The Accounting Rate of Return

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The Accounting Rate of Return

- The accounting rate of return works on net cash flows associated with the asset.
- When doing anything, you need to apply logic.
- You will need to follow the instructions of your textbook if you are working with a textbook.
- In a textbook I am working with I have a problem with the logic.

The Accounting Rate of Return

- With certain textbooks such as the Managerial Accounting 4e, Braun, published by Pearson, I have major issues. Accounting is a science of consistencies and some textbooks are studies in the art of inconsistencies. On Page 63 of that textbook I find the following presentation defining operating income:

EXHIBIT 2-12 Service Company Income Statement

	A	B	C	D
1	**eNOW!**			
2	**Income Statement**			
3	**Year Ended December 31**			
4				
5	Revenues		$ 160,000	
6	Less operating expenses:			
7	Salary expense	$ 106,000		
8	Office rent expense	18,000		
9	Depreciation expense	3,500		
10	Marketing expense	2,500		
11	Total operating expenses		130,000	
12	Operating income		$ 30,000	
13				

The Accounting Rate of Return

- This presentation from Page 63 of the Managerial Accounting 4e, Braun, published by Pearson textbook shows Operating Income being Revenues less Expenses including the non-cash expense of Depreciation.

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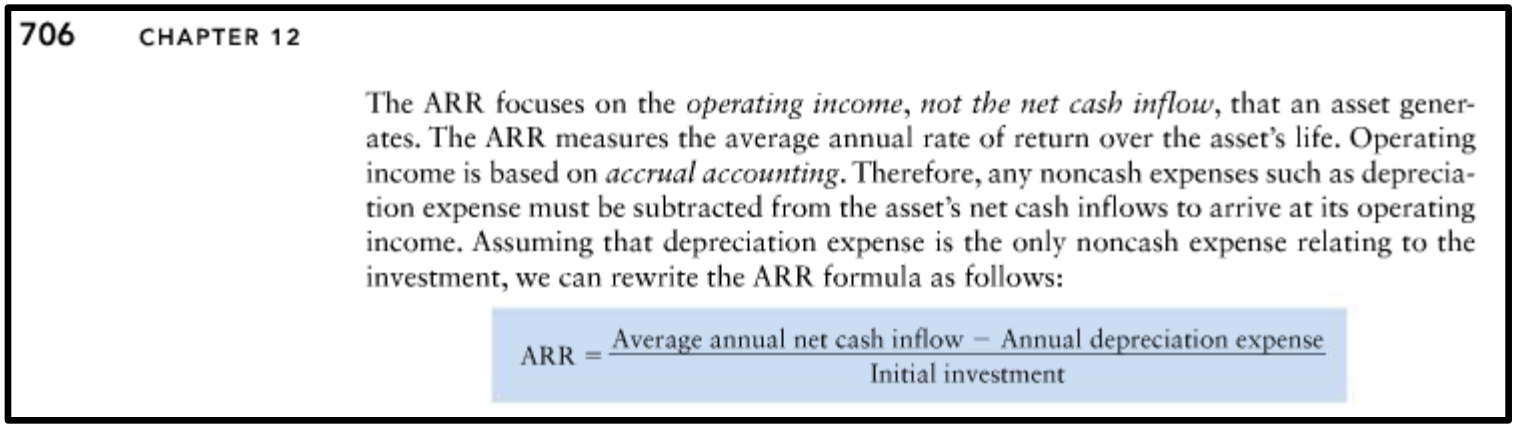
- Below is the presentation from Page 706 of the Managerial Accounting 4e, Braun, published by Pearson addressing the Accounting Rate of Return.
- This statement says that the accounting rate of return is focused on ***operating income, not the net cash inflows***. It continues to state that any non-cash expenses such as depreciation must be ***subtracted*** from the asset's net cash inflows to arrive at its operating income.



706 CHAPTER 12

The ARR focuses on the *operating income*, *not the net cash inflow*, that an asset generates. The ARR measures the average annual rate of return over the asset's life. Operating income is based on *accrual accounting*. Therefore, any noncash expenses such as depreciation expense must be subtracted from the asset's net cash inflows to arrive at its operating income. Assuming that depreciation expense is the only noncash expense relating to the investment, we can rewrite the ARR formula as follows:

$$\text{ARR} = \frac{\text{Average annual net cash inflow} - \text{Annual depreciation expense}}{\text{Initial investment}}$$

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- In the following income statement I have zeroized the non-cash expense of depreciation to attain the cash inflows of 33,500.00. This is revenues, assuming they are all cash / received of $160,000.00 less total cash expenses of $126,500.

