

2.4 – Buy, Rent, or Lease?

Lease – A contract for purchasing the use of property, such as a building or vehicle, from someone (the lessor) for a specified period.

Equity – The difference between the value of an item and the amount still owing on it; can be thought of as the portion owned.

Asset – An item or a portion of an item owned (also known as property).

Example 1: Amanda is a civil engineer. She needs a vehicle for work, on average, 12 days each month. She has been renting a vehicle when she needs it. The advantage to renting is that she simply fills the gas tank and drops off the vehicle when she is done with it. The disadvantage is that she has to spend time arranging for the rental, picking up the vehicle, and getting home after dropping it off. She is wondering if renting is the most economical choice and is considering her options.

Leasing – She could lease a vehicle, which requires a down payment of \$4000 and lease payments of \$380 per month. She would need insurance at \$1220 each year (which could be paid monthly) and would have to pay for repairs and some maintenance, which would average \$50 each month. For the 4-year lease she is looking at, she would have no equity in the vehicle at the end of the term, since the car would belong to the leasing company.

Buy – She could buy a vehicle for \$32 800 and finance it for a 4-year term at 4.5% interest, compounded monthly (paying equal monthly payments). She would have the same insurance, repair, and maintenance costs that she would have with leasing. However, the equity of the vehicle would be considered an asset.

Rent – She could continue to rent at \$49.99 per day with unlimited kilometers.

Which option would you recommend? Why?

(4 years = 48 months)

Leasing = $4000 + 380 \times 48 + 4 \times 1220 + 50 \times 48 = \29520

Per Month = $29520 \div 48 = \underline{\underline{\$615}}$

Buying = $N=48$
 $I=4.5$
 $PV=32800$
 $PMT=?$
 $FV=0$
 $P/Y=12$
 $C/Y=12$

Monthly
 Payments:
 $\$747.95$

Total Cost:

$48 \times 747.95 + 4 \times 1220$
 $+ 48 \times 50$
 $= \$43181.60$

Per Month = $\underline{\underline{\$899.62}}$

Renting = $12 \times 49.99 = \$599.88$

Renting is the cheapest option.
 But she does not get any assets or equity.

Example 2: The 10-year-old hot water heater in Tom's home stopped working, so he needs a new one. Tom works for minimum wage. After paying his monthly expenses, he has \$35 disposable income left. He has an unused credit card that charges 18.7%, compounded daily. He has two options:

- Tom could lease from his utility company for \$17.25 per month. This would include parts and service.
- He could buy a water heater for \$712.99, plus an installation fee of \$250, using his credit card. He could afford to pay no more than \$35 each month.

a) How long will it take to pay off his credit card if he chooses to buy? How much would it cost him in total to buy the new water heater?

$$\begin{aligned}
 N &= ? \\
 I &= 18.7 \\
 PV &= 712.99 + 250 = 962.99 \\
 PMT &= -35 \\
 FV &= 0 \\
 P/Y &= 12 \\
 C/Y &= 365 \\
 N &= 36.307
 \end{aligned}$$

paid off on 37th payment
 $37 \times 35 = \$1295$

It would take over 3 years to pay & cost Tom \$1295

b) How much would it cost to rent a water heater for the same amount of time in part a)?

$$37 \text{ months} \times 17.25 = \$638.25$$

c) What do you recommend for Tom?

Recommend Renting

- Costs less
- still have \$17.75 disposable income
- Maintenance costs included.

d) Suppose that the life expectancy of a water heater is 10 years. Would this change your recommendation?

$$\text{Renting for 10 years} = 10 \times 12 \times 17.25 = \$2070$$

Even if water heater had to be serviced during this time, over-all buying is a better deal.

Example 3: Two couples made different decisions about whether to rent or buy:

- Helen and Tim bought a house for \$249 900. They have negotiated a mortgage of 95% of the purchase price, so they will need a 5% down payment. The mortgage is compounded semi-annually at 5.5%, has a 20-year term, and requires monthly payments.
- Don and Pat are renting a house for \$1600 per month. They plan to renew the lease yearly.

After 3 years, both couples decide to move. Helen and Tim discover that the value of their house has depreciated by 10% over the 3 years.

Compare each couple's situation after 3 year.

Don & Pat : 1600 per month \times 36 months = $\$57600$
 (assuming rent doesn't change when lease is renewed)

Helen & Tim :
 Downpayment : $0.05 \times 249900 = \$12495$
 Mortgage : $0.95 \times 249900 = \$237405$
 (or $249900 - 12495$)

Monthly Payments:

$$N = 20 \times 12 = 240$$

$$I = 5.5$$

$$PV = 237405$$

$$PMT = ?$$

$$FV = 0$$

$$P/Y = 12$$

$$C/Y = 2$$

Monthly Payments:

$$\$1624.78$$



How much is left on Mortgage after 3 years?

$$N = 12 \times 3 = 36$$

$$I = 5.5$$

$$PV = 237405$$

$$PMT = -1624.78$$

$$FV = ?$$

$$P/Y = 12$$

$$C/Y = 2$$

Still owe:

$$\$215992.52$$

Sell house 10% loss (90% of original Price)

$$0.90 \times 249900 = \$224910$$

Pay off remaining Mortgage: $224910 - 215992.52$
 Profit = $\$8917.48$

Cost over 3 years: $12495 + 36 \times 1624.78 - 8917.48 = \62069.6
 Downpayment + Mortgage Payments - Profit

In this case Renting is cheaper over the 3 years, but Don & Pat have no equity &