

# Accounting theory

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Science



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Slide 1 ACCOUNTING THEORY & CONTEMPORARY ISSUES (AT1) MODULE ONE

Slide 2 ACCOUNTING UNDER IDEAL CONDITIONS Part 1 - Foundation items re the course Part 2 - Present value accounting under certainty Part 3 - Present value accounting under uncertainty Part 4 - Reserve recognition accounting Part 5 - Examination question examples Part 6 - Historical cost accounting

Lecture by: Dr. A. L. Dartnell, FCGA Year 2009 - 2010 2 Slide 3 PART 1

Foundation Items re the Course Different Course Financial reporting is extremely important in our everyday life.

You have heard of the many irregularities that have occurred in recent years which primarily involved financial reporting. Financial reporting is controlled by standards set so that the best disclosure will take place. To fully understand the importance and necessity for these standards, you need to appreciate that they are designed so as to trade off the conflicting interests of constituencies affected by them — usually investors and managers. Note carefully that Standard Setting bodies make these trade-offs through due process. That is, standards are set in consultation with major constituencies.

Devices to achieve due process include representation of major constituencies on the standard setting boards, supermajority voting, exposure drafts, and public meetings. In other words, the issues and topics are well-vetted prior to their implementation. Thus the course deals with standard setting of accounting policies by which you are guided in your work as an accountant. Slide 4 Second, students often ask why they need an accounting theory course. We need to understand the thinking and action underlying the requirements for the standards we follow. All activities in life have a theoretical background.

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For example, how a chef prepares a meal in a restaurant. If the theory behind the meal is good, customers return. If not, they dine elsewhere. How you cut the lawn has a theory. You follow a theoretical plan for the actions you choose. So with accounting we have theories and to understand them is extremely important for the accountant. Why we do things the way we do. We do not want to follow principles which we do not understand. and Slide 5 Third, students ask why the course writer refers so much to shares, the stock market, financing and related matters. If you consider any undertaking it has finance involved.

So the writer refers a great deal to shares and the market. 3 Financial institutions are throughout the world. For example, besides banks in all countries, there are many large stock exchanges, even in Socialist countries like China. Further, smaller businesses and organizations, such as, not-for-profit entities, obtain financing from banks and credit unions, as well as other sources of money, such as, donations from the public. Thus, stocks, bonds, financial institution loans, and other financing, are the life blood of our economic activity. Without these sources of funds our economy as we know it would not survive.

Thus, it is important to you as an accountant to be fully aware of the financial activity we encounter day by day and we must provide good financial information for those who have invested or loaned their money for organizations to exist for our economic benefit. Slide 6 Objective To sum up:

- The Course revolves around setting of standards for release of information for investors and creditors.
- Standards can be set by various regulatory bodies - CICA, Securities Commissions, Stock Exchanges, and other groups.

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Our objective is to provide the best information possible for the readers of the reports.

Slide 7 Standards in the Future As you know, financial reporting for publicly-traded firms in Canada will be in accordance with International Accounting Board (IASB) standards from 2011 on. This course includes coverage of IASB standards, in the textbook, the modules, the assignments, and review material. We do have a number which are in accord with IASB standards but the task is expected to be completed by 2011. While the current edition of the textbook has few references to Canadian standards, coverage of current Canadian standards is included in the modules, as well as, the review and assignment material.

Coverage of certain United States standards is also included where these differ significantly from, or are in advance of, IASB standards. All of this material is examinable unless specifically marked to the contrary. 4 In this course, material relating to specific accounting standards is largely (but not completely) at a conceptual level. Fortunately, at this level, most standards in Canada, the United States, and internationally are broadly similar, thereby reducing the amount of detail you will have to learn.

However, there are some important differences, particularly with respect to current value accounting, and these will be emphasized where appropriate. It would seem that from 2011, current Canadian standards will no longer be relevant or examinable. Future versions of this course will include only IASB and relevant United States standards. Slide 8 History and Research There is an interesting rundown on the history of accounting and research in the first

15 pages of the text. Go over them to get some background for the course.

Topic 1. 2 of the module notes relates to recent developments in financial accounting.

It gives an excellent account leading up to the current recession and also the effect on fair value accounting which we will be dealing with in the course.

Read it carefully. It is level 2 and you should know it in a general manner.

Slide 9 Information Asymmetry - an important topic The aim of the course is to deal with information economics. The theme relates to the fact that some parties have an information advantage over others in business transactions.

If one party is better informed than the other(s), then it is referred to as information asymmetry.

We will deal with these topics later but for the moment, information asymmetry comes in two forms: Adverse selection and Moral hazard. Slide 10 • Adverse selection relates to the possession of greater information by one party over the other. • Adverse selection in the securities market stems from insider trading and selective release of inside information, which is releasing only the information the manager decides to release. Bad news may be withheld from public consumption. • Full disclosure is the antidote. 5 Slide 11 Moral hazard relates to shirking on the part of managers, or any situation where a person cannot be observed by the employing party. For example, a trustee for a bond issue could shirk if not carrying out his/her duties as they should be. • For the manager (employee) participation in the fruits of the operations, for example, profit sharing is an antidote. Slide 12 Present Value Accounting • An English economics professor named Hicks said the way to determine the real change in economics of the firm is to take <https://assignbuster.com/accounting-theory-cga/>

the difference between net assets at the beginning of the period and at the end of the period and that would be your profit.

That would be market value. • If the net assets have increased, your wealth has increased and you have made a profit. If they have decreased, you have suffered a loss and your wealth had decreased. Your well-offness has changed Slide 13 • How do we measure this well-offness of the firm? The present value system is probably the best way of measuring the change in the value of the assets and comes closer to the valuation of the market value than do other systems. In real terms - what is it worth today and what will it be worth in the future. We want to start with present value accounting.

