

The Cash Payback Period

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The Cash Payback Period

- The Cash Payback Period is a quick and dirty, non-scientific method of evaluation good for meetings and discussions to narrow down many options to a few for greater and better evaluation.
- The Cash Payback Period works on the cost of the proposal vs. its CASH benefit.
- So learned accrual accounting needs to be adjusted a bit.

The Cash Payback Period

- Here is the setup information for this presentation.

Historic cost of the machine:	\$450,000.00
Expected useful life:	10
Estimated residual or salvage value:	\$30,000.00
Annual straight-line depreciation expense:	\$42,000.00
Expected sales revenues from machine:	\$175,000.00
Estimated annual cost of goods sold:	\$105,000.00

- There is a Microsoft Excel template to accompany this presentation with live formulas.

The Cash Payback Period

- Handling this one step at a time goes like this.
- Assume that the proposed machine has a cost of \$450,000.
- The machine is expected to have a 10 year life with a residual or salvage value of \$30,000.
- Utilizing straight-line depreciation the annual depreciation is $[(\$450,000 - \$30,000) \div 10 \text{ years}]$ \$42,000 per year.
- Depreciation is a non-cash expense.

The Cash Payback Period

- Here is the calculation of annual straight-line depreciation.

Calculation of annual, straight-line depreciation:	
Historic cost of the machine:	\$450,000.00
Less: Estimated residual or salvage value:	30,000.00
Depreciable value:	\$420,000.00
Expected useful life:	10
Annual straight-line depreciation:	\$42,000.00

The Cash Payback Period

- Here is the presentation of the cash benefit calculation.

Estimated cash inflows from this machine:	
Expected sales revenues from machine:	\$175,000.00
Less: Estimated annual cost of goods sold:	105,000.00
Contribution margin:	70,000.00
Add: Annual straight-line depreciation:	42,000.00
Estimated annual cash inflows:	\$112,000.00

The Cash Payback Period

- The proposed machine is expected to generate sales of \$175,000 in sales per year for the next 10 years.
- Annual cost of goods sold is expected to be \$105,000.
- The gross profit or contribution margin is increased by the non-cash depreciation expense, ($\$70,000 + \$42,000$) \$112,000.

The Cash Payback Period

- With a cost of \$450,000 and an annual cash benefit of \$112,000
- The Cash Payback Period for this machine is (\$450,000 Historic cost ÷ \$112,000 Estimated annual cash inflows) 4.02.

Cash payback with constant cash inflows:	
Historic cost of the machine:	\$450,000.00
Estimated annual cash inflows:	\$112,000.00
Payback in years:	4.02

The Cash Payback Period

- If the estimated cash benefit or cash inflows are consistent, the solution is easy, as shown.
- It gets to be an add and subtract game with irregular cash inflows.

The Cash Payback Period

- The Microsoft Excel template for this presentation has the following cash inflows set.
- Year 1 - \$100,000, Year 6 - \$30,000,
- Year 2 - \$80,000, Year 7 - \$30,000,
- Year 3 - \$50,000, Year 8 - \$50,000,
- Year 4 - \$50,000, Year 9 - \$50,000, and
- Year 5 - \$50,000, Year 10 - \$50,000.

The Cash Payback Period

- The table, my preference as a management accountant, looks like this.

Irregular Cash Flows						
Year:	Amount Invested:	Estimated	Accumulated	Remaining	Payback Period:	
0	(\$450,000.00)	Annual Inflows:	Cash Inflows:	to Recover:		
1		\$100,000.00	\$100,000.00	\$350,000.00		
2		\$80,000.00	\$180,000.00	\$270,000.00		
3		\$50,000.00	\$230,000.00	\$220,000.00		
4		\$50,000.00	\$280,000.00	\$170,000.00		
5		\$50,000.00	\$330,000.00	\$120,000.00		
6		\$30,000.00	\$360,000.00	\$90,000.00		
7		\$30,000.00	\$390,000.00	\$60,000.00		
8		\$50,000.00	\$440,000.00	\$10,000.00	8.20	+ years
9		\$50,000.00	\$490,000.00	(\$40,000.00)		
10		\$50,000.00	\$540,000.00	(\$90,000.00)		
11		\$30,000.00	\$570,000.00	(\$120,000.00)		

The Cash Payback Period

- Almost all of this matrix is accomplished by formulas.
- Only Amount Invested and Estimated Annual Inflows need be inserted.

Irregular Cash Flows						
Year:	Amount Invested:	Estimated	Accumulated	Remaining	Payback Period:	
0	(\$450,000.00)	Annual Inflows:	Cash Inflows:	to Recover:		
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The Cash Payback Period

- The historic cost or invested amount is shown, \$450,000, is inserted as a negative, cash outflow.

Irregular Cash Flows						
Year:	Amount Invested:	Estimated	Accumulated	Remaining	Payback Period:	
0	(\$450,000.00)	Annual Inflows:	Cash Inflows:	to Recover:		
1		\$100,000.00	\$100,000.00	\$350,000.00		
2		\$80,000.00	\$180,000.00	\$270,000.00		
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The Cash Payback Period

- The expected annual cash flows are shown for their respective years are inserted.

Irregular Cash Flows						
Year:	Amount Invested:	Estimated	Accumulated	Remaining	Payback Period:	
0	(\$450,000.00)	Annual Inflows:	Cash Inflows:	to Recover:		
1		\$100,000.00	\$100,000.00	\$350,000.00		
2		\$80,000.00	\$180,000.00	\$270,000.00		
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The Cash Payback Period

- Through a formula, the accumulated estimated cash inflows are summed to show the progression.

Irregular Cash Flows						
Year:	Amount Invested:	Estimated	Accumulated	Remaining	Payback Period:	
0	(\$450,000.00)	Annual Inflows:	Cash Inflows:	to Recover:		
1		\$100,000.00	\$100,000.00	\$350,000.00		
2		\$80,000.00	\$180,000.00	\$270,000.00		
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The Cash Payback Period

- Through a formula, the estimated accumulated cash inflows is subtracted from the amount invested to determine the remaining amount to recover.

Irregular Cash Flows						
Year:	Amount Invested:	Estimated	Accumulated	Remaining	Payback Period:	
0	(\$450,000.00)	Annual Inflows:	Cash Inflows:	to Recover:		
1		\$100,000.00	\$100,000.00	\$350,000.00		
2		\$80,000.00	\$180,000.00	\$270,000.00		
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The Cash Payback Period

- Another formula evaluates where the payback year will become a partial year and determines the math of the partial year.
- As shown here, 8.20 years.

Irregular Cash Flows						
Year:	Amount Invested:	Estimated Annual Inflows:	Accumulated Cash Inflows:	Remaining to Recover:	Payback Period:	
0	(\$450,000.00)					
1		\$100,000.00	\$100,000.00	\$350,000.00		
2		\$80,000.00	\$180,000.00	\$270,000.00		
3		\$50,000.00	\$230,000.00	\$220,000.00		
4		\$50,000.00	\$280,000.00	\$170,000.00		
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11		\$30,000.00	\$570,000.00	(\$120,000.00)		

The Cash Payback Period

- Cash payback period is a quick and dirty concept great for meetings and general discussions to limit the number of proposals.
- You can utilize either consistent or inconsistent cash flows as required.
- The cash payback method ignores any benefit attained after the payback period.

The Cash Payback Period

The end.