					($45.000)	
Residual value					$112.500	
Net cash flow	($101.780)	($101.780)	($101.780)	($101.780)	($34.280)	
NPV (12%)	($368.024)					

Methods

Due to the nature of the project and data to be utilized, the University of Kentucky Institutional Review Board waived the requirement for review. Elements included in the analysis were:

A Financing mechanism. Lease and loan proposals from financial lenders were requested. Lessors with healthcare expertise were identified through mobile units' manufacturers and an online search. Seven (5) proposals were received and studied. The proposal with lease payments closest to the mean value was selected for our analysis. In capital budgeting, these payments would closely typify the average Return on Investment (ROI) lessors sought. For the loan option, the analysis was conducted using the cost of capital utilized in our previous study (2).

B Dollar-cost analysis. Cash flows associated with the two financing vehicles were discounted to the Net Present Value (NPV) to determine the option with the lowest capitalized value. Revenues and operating costs were ignored, as they would be the same regardless the MDU were purchased or leased. Some of the elements in the dollar-cost analysis applied to one or more scenarios. In that particular situation, the acronyms Own For Profit (OFP), Lease for Profit (LFP), Own Not for Profit (ONFP), and Lease Not for Profit (LNFP) were utilized when appropriate (Table 1).

1 Length of contract (OFP, LFP, ONFP, LNFP). Cash outflows were projected over a 5-year period, which is a midpoint in the useful lifetime of a MDU.

2 Capitalized cost (OFP, ONFP). An estimate for a new MDU was requested from a manufacturer.

3 Depreciation tax savings (OFP). Depreciation tax savings were calculated using the Modified Accelerated Cost Recovery System over a 5-year period using Internal Revenue Service guidelines (5) (Calculation not shown). The annual percent of depreciation expense was multiplied by an estimated tax rate (40 percent) to determine tax savings.

4 Maintenance cost (OFP, LFP, ONFP, LNFP). Annual maintenance cost was estimated based on the record of our MDU.

5 Maintenance tax savings (OFP, LFP). The figures above were multiplied by the organization's tax rate (40 percent).

6 Residual value (OFP, LFP, ONFP, LNFP). Residual value at year 5 was estimated by a manufacturer based on a depreciation schedule for a MDU with a useful life of 10 years. The residual value can range from a low 25 percent to an average 50 percent of the initial capitalized cost (4). We utilized the former figure for our analysis.

7 Lease payments (LFP, LNFP). Based on the lease contract, monthly payments of $8,315 ($99,780 annually) were projected over 5 years.

8 Lease payment tax savings (LFP). Lease payments were multiplied by the organization's tax rate.

9 Buyback option (LFP, LNFP). The buyback option ($45,000) was exercised and included as a cash outflow.

10 Buyback tax savings (LFP). The figure above was multiplied by the organization's tax rate (40 percent).

11 Net cash flow. Net cash flows were calculated and discounted to determine their NPV utilizing the following rates:

- Cost of capital (OFP, ONFP). Consistent with our previous analysis, a 3 percent rate was utilized for the purchasing arrangement (2).
- Money factor (LFP, LNFP). Money factor is the interest charged in a leasing arrangement. The money factor was calculated based on a 5-year lease proposal with monthly payments of $8,315 and a buyback option of $45,000 at the end of the contract. (Calculation not shown.)
- Net cost of borrowing (OFP, LFP). For-profit (FP) organizations deduct interest payments from their taxable income; therefore, we applied an after-tax cost of debt, i.e., rate × (1-40 percent).

C Sensitivity analysis. Rates and monthly payments were projected to determine the breakeven point where the NPV of owning and leasing would coincide for both FP and NFP (Figure 1).

Results

A Capitalized cost. A new fully equipped MDU was quoted at $450,000.

B Interest rate. For the purchase option, we utilized a 3 percent cost of capital rate. The money factor was calculated at 12 percent per year.

C Residual value. Residual value was estimated at $112,500 (25 percent of the capitalized cost).

D Dollar-cost analysis. There was a net advantage to buying versus leasing for both FP ($191 K versus $202 K) and NFP ($362 K versus $368 K) organizations (Table 1). Due to tax advantages, owning and leasing were substantially less expensive for FP than for NFP: a $171 K difference in the purchase scenario and a $ 166 K in the leasing scenario.

E Sensitivity analysis. NPV for buying and leasing coincided at 6.6 percent and 8.8 percent rates for FP and NFP, respectively. Lessors would have to slightly decrease their current monthly payment of $8,315 down to $7,545 (FP) and $6,471 (NFP) to make their proposal competitive (Figure 1).