It is theoretical, no doubt not fully attainable, but a target at which we can shoot. While a full presentation of present value accounting would be difficult for a organization it can be considered from an ideal situation point of view. Slide 14 Current Value Accounting However, before moving ahead, on page 4 of the text the term current value accounting is used. This is a general term used to refer to departures from our currently used historical cost accounting. It is designed to increase relevance of financial information. Present value accounting (also called value-in-use) is a departure from historical cost.

The other departure is fair value accounting (also called exit value or opportunity cost). Fair value is the amount the firm could sell an asset for or the cost to dispose of a liability, that is, market value. An implication of valuing assets and liabilities at opportunity cost is that management's success is then evaluated by its ability to generate more profits from

retaining assets and liabilities and using them in the business rather than by selling them. Slide 15 It should be noted that under ideal conditions, present value and market value are equal.

This module concentrates on present value accounting, since this is the fundamental basis on which market values are determined. However, when ideal conditions do not hold, the present value of an asset or liability may differ from its market value. It should also be noted that for many assets market value is not readily available. Think of steamships, what is their value? The fast ferries were a perfect example when the BC Government endeavoured to sell these vessels a few years ago. There was no market level for their sale price. Also, intangibles, and power plants, are other examples. Markets for these types of items are "incomplete".

Slide 16 Present Value Calculations and Limitations First, you have done present value calculations but to refresh your memory there are two examples in the appendix. However, if you have difficulty make sure you can understand present value, future value, and annuities. The financial institutions and leasing firm use present value calculations extensively. Present Value Limitations It is difficult to precisely relate the present value system to the market value. Why? There must be ideal conditions: a definite and perfect knowledge held by all. Ideal conditions would include: • a definite cash flow situation a definite discount rate - what we would term a riskless rate. • a definite time period. In making our statements we want to give the best picture possible. Question is - is it a reality for us to give present value figures for all our assets and liabilities? Some - not all. To repeat - in many ways ideal conditions are a theoretical target at which to aim. Present value <https://assignbuster.com/accounting-theory-cga/>

accounting is an example of the more general concept of fair value accounting, where the fair value of an asset or liability is its exit price, that is, the amount the firm could sell it for (asset) or the cost to dispose of it (liability). As noted above. ) Under ideal conditions, present value and market value are the same. However, when ideal conditions do not hold, the present value of an asset or liability to a prospective purchaser may substitute for market value when, as is often the case, a market value does not exist. Slide 17 Relevance and Reliability We want to make our statements as relevant as possible and as reliable as possible. Relevance To be relevant statements must give users information on future cash flows, which show what the assets are worth in the future, that is, Predictive value. Reliability

To be reliable financial statements and information should be precise and as free from bias as possible. If the present value is the same as the market value then they are relevant. If the data are correct and unbiased then they are reliable. This is our aim. Slide 18 Generally relevance and reliability work against each other. With present value you get more relevance but you lose some reliability because of unknowns such as future cash flows, the discount rate, etc. With historical cost you get reliability as transactions past are the basis of the statements, but you lose some relevance as the historical cost statements become dated.

Relevant financial information gives investors information about the firm's future economic prospects. Reliable financial information faithfully represents without error and bias what it is intended to represent. Be sure you understand why, except under ideal conditions, relevance and reliability

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must be traded off. This is the main purpose of this topic. While the text concentrates on the relevance and reliability trade-off of historical cost accounting, there are different tradeoffs for other bases of accounting. For example, cash basis accounting represents the trading off of a lot of relevance in order to attain high reliability.

Conversely, current value accounting represents the trading off of a lot of reliability in order to attain high relevance. Historical cost accounting can then be thought of as a compromise between these two extremes.

Increasing both relevance and reliability is extremely difficult to do. (Can you think of a financial accounting product that does this? ) The text suggests that the reporting of supplementary information (such as RRA) enables increased relevance while retaining the reliability of historical cost in the financial statements proper. 8 Slide 19 Dividend Irrelevancy • Theoretical concept - if conditions are certain, i. . . , if cash flows, discount rates and time periods are certain then the present value will equate to market value.

Income is not a determining factor. • Dividend irrelevancy is the situation where it is presumed whether or not dividends are paid to the shareholders or profit retained where it earns the same return. There is one basic rate in the economy. It is irrelevant whether dividends are paid or retained in the company for reinvestment. Slide 20 Arbitrage • What is it? If the market gets out of equilibrium under ideal conditions “ Arbitrage” will bring it back into equilibrium. Briefly arbitrage is buying in one market and selling in another for a higher price, thus, making a profit. Slide 21 Example: If I buy a share for \$60. 00 in the Toronto market and can sell it for \$61. 00 in the New York market, above commissions and foreign exchange, I can make a dollar per

share. This possibility exists because there is imperfect information. If there is no arbitrage possibility then the market is working well. If, however, there is a rectifiable difference between the two markets and information asymmetry exists, then there is a problem. Arbitrage is a means to bring the two into equilibrium.

Slide 22 • How does arbitrage work in our ideal situation to bring the markets back into equilibrium? • What happens from an economic theory point of view? If I buy in the Toronto market share price will rise and sell in the New York market share price will fall. The supply/demand relationship will erase differences which exist. This is an important economic principle. Demand will increase in the Toronto market increasing price and supply will increase in the New York market, decreasing price, bringing them into equilibrium. 9 Slide 23 Keep your Handout available PART 2 Present Value Under Certainty

Major topics Comment on Present Value Example Description and Required What is the Answer Steps - year zero Balance sheet Steps - end of first year Slide 24 Present Value Under Certainty (con't) Income statement - first year Balance sheet - first year Steps - end of second year Income statement - second year Balance sheet second year Summary of present value under certainty Slide 25 Comment on Present Value Present value accounting - you will find this different than historical cost accounting. For example, the point in the historical cost operating cycle at which we recognize revenue is the point of sale.