Cash inflows - $0 depreciation:		
Revenues		$160,000
Less operating expenses		
Salaries expense	$106,000	
Office rent expense	18,000	
Depreciation expense	0	
Marketing expense	2,500	
Total operating expenses		126,500
Operating income		$33,500

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- In accordance with Page 706 of the Managerial Accounting 4e, Braun, published by Pearson textbook, you take net cash inflows, which does not contain the non-cash expense of depreciation, $33,500.00, and subtract depreciation. This results in the same value, $30,000.00, as you attained with the accrual income statement process.

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- The correct process is to ***ADD*** the non-cash depreciation expense into operating income or simply remove it from the computation as shown here. The result in net cash inflows from operations are $33,500.00.

Revenues		$160,000
Less operating expenses		
Salaries expense	$106,000	
Office rent expense	18,000	
Depreciation expense	3,500	
Marketing expense	2,500	
Total operating expenses		130,000
Operating income		$30,000
Add non-cash depreciation expense		3,500
Net cash inflows from the project:		$33,500

The Accounting Rate of Return

- Why worry about the error?
- From the template –

Accounting rate of return by ADDING depreciation to operating income:	
Operating income ***PLUS*** annual depreciation:	$112,000.00
Initial investment:	$450,000.00
Accounting rate of return:	24.89%

Accounting rate of return by IGNORING depreciation with operating income:	
Operating income ***IGNORING*** annual depreciation:	$70,000.00
Initial investment:	$450,000.00
Accounting rate of return:	15.56%

Accounting rate of return by SUBTRACTING depreciation from operating income:	
Operating income ***MINUS*** annual depreciation:	$28,000.00
Initial investment:	$450,000.00
Accounting rate of return:	6.22%

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- Only one can be correct, 24.89%, 15.56%, or 6.22%?

- Back on track …. I will be adding the non-cash depreciation expense to operating income as it results in net cash inflows.

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- Here is the setup information for this presentation.

Setup information:	
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

The Accounting Rate of Return

- The first step is to compute the non-cash depreciation expense.

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 Accounting Rate of Return

- The second step is to estimate / compute the estimated annual cash inflows associated with this machine.

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

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- The third step, if all the cash flows for the five year life are even, is divide the estimated annual cash inflows by the historic cost of the machine.
- The machine has an accounting rate of return of 24.89%.

Accounting Rate of Return with Consistent Cash Inflows:	
Estimated annual cash inflows:	$112,000.00
Historic cost of the machine:	$450,000.00
Accounting rate of return:	24.89%

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- Reality is most years will not have the same cash inflows so, what do we do?
- Another setup.

Irregular Cash Flows:			
Year:	Estimated operating income:	Annual Depreciation expense:	Estimated cash inflows:
1	$100,000.00	$42,000.00	$142,000.00
2	$80,000.00	$42,000.00	$122,000.00
3	$50,000.00	$42,000.00	$92,000.00
4	$50,000.00	$42,000.00	$92,000.00
5	$50,000.00	$42,000.00	$92,000.00
6	$30,000.00	$42,000.00	$72,000.00
7	$30,000.00	$42,000.00	$72,000.00
8	$50,000.00	$42,000.00	$92,000.00
9	$50,000.00	$42,000.00	$92,000.00
10	$50,000.00	$42,000.00	$92,000.00

Average estimated cash inflows:
$96,000.00

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- With an average estimated annual cash inflow of $96,000 the accounting rate of return is 21.33%.
- This is still very good.

Accounting Rate of Return with Consistent Cash Inflows:	
Average estimated cash inflows:	$96,000.00
Historic cost of the machine:	$450,000.00
Accounting rate of return:	21.33%

The Accounting Rate of Return

- There are many ways to do managerial accounting since its practice is governed by the practitioner, not by outside regulation.
- When you read, you must read what is there, not what you want to read, and apply logic and knowledge.

The Accounting Rate of Return

The end.