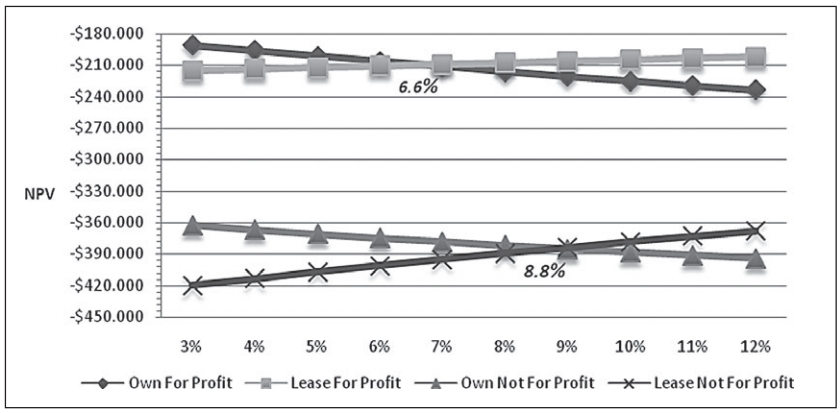
Discussion

Once the decision to acquire a MDU is made, financing alternatives must be considered. In our analysis, owning was advantageous for both FP and NFP scenarios. However, the difference was relatively small when compared to the capitalized cost of a new MDU ($450,000), thus demonstrating that leasing should be considered a viable option.

The acquisition cost was substantially lower for FP, as they benefit from multiple tax advantages such as depreciation, tax savings related to lease payments and maintenance as well as residual value taxes. However, a higher acquisition cost should not be a deterrent for NFP organizations. Due to their tax-exempt status, NFP organizations are able to preserve their cash inflows, and as a result, their ROI may be higher than for FP. A different mechanism for NFP to consider would be a structural reorganization in which the mobile operation becomes a FP subsidiary. This arrangement has been common among NFP insurers and hospitals trying to position themselves in a changing healthcare system (6). Such reorganization entails numerous issues including effects of ownership status on organizational behavior, loss of social benefits, governance of the subsidiary, etc. (7). However, the difference in NPV for NFP compared to FP seems to be great enough to consider this strategy.

The 3 percent rate of discount utilized in the owning scenarios was based on our institution's low-risk profile and credit record (2). This rate will vary from one organization to another and its value is crucial as demonstrated in our breakeven analysis. As ownership tax benefits accrue to the lessor, this realized benefit could be shared with the lessee in the form of lower interest rates and/or lease payments. In our analysis, when the lessor decreased its money factor (12 percent) to 6.6 percent (FP) and 8.8 percent (NFP), leasing became competitive compared to owning. Similar results were found when the proposed monthly payments ($8,315)

a



b

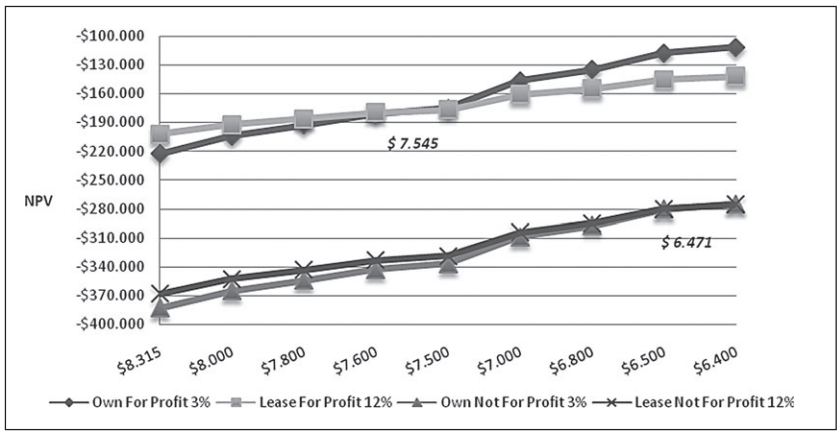


Figure 1 Sensitivity analyses. a. Break-even analysis. Cost of capital versus money factor. b. Break-even analysis. Monthly payments.

were decreased by 10 percent (FP) and 28 percent (NFP). However, these reductions would be possible only if the overall target ROI for the lessor were still met.

For our analysis, we utilized a midterm loan (5-year period). In general, short-term leases are usually significantly less expensive than the cost of owning; for midterm leases, the costs are equivalent, while long-term leases are more expensive than the cost of owning. Simply put, once the MDU is paid off, it could be used for many years and its cost spreads over a long period. Therefore, if long-term savings are important, it would be best to purchase the MDU and utilize it until the end of its useful life.

The residual value utilized for our analysis ($112,500) was estimated assuming a relatively high mileage per year and related wear and tear. However, this figure could account up to 50 percent of the original capitalized value if the mileage is low and the MDU is well maintained. The residual value represents a meaningful cash inflow at the end of the contract. Therefore, variations in this value can lead to significant changes in the dollar cost analysis.

The value of the buyback option seems low compared to the residual value ($45,000 versus $112,500). The rationale is simple: once the lessors accomplish their target ROI, it is in their best interest to make the buyback option financially appealing due to the difficulty to re-lease such a specialized vehicle.

Although leasing a MDU may at prima facie seem economically unjustifiable – e.g., in our analysis, leasing was the more costly alternative – this financial tool provides benefits such as no need for collateral, 100 percent financing, access to upgraded technology, and capital preservation, which might be appealing, especially in a period of economic downturn. Although dental programs generally own assets, it is the use of the asset rather than the ownership that is important. As organizations face shrinking budgets and increased competition for public health and philanthropic dollars, alternative forms of financing should be considered.

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