Note carefully - in present value accounting under ideal conditions, the present value of all future revenues (net of costs) is recognized when productive capacity is acquired (for example, plant and equipment is valued at the present value of its future net cash receipts at date of acquisition - that is, when you commence to operate). Then, income for the year is simply the accretion of discount (profit) on the opening present value. That is, under ideal conditions, it is not necessary to wait until the realization of revenue is probable, since, by definition, all future revenues are reliably known.

While the text addresses this in terms of asset valuation it is also revenue recognition. The opposite side of the same coin. Another interesting point is that even if the firm pays out all of its profits as dividends, there will be cash-on-hand equal to accumulated amortization. This illustrates the point you learned in accounting courses that "amortization" retains "assets" in the business. The amount is not paid out. Slide 26 Example Description of Question Let's look at a theoretical, ideal situation. Jane bought a fixed asset and operates under ideal conditions with certainty.

She anticipates it will bring cash flows of \$300 at the end of the first year and \$400 at the end of the second year, with a salvage value of \$100 at the end of the second year. The interest rate is 9%. Jane takes out a bank loan of \$150 at 8%, and she issues a bond to I. Save for \$120, with a coupon rate of 10%. Make provision for \$100 in the cash account for working capital. The current yield in the market for a similar security is 9%. Interest is payable at the each year-end, at the rate of 9% At the end of the second year the loan will be paid and the bond will mature. Dividends of \$20 will be paid at each year-end. Slide 27

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After receiving the loan and the bond money, the balance of the assets are financed by common shares. There will be \$100 additional subscription for common shares at the end of the second year. Required Prepare a balance sheet at year zero, and income and balance sheets for years one and two. It is generally wise to prepare a balance sheet at year zero. It prevents mistakes later. Slide 28 Answer: First of first year - steps 11

1. Obtain the present value of the asset by discounting cash flows and salvage.
- 2.

Financing - present value of the principal and interest of the loan and the bond.

3. Make provision for the \$100 in the cash account. . Deduct the p. v. of the loan and the bond from the capital asset to arrive at the shareholders' equity.

Jane's Company Balance Sheet As at January 1st, x1

Assets:	Cash	\$100.00
	Capital Asset	- 300/1.09 + 400/1.188 + 100/1.188
		696.11
Total assets \$796.11		
Note: the interest rate is 9%.		
Liabilities and Shareholders' Equity	Loan:	12/1.09 + (12.00 + 150.00)/1.188
		\$147.37
	Bond:	12/1.09 + (12 + 120)/1.188
		122.12
	Shareholders' Equity	\$796.11 - (147.37 + 122.12)*
		526.62
Total liabilities and shareholders' equity \$796.11		

\*Proceeds from the loan and the bond are deducted from the total assets to obtain shareholders' equity. Slide 29

First Year Results - End of First year: 5. Set up income statement. You need sales, interest on the cash balance, amortization for the year, (present value of second year deducted from original present value) and interest expense, which is, the discount rate times the original present value of the loan and the bond. 6. Set up your balance sheet for the first year. 7. Next is the cash and that which is actually paid out - interest and dividends 8. Determine the remaining balance of your capital asset - from the income statement. 9.

Obtain your liabilities for the loan and the bond. This is the remaining amount for the second year, discounted. 0. Obtain retained earnings - net income for the year less dividends. 12 Jane's Company Income Statement For the Year Ending December 31, x1 Sales \$300. 00 Interest \$100. 00 x 0. 09 9. 00 309. 00 Less: Amortization \$696. 11 - 458. 71 = \$237. 40 400/1. 09 + 100/1. 09 = \$458. 71 Interest expense:\* Loan \$147. 37 x 0. 09 = 13. 25 Bond 122. 12 x 0. 09 = 10. 98 261. 63 Net income \$ 47. 37 \*Note: interest is at the going rate in the economy. Jane's Company Balance Sheet As of December 31, x1 Assets Cash \$100. 00 + 300. 00 + 9. 00 - (\$12. 00 interest on bond, \$365. 00 \$12. 00 interest on the loan and \$20 dividend) Capital asset \$696. 1 Accumulated amortization 237. 40 458. 71 \$823. 71 Liabilities and Shareholders' Equity Loan outstanding p. v. at end of year one - (12 + 150)/1. 09 \$148. 62 Bonds outstanding p. v. at end of year one - (12 + 120)/1. 09 121. 10 Shareholders' equity - as shown above 526. 62 Retained earnings: Net income \$47. 37 Less Dividends 20. 00 27. 37 Total liabilities and shareholders' equity \$823. 71 13 Slide 30 Second Year Results - End of Year Two: 11. Set up your second year's income statement 12. In addition to your cash flow you should show your interest received on the bank balance of \$32. 85 (made up of \$365. 00 x 0. 09) 13.

Less amortization - balance left in the capital account is salvage value of \$100. 00 14. Obtain interest expense - the discount rate of 0. 09 times the carrying value of the loan and the bond in year 2 15. Set up the balance sheet 16. Cash account will be the carryover of \$365. 00 from the previous year plus the sales of \$400 and the interest on the cash account of \$32. 85 plus the additional \$100. 00 put into shareholders' equity. Deductions will be

the actual paid out interest on the loan and the payoff of the loan (\$162) and payment of the interest and the maturity of the bond (\$132. 00) and the deduction of the dividend (\$20. 0). Total in the cash account should be \$583.

85 17. The capital asset will be \$100. 00. You deduct the salvage from the carrying value of the capital asset in the second year ( $\$458. 71 - 358. 71 = \$100. 00$ ) 18. Set up the liabilities and the shareholders' equity - show zero for the loan and the bond as they have been paid off Slide 31 19.

Shareholders' equity will be the original balance plus \$100. 00, plus retained earnings from the previous year plus the addition of net income for year two and the deduction of the dividends in year two. Net Income will be \$49. 86 and Total assets \$683. 85. Jane's Company

Income Statement For the Year Ending December 31, x2 Sales \$400. 00

Interest on cash in bank ( $\$365. 00 \times 0. 09$ ) 32. 85 \$432. 85 Less:

Amortization  $\$458. 71 - \$100. 00 = \$358. 71$  Interest expense: Loan \$148.

62 X 0. 09 = 13. 38 Bond  $121. 10 \times 0. 09 = 10. 90$  382. 99 Net Income \$ 49.

86 14 Jane's Company Balance Sheet As at December 31, x2 Assets Cash

\$583. 85 Change:  $(\$400 + 365 + 32. 85 + 100) - (12 + 150 + 12 + 120 +$

20) Capital Asset:  $\$458. 71 - 358. 71$  100. 00 Total assets \$683. 85 Liabilities

and Shareholders' Equity Loan outstanding \$ 0 Bonds outstanding 0

Shareholders' equity 526. 62 Additional subscription 100. 00

Retained earnings: Previous balance \$ 27. 37 Net income 49. 86 \$77. 23

Less: Dividends 20. 00 57. 23 Total liabilities and shareholders' equity \$683.

85 That is a rundown on ideal conditions under certainty. Under ideal

conditions everything, i. e. , cash flows, discounts, and other estimates,

would happen as given. 15 Slide 32 PART 3 Follow the Handout - Page 15

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Present Value Under Uncertainty Major Topics • Present Value under Uncertainty - what is it? • Example • Description and Required • Answer • Steps - year zero • Balance sheet Slide 33 Topics (con't) • Income statement - year 1 • Balance sheet - end of year 1 Present value income statement - year 1 • Income statement - year 2 • Balance sheet - year 2 • Summary of present value re Accounting Material • A typical short answer exam question Slide 34 Present Value Under Uncertainty In this part we want to inject some uncertainty into the cash flows We are still under ideal circumstances and the theoretical aspect of things, thus, everything remains the same apart from revenues. Jane has a new company, that started operations on January 1, x1 Assume cash flows could be \$250 for each of two years if the economy is good and \$120 a year for each of two years if the economy is poor.

There is a 50% chance there will be a good year each year and a 50% chance there will be a poor year. These are called states of nature. 16 To set the company up Jane makes a loan of \$200 and finances the balance by common shares. The loan will be paid off at the end of two years. Loan rate 9%. We will make certain assumptions: - the discount rate is 8% - the states of nature and probabilities are publicly known and observable. - cash flows are given but uncertain as to which result will occur. Slide 35 Balance Sheet at Time 0: 1. Determine the capital asset - \$329. 91 2. Determine the p. v. of the loan and shareholders' equity.

P. V. =  $0.5(250) + 0.5(120) + 0.5(250) + 0.5(120)$  1. 08 1. 08 1. 1664 1. 1664 =  $0.5(231.48) + 0.5(111.11) + 0.5(214.33) + 0.5(102.88) = 115.74 + 55.56 + 107.17 + 51.44 = \$329.91$  Jane's Company Balance Sheet As at January 1st, x1 Capital Asset \$329. 91 Loan \$203. 55 \_\_\_\_\_

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Shareholders' equity 126.36 \$329.91 \$329.91 Loan \$18.00/1.08 + (18 + 200)/1.1664 = \$203.55; common shares \$329.91 - 203.55 = \$126.36

Time 1 Slide 36 First Year Results Assume there is a GOOD economy for time

1. 3. For the income statement determine sales \$250.00 4. Determine

amortization - need the p. v. s of January 1st, x2 5. Charge interest on loan outstanding 6. Determine net income - \$75.10 17 Jane's Company Income

Statement For the year ending December 31, x1 Sales \$250.00 Amortization \$329.91 - 171.30\* = \$158.61 Interest 203.55 x 0.08 = 16.29 174.90 Net

Income \$ 75.10 \* This figure can be taken from the first year above - \$115.

74 + 55.56 = \$171.30 Slide 37 7. For the balance sheet determine cash -

sales revenue less interest paid 8. Deduct amortization to obtain p. v. of

capital 9. Calculate p. v. of the loan 10. Include in statement the common

shares and retained earnings. Jane's Company

Balance Sheet As at December 31, x1 Assets Liabilities and Shareholders'

Equity Cash \$250.00 - 18.00 \$232.00 Loan \$201.84\* Capital asset \$329.

91 Amortization 158.61 171.30 Shareholders' equity 126.36 \_\_\_\_\_

Retained earnings 75.10 \$403.30 \$403.30 \* Loan - \$218.00/1.08 = \$201.

84 Slide 38 Lets look at the present value statement: 11. Need accretion of

discount - multiply the common shares by discount rate 12. Add revision of

cash flows by deducting expected cash flows from actual cash flows. Present

value Income Statement Jane's Company Income Statement for the year

ending December 31, x1 8 Accretion of discount \$126.36 x 0.08 (rounded)

\$10.10 Actual cash flows in year 1 \$250.00 Expected cash flows (0.5 x 250

+ 0.5 x 120) 185.00 65.00 Net Income \$75.10 Abnormal earnings One

thing you should be aware of is the abnormal earnings. The abnormal



earnings in this instance are \$65.00. They indicate the difference between the expected value of earnings and their actual realization. This is an important concept that will come up again when you study investor reaction to firms' reported earnings in later Modules. For example, investors seem to respond strongly to unexpected earnings.

You have probably seen the major effect on share price when a firm reports earnings higher or lower than the market had expected. The Present Value Income Statement above and also the illustration in Example 2.2 (see pages 30 to 33) show how reported earnings can consist of an expected and an unexpected component. Slide 39 Now consider Year Two - Assume it is a poor year, that is, \$120.00 revenue

Steps 1. Sales 2. Interest received on cash account 3. Interest paid on loan 4. Amortization - no salvage 5. Income for the year will be a loss of \$(48.90) Jane's Company Income Statement

For the year ending December 31, x2

Sales	\$120.00	Interest	18.56	\$138.56	
Amortization	\$171.30*	- 0 =	\$171.30	Interest	201.84 x 0.08 = 16.16**
187.46	Net Income	\$(48.90)	* This figures can be taken from the first year above: \$115.74 + 55.56 = \$171.30** rounded up	19 Slide 40	

For the Balance Sheet: Steps 1. Determine Cash 2. Calculate Capital Assets to zero 3. Extinguish Loan 4. Show Shareholders' Equity 5. Determine Retained Earnings Jane's Company Balance Sheet As at December 31, x2

Assets	Liabilities and Shareholders' Equity
Cash	\$152.56*
Loan	\$ 0**
Capital asset	\$171.30
Amortization	171.00
Shareholders' equity	126.36 _____
Retained earnings	26.20***

\$152.56 \$152.56 \* Cash \$232 + 120 + 18.56 - (18 + 200) = \$152.56 \*\*Loan extinguished \*\*\* Retained Earnings \$75.10 + (-\$48.90) = \$26.20 Slide 41 Summary: Application of Present Value to Accounting

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Material These ideal, present value statements are relevant and reliable - dividends are irrelevant and expected cash flows have been assumed to include all possible events. - They are relevant because the values in the statements are based on all future cash flows. - They are reliable because the values reflect for sure future cash flows. Arbitrage assures the market value as time passes. How easy is it to apply present value material to accounting material? 20 In some cases it is easy and in some cases more difficult, for example, it is easy, with a bond, a mortgage, a loan, etc. P. V. can hold in the case of a bond which is purchased at face value and held to maturity. If it is purchased at other than its face value a premium or discount occurs. This will be covered in Module 5. P. V. can be partially successful in non-contractual cases such as the lower-of-cost or market or (fair value). On the lower side it is marked to market but not on the upside.

In some cases it has been difficult. However, more is being added as time passes. A typical short examination question: Question: What is the change in the present value of an asset over time? Answer: It is the amortization of the asset. 21 Slide 42 PART 4 Follow the Handout - Page 21 Reserve Recognition Accounting What is Reserve Recognition Accounting? In this part we want to deal with an attempt by the Financial Accounting Standards Board in the United States to implement present value accounting material in the oil and gas company reports, for American companies, domestically, and their international subsidiaries.

This was released under SFAS 69. It should be noted that this was supplemental material to the financial statements. Some Canadian companies have adhered to RRA because their parent companies in the U. S. <https://assignbuster.com/accounting-theory-cga/>

have had to follow it in that country. Canada does not require it. However, Canada has implemented a standard of its own referred to below. Among the items was the requirement of an estimate of the present value of future receipts from a company's proved oil and gas reserves. What is its purpose? To give some idea of the discounted cash flows which an investor might expect the company to experience.

As you know historical cost becomes obsolete very quickly and irrelevant in a short time. This attempt was to try to add to it so people would get some idea of the future expectations from the reserves and future cash flows. Oil and gas companies do not operate under conditions of certainty nor do any companies. This new consideration relates to present value under uncertainty. As noted earlier, recognizing revenue by the process of proved reserves indicates an early recognition of revenue in the operating cycle. Other companies, for example, recognize revenue at point of sale, or when they ship product to a distributor.

Early recognition adds to the relevance aspect of revenue recognition but reduces the reliability because there are estimates being made which may not prove to be the outcome. It is suggested that you carefully read the comments on revenue recognition in the module notes under the heading of Reserve Recognition Accounting. Slide 43 Standardized Measure Theoretical and Practical RRA 22 Lets use the information of from a former year of Renaissance Energy: You have similar information in your text for Suncor Energy Inc. , page 36. What is the standardized measure?

Standardized Measure is the expected discounted net cash flows from proved reserves in the ground to which the oil company has claim.

Standardized Measure Millions Future cash inflows \$8, 822 Future production and development costs (3, 603) Future Income Taxes (1, 361) Future Net Cash Flows \$3, 858 10% annual discount for estimated timing of cash flows (1, 148) Standardized measure of discounted net cash flows \$2, 710 Let's assume \$20 a barrel at the time - that would be approximately 441, 000, 000 bbls. Points: 1. Total proved reserves are the first line. 2. Development and production costs will be deducted 3.

Deduct income taxes 4. Discount at 10% 5. Discounted net cash flows.

Changes in the Measure during year Millions Standardized measure - beginning of year \$3, 704 Less: Sales less royalties and production costs (598) \$3, 106 Add: Accretion of discount (expected profit) 529 Abnormal earnings: Net present value of additional reserves added - Extensions, discoveries and improved recovery 577 Purchase of reserves in place 100 677 Development costs incurred 288 Unexpected items - changes in value of previous year Net change in prices, net of royalties and production costs (2, 647) Change in future development costs (4)

Revision of quantity estimates 249 23 Net change in income tax 1, 157

Change in timing and other items (645) (1, 890) Standard measure - future value of discounted net cash flows \$2, 710 Note: this could be considered similar to your book value. Another Note: Under the global aspect you deduct your costs from the cash inflows, leaving standardized measure of \$2, 710 Million. However, when you come to the reconciliation statement above you add in purchase costs, development costs and extension costs. At that stage <https://assignbuster.com/accounting-theory-cga/>

you are adding to the value of your proved reserves because you have increased your proved reserves.

You have acquired new reserves. It is a different aspect of the accounting operation. Accretion of Discount: this is the expected net income for the year. Under ideal conditions your anticipated net income at the first of the year and the actual would be the same. In real world conditions you do get differences. We want to look at the loss or gain for the year. Note with RRA additional reserves can result in anticipated revenue. Net Loss from Proved Oil and Gas Reserves Sales \$598 Development costs incurred in the year (288) Amortization expense - (Decline from \$3,704 to \$2,710)\* (994) Net loss \$ (684)

See change statement above. Present Value Format: Expected net income - accretion of discount \$529 Abnormal earnings: Additional reserves proved during the year \$ 677 Unexpected items - changes in value (1,890)\* (1,213) Net loss \$(684) \*This is the total of the unexpected items in the change statement above. Note carefully that amortization takes the difference between the two years and unexpected items takes only in the items shown. Amortization is used in the Income Statement and unexpected items are used in the present value income statement. Slide 44

An Examination question: 24 Students often find it difficult to connect the theoretical aspect to the practical output by gas and oil companies.

Following is actual information taken from Exxon, an oil and gas company in the U. S. This will connect the practical to the theoretical aspect of the RRA process. Exxon Corporation - 1993 - supplemental information (millions)

Shown in the annual report under change in net cash flows: 1993 Millions

Value of reserves added during the year due to extensions, discoveries, improved recovery and net purchases less costs. \$ 527

Changes in value of previous - year reserves due to: Sales and transfer of oil and gas produced (6, 975) Development costs incurred during the year 2, 947 Net change in prices , lifting and development costs (10, 229) Revision of previous reserve estimates 1, 137 Accretion of discount 2, 817 Net change in income tax 4, 499 Total change in standard measure during the year \$(5, 277)

Comparison of Theoretical and Practical models Now to make a comparison with our theoretical model the various items below are numbered 1, 2 or 3 indicating the category within which they fall. . Accretion of discount 2. Development and other costs 3. Changes in estimates. Millions Value of reserves added during the year due to extensions, discoveries, improved recovery and net purchases less costs \$ 527 (2) Changes in value of previous - year reserves due to: Sales and transfer of oil and gas produced (6, 975) (sales) Development costs incurred during the year 2, 947 (2) Net change in prices, lifting and development costs (10, 229) (3) Revision of previous reserve estimates 1, 137 (3) Accretion of discount 2, 817 (1) Net change in income tax 4, 499 (3)

Total change in standard measure during the year \$(5, 277) Question: 25

Prepare the supplemental information of net income from proved oil and gas reserves in the " sales less amortization format" and the present value format: Exxon Corporation Income Statement for the year ending December 31st, 1993 Millions RRA Sales in year \$6, 975 Development costs incurred in year (2, 947) Amortization expense (5, 277) Net loss (\$1, 249) The present

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value statement would be the following: Accretion of discount \$2, 817

Abnormal earnings: Additional reserves proved 527

Changes in estimates - unexpected items - as shown below (4, 593) Net loss

(\$1, 249) Changes in estimates made up of: Net change in prices - \$(10, 229)

Revision of estimates - 1, 137 Net change - income tax - 4, 499 \$( 4, 593)

Slide 45 Summary The Exxon financial statements contained a comment that the corporation believed the standardized measure was not meaningful and may be misleading. It appeared management thought it lacked reliability and the reserve quantities would be as useful without the remainder of the calculations. The major problems with RRA: - Many estimates must be made how sound are they?

Because conditions are not ideal, RRA estimates are compromised and revisions must be made. Example, future oil and gas prices fluctuate significantly. - Changing interest rates - Information on the states of nature is changing - very complex - probabilities are difficult to determine. - How does one determine complete cash flows? 26 Gulf oil was quite comfortable with the physical data but not the dollar amounts. They and other Canadian companies have dropped the process. RRA was an American requirement but CICA under Section 4580 did require physical data for Canadian companies.

That Section has been suspended. While RRA was a good attempt to gain present value information - it gained some relevance but lost reliability. RRA is closer to market value than is historical cost but investors have not shown a particular interest in it. Canadian Requirement Similar to SFAS 69 As noted above, more recently the Canadian Securities Administrators have issued

their own RRA standard. It is National Instrument 51-101. This is supported by all securities commissions in 13 provinces and territories. It goes beyond SFAS 69 in certain ways: Briefly:

- The definition of proved reserves is tightened.

NI 52-101 states that proved reserves are those with at least 90% probability of recovery. SFAS 69 states only “reasonable recovery.”

- Probable reserves must be reported. These are additional reserves such that there is as greater than 50% probability that the sum of proved plus probable will be recovered..
- Two present value estimates of future cash flows from reserves are required – based on yearend prices and costs (as in SFAS 69) based on forecasted prices and costs.
- Discounting is required at several different discount rates, ranging from 0% to 20%.

SFAS requires only 10%. The Canadian requirements go beyond those of SFAS 69 but it will be noted that the same problems of reliability still exist. A further point which should be noted is that if a firm reports under SFAS 69, they can apply for exemption from NI 51-101. It should be noted that Canadian firms can apply for exemption from NI 51-101 if they report under SFAS 69. Most large Canadian oil and gas companies have secured this exemption. Consequently, despite the Canadian standard, RRA as per SFAS 69 remains as an important disclosure standard in Canada.

For example, Canadian Natural Resources Limited, with shares traded on the Toronto and New York stock exchanges, has been granted an exemption from National Instrument 51-101 – Standards of Disclosure for Oil and Gas Activities (“NI 51-101”), which prescribes the standards for the preparation



and disclosure of reserves and related information for companies listed in Canada. This exemption allows the Company to substitute United States Securities and Exchange Commission ("SEC") requirements for certain disclosures required under NI 51-101. 27 Slide 46 PART 5 Follow the Handout at page 27

Examination Question Examples Examination Question 1: On January 1, 2006, XYZ Ltd. , a hypothetical oil and gas firm, purchased a producing oil well with a life of 15 years. Operations were started immediately. The management calculated that future net cash flows from the well would be \$1, 500, 000. The discount rate was 10% which was the company's expected return on investments. During 2006 cash sales were recorded (net of production costs) of \$600, 000. The company also paid dividends for the year of \$50, 000. a) Prepare the income statement for the year ending December 31, 2006 using RRA accounting.

Prepare the balance sheet as at December 31, 2006, using RRA accounting.

Answer: We first need our amortization so we take the beginning total of \$1, 500, 000 and take a similar approach to our change statement under our first example - Renaissance Energy. We deduct sales and add accretion of discount, to arrive at amortization. PV beginning \$1, 500, 000 Less: Sales 600, 000 900, 000 Accretion of discount 150, 000 10% of \$1, 500, 000 PV end 1, 050, 000 Amortization \$ 450, 000 XYZ Limited Income Statement for the year ended December 31st, 2006 Net sales \$ 600, 000 Amortization 450, 000 Net Income \$ 150, 000 28 XYZ Limited Balance Sheet s at December 31st, 2006 Cash \$600, 000 - 50, 000 \$ 550, 000 Shareholders' equity \$1, 500, 000 Retained earnings: Reserves 1, 050, 000 \$150, 000 - 50, 000 100, <https://assignbuster.com/accounting-theory-cga/>

000 \$1, 600, 000 \$1, 600, 000 b) Question: summarize the perceived weaknesses of RRA accounting Answer: Three weaknesses are: 1. The discount rate of 10% might not reflect the expected return for the firm. 2. RRA involves making a large number of assumptions and estimates and it may not bear any relationship to the net revenue to be received in the future. 3. Conditions in the oil and gas industry may change rapidly possibly making frequent changes in estimates. ) Question: Why does SFAS 69 require all firms to use 10% rather than letting firms select their own rate of return? Answer: The use of a single rate for all firms was to improve comparability. Slide 47 Continue to follow the Handout A Second Example: This one is particularly difficult. ABC Company (hypothetical) operates under ideal conditions. On January 1, 2001, it purchased a capital asset with a useful life of three years at which time it would be totally used and have no value. It will generate a cash flow of \$3, 993, on December 31st, 2003, at the end of its 3 year life.

The purchase is financed partly by common shares and partly by a non-interest bearing note which matures on December 31, 2003, with a maturity value of \$1, 500. The interest rate in the economy is 10%. The shares and the note thus both have to receive a return. Required: a) Prepare an income statement and balance sheet for December 31, 2001. 29 b) Prepare an income statement and balance sheet for December 31, 2002. c) Prepare an income statement and balance sheet for December 31, 2003 d) Calculate the expected net income for the second year Answer

Consider this as an investment of \$3, 000 and you are earning 10%, so income for the first year is \$300, the second \$330 and the third \$363,

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totalling \$993.00. In other words if you left your earnings in the firm that is what you would have. However, you have borrowed money and it has to earn 10%, so it will reduce your income by the cost of the borrowed money at 10%. Capital Asset each year: PV (Jan. 1/2001) =  $\$3,993/1.103 = \$3,000.00$  PV (Jan. 1/2002) =  $\$3,993/(1.21) = \$3,300.00$  PV (Jan. 1/2003) =  $\$3,993/(1.10) = \$3,630.00$  PV (Dec. 31/2003) =  $\$3,993/1.00 = \$3,993.00$   
 Note: As the earnings remain the capital asset increases.

Non-interest bearing note: Interest Expense Present Value and Discount Amortization Carrying Value of Note  
 Jan. 1, 2001 - \$1,126.97 Dec. 31, 2001 \$112.70 1,239.67 Dec. 31, 2002 123.97 1,363.64 Dec. 31, 2003 136.36 1,500.00 \$373.03 Book Value each year Accretion of Discount or Expected Income at 10%  
 $\$3,000.00 - \$1,126.97 = \$1,873.03 - \$187.30 = \$3,300.00 - 1,239.67 = \$2,060.33 - \$206.03 = \$3,630.00 - 1,363.64 = \$2,272.36 - \$227.24 = \$3,993.00 - 1,500.00 = \$2,493.00$  Total \$620.57 30 Some rounding may be needed. Slide48 To answer the parts: a) ABC Company Income Statement Year Ended December 31, 2001

Sales revenues \$ 0 Amortization of capital assets 300.00 Interest expense 112.70 Net income \$187.30 This is unusual as there is shown income which has been earned but not received and the income statement is based on the amortization of capital assets and the loan. ABC Company Balance Sheet as at December 31, 2001 Capital asset \$3,000.00 Notes payable \$1,239.67 Add: amortization 300.00 Shareholders' Equity Common Shares \$3,000 - 1,126.97 1,873.03 Retained earnings 187.30 Total assets \$3,300.00 \$3,300.00 b) ABC Company Income Statement Year Ended December 31, 2002 Sales revenues \$ 0 Amortization of capital assets 330.0 Interest expense  
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123. 97 Net income \$206. 03 31 ABC Company Balance Sheet as at December 31, 2002 Capital asset \$3, 000. 00 Notes payable \$1, 363. 64 Add: amortization 630. 00 Shareholders' Equity: Common Shares 1, 873. 03 Retained earnings \* 393. 33 Total assets \$3, 630. 00 \$3, 630. 00 • \$187. 30 + \$206. 03 Slide 49 c) ABC Company Income Statement Year Ended December 31, 2003 Sales revenues \$3, 993. 00 Less: Amortization \$3, 630. 00 Interest 136. 36 3, 766. 36 Net income \$ 226. 64 ABC Company Balance Sheet as at December 31, 2003 Cash \$3, 993 - 1, 500 = \$2, 493. 00 Notes payable \$ 0 Capital asset \$3, 630. 0 Shareholders' Equity Less: Common Shares 1, 873. 03 Amortization 3, 630. 00 0 Retained earnings 619. 97 Total assets \$2, 493. 00 \$2, 493. 00 d) What you have to do to get the expected net income (the accretion of discount) it must be taken from the above balance sheet/and table that is the end of the first year: Net book value January 1, 2002 - \$3, 300. 00 - \$1, 239. 67 = \$2, 060. 33 Expected net income - 10% of \$2, 060. 33 = \$206. 03 Note very carefully the book value and how it is obtained. 32 Slide 50 PART 6 Historical Cost Accounting Topics

- Why present value accounting
- Major problems with historical cost

Examples Amortization Full cost versus successful efforts

- Conclusion Want to Consider Historical Cost Accounting but first make some comments about Present Value Accounting. Slide 51 Why Present Value Accounting? Why do we want present value accounting? What are some of the shortcomings of historical cost accounting?
- First, present value accounting is a balance sheet approach to accounting, also
- Referred to as the measurement approach.
- Increases and decreases in assets and liabilities are recognized, that is, measured, as they occur.
- Future cash flows are discounted and capitalized on the balance sheet. Income then is essentially the net change

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in present values for the period. • Changes, whether realized or not, are recognized in the balance sheet. Slide 52 Historical Cost Accounting - Major Problems Comments Historical cost accounting is an income statement approach. It is referred to as an “information” approach to decision usefulness. In this situation unrealized increases or decreases are not recognized in the balance sheet and net income lags behind real economic performance. 33 Thus, under this approach the accountant waits until there is actual validation of changes by increased sales or cash flows.

This comes down to a matching of revenues and costs used to earn those revenues. First, it may make more sense than we give it credit for, and, second, it is firmly in place and may be difficult to replace. Then, how do we improve it? Slide 53 Major problems: 1. It does not equate in large measure with present value accounting - in some cases it does and many others it does not. 2. As it does not present complete relevant and reliable statements, there must be a tradeoff between the two. They tend to be opposites. Historical cost is more reliable than relevant.

There as often different bases used for measurement and thus a problem arises. See page 42 of your text, 3. With historical cost there is a recognition lag of revenue. In other words, the revenue may be recognized over several periods. The revenue is recognized only when transactions take place. See page 42 of the text. This is the timing of revenue recognition lags behind changes in real economic value. On the other hand current value accounting has little recognition lag as changes in economic value are recognized as they occur, for example, recognizing revenue when proved reserves are recognized under oil and gas accounting.

Do not overlook the fact, however, that RRA is supplemental accounting and appears separately in the financial statements. Note: carefully there is little matching of costs and revenues under current value accounting. Current value accounting really tells you how the value has changed of the assets and liabilities. Under historical cost the accountant waits until there is objective evidence before recognizing revenue. Thus, historical cost tends to be reliable while current value tends to be more relevant. See page 43 of the text. 4.

We are faced with the fact that it is difficult to solve many problems within the historical cost system itself, thus, it is necessary to look for other ways to solve some issues, say to, present value accounting. There is accrual accounting is available to aid historical costing but matching of costs and revenues requires estimates, which can be difficult. Thus, historical cost does have it problems. See page 43 of the text. Some examples of problems Slide 54 Amortization: • It is necessary to amortize the wearing out of assets to meet the matching principle. But historical cost rules do not direct how much should be amortized each year. • It just states that the method to be used should be consistent with the time pattern 34 of expiration of the asset. • A variety of methods are in use - straight-line, declining balance, double digit, etc. , which complicates matters between companies. • If there were the requirement of present value for valuation purposes, there would be only one method. Slide 55 Full Cost vs Successful Efforts in Oil and Gas Under full cost all drilled gas and oil well holes - both dry holes and successful efforts in drilling are capitalized.

Thus some of the expenses for dry holes are deferred rather than written off. The concept is that they are all part of the development process. It is contended the costs match the revenue as it is earned. Under successful efforts dry drill hole costs are expensed immediately as it is thought they should not be part of the capitalization process. It is contended only successful efforts really match with the revenue of future years. Under historical cost CICA allows both methods; getting different income figures; under present value there would be one method.

Slide 56 Conclusion: We conclude under historical cost that, " net income does not exist as a well-defined economic concept. " It is an artificial figure. See page 45 of the text. The matching principle under historical cost allows for different ways to be followed, as indicated above, as well as many other situations, e. g. , inventories Accounting challenge - Our quest for the balance of the course will be how can we improve historical cost statements if, as we concluded, we cannot have full present value statements. Slide 57

Appendix Present value annuities - one of the most used processes in the mathematics of finance. Its purpose is to discount a series of equal payments over a series of equal periods. Present value annuities with even payments Example: Assume you will receive \$60 a year for four years for a dividend payment. The accepted discount rate (or the yield you would expect) is 10%. What is the present value (or value today) of these four cash flows, discounted at 10%? 35 P. V. = ? Formula  $P. V = R[1 - (1 + i)^{-n}] / i$   $i = 10\%$   $P. V. = 60[1 - (1 - 1.10)^{-4} / 0.10]$   $n = 4$   $P. V = 60 (3.16987)$  (can be obtained from the P. V. table. )  $R = 60$   $P. V. = \$190.19$  Second example: Present value annuity with uneven payments. Assume there are unequal

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payments over five years: Year 1, \$60; Year 2, \$40; Year 3, \$50; Year 4, \$35 and Year 5, \$45. P. V. = ?  $i = 10\%$   $n = 5$   $R =$  as shown Formula:  $PV. = CF/(1.10) + CF(1.10)^2 + CF/(1.10)^3$ , etc.  $P. V. = 60/(1.10) + 40/(1.10)^2 + 50/(1.10)^3 + 35/(1.10)^4 + 45/(1.10)^5$   $P. V. = \$54.55 + 33.06 + 37.57 + 23.91 + 27.93$   $P. V. = \$177.$