

Finance and Pharmacy Practice

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Lesson description

This continuing education (CE) program has been developed primarily for community pharmacists. One of the significant downsides to the very technical and scientific training pharmacists receive is that there is very little focus on the non-pharmacological education that is necessary in order to effectively operate and manage a community pharmacy practice.

Financial literacy is essential for the following activities:

- decision making
- resource allocation
- performance evaluation
- ensuring profitability/sustainability of pharmacy related activities

This CE program is not intended to be an exhaustive look at all of the financial subjects related to operating and/or managing a pharmacy. The objectives of this program are to provide an overview of key areas of financial literacy that are required, and to assist pharmacists in identifying specific areas that can be targeted for more detailed study.

Learning objectives

The goals of this continuing education lesson are to:

- provide an overview of key financial concepts and definitions for pharmacists involved in operating and/or managing a community pharmacy
- provide non-finance professionals with insight into the usefulness and limitations of interpreting financial statements and financial ratios and how they can be incorporated into effective management
- explain key concepts in managerial accounting related to financial planning and performance evaluation that can be used to enhance decision making
- provide pharmacists with insight into areas of financial understanding where they require more training in order to feel confident in operating and/or managing a pharmacy

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In his role as President, Mike oversees the day-to-day operations of the company and acts as a liaison between its consulting, clinical, and information technology divisions. He is involved in the

company's strategic planning and expansion into new markets.

Mike writes a regular personal finance column for *Pharmacy Post/Drugstore Canada* magazine, and has toured across Canada on multiple occasions presenting seminars on personal financial management to pharmacists and pharmacy students. He also serves as a member of Ontario Pharmacists' Association's Property & Finance Committee.

He is a graduate of the College of Pharmacy at the University of Saskatchewan, and completed his Master of Business Administration (MBA) degree, with a specialization in finance, at the Schulich School of Business at York University.

Expert reviewers

B.E. (Bev) Allen, BSP

B. Allen is currently an assistant professor of pharmacy and the coordinator of the pharmacy structured practice experience program at the University of Saskatchewan.

Prior to joining the College in 1993, Professor Allen owned and managed an independent community pharmacy practice in Saskatoon.

B. Allen is very knowledgeable on the subject of pharmacy and health care administration as well as pharmacy management and business principles in pharmacy. Outside of his teaching responsibilities, his research interests include looking at the standards, roles, responsibilities, and expectations of pharmacists, types of practice, as well as management and community practice.

He is a published author of many publications and has served on many provincial and national pharmacy organizations, including serving as Presidents for the Saskatchewan Pharmaceutical Association, the Canadian Pharmacists Association, the Pharmacy Examining Board of Canada, the Canadian Foundation for Pharmacy, and the Saskatchewan College of Pharmacists.

Rita Winn, BScPhm

Rita graduated from University of Toronto in 1981 with her BScPhm. She is currently the General Manager of Lovell Drugs Limited. Lovell Drugs is a group of 10 stores, family owned and operated throughout Ontario.

Prior to joining Lovell Drugs, Rita enjoyed a 20-year career with Big V Pharmacies Co. Ltd. working as a staff pharmacist, then as a store manager and most recently as Director of Operations, where she was directly responsible for the operation of over 20 drugstores. During this time, she was directly responsible for all of the financial aspects of these pharmacies and district profitability.

Rita's accomplishments include Board member of CACDS since 1998, pharmacy committee member of CACDS since 1999, and other sub-committees of CACDS, and she also serves as the current Chair of the Board of CACDS.

She has been involved with many pharmacy organizations such as OPA, PDPA, and CPhA, as a mentor in the IPG program, and charitable groups as well as past president of a local day care. Board Member of the Kingston Medical Arts Limited, Rita also speaks to local groups on a regular basis on topics such as cholesterol, heart health, and general drug information.

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1. The importance of financial literacy in community pharmacy practice

The ability to serve the healthcare needs of patients and the opportunity to become the most trusted and most accessible healthcare professional has been facilitated by the ability of pharmacists to develop sustainable businesses that bring in the revenue to support important patient care responsibilities. However, the practice of pharmacy is becoming much more competitive as more players enter the market, each bringing their own strengths to the community. Reimbursement issues are also having a negative impact on pharmacy revenues. As a result, it is becoming more difficult to effectively operate and manage a community pharmacy practice.

In order to be successful and preserve the ability to provide quality patient care, pharmacists are having to become financially literate in order to make the right decisions as to what business opportunities to pursue to ensure the sustainability of their practice and to allow them to fully benefit from an expanded scope of practice.

Financial literacy is essential for the following activities:

- decision making
- resource allocation
- performance evaluation
- ensuring profitability/sustainability of pharmacy related activities

This CE program is not intended to be an exhaustive look at all of the financial subjects related to operating and/or managing a pharmacy. The objectives of this program are to provide an overview of key areas of financial literacy that are required, and to assist pharmacists in identifying specific areas that can be targeted for more detailed study.

2. Understanding financial statements

Financial statements are often a key source of information for financial decision making. In this section, the goals are to briefly examine the relevant features of these statements, along with their limitations. The items that make up these financial statements are also used in ratio analysis, which will be discussed in the following section. Please see the enclosed example financial statements

while reviewing this section in order to see how these statements can be used in practice.

2.1 The balance sheet

The balance sheet (BS) is a financial statement that shows a firm's accounting value on a specific date. It is essentially a snapshot in time that attempts to summarize what a business owns (its assets), what it owes to creditors (its liabilities), and the difference between those two values (the firm's equity) at a given point in time.

Typically the assets are referred to as the left-hand side of the BS. Assets are classified as current or non-current (fixed). Current assets have a life of less than one year – meaning that the asset will be converted to cash in less than twelve months. Examples of current assets include cash, inventory, and accounts receivable. Fixed assets are expected to provide benefit for longer than one year, and can include such things as land, buildings, and equipment.

The liabilities and owner's equity are referred to as the right-hand side of the BS. Much like assets, liabilities are classified into current and long-term. Current liabilities are those that must be paid within one year, such as accounts payable. A debt that is not due within a year is referred to as a long-term liability.

Both sides of the BS must also balance. As a result, owners' equity (also known as shareholders' equity) is the difference between assets and liabilities. This feature of the BS is intended to reflect the fact that if a business sold all of its assets and paid off all of its debt, whatever value remained would belong to the shareholders.

The balance sheet is named as such because $\text{Assets} = \text{Liabilities} + \text{Shareholders' Equity}$; in other words, the left side = right side.

Key points related to the balance sheet:

- Net working capital (NWC) is calculated by subtracting the value of current liabilities from the current assets: $\text{NWC} = \text{Current Assets} - \text{Current Liabilities}$. If the NWC value is positive, the business theoretically has enough resources to meet its obligations over the next year. A negative value for NWC can indicate a business in some financial distress. It is also important to consider that not all current asset accounts are created equally. While Accounts Receivable is considered a current asset, if one customer does not pay their bill, that becomes bad debt that is not recoverable by the business. Accounts Receivables are scrutinized carefully by potential creditors because in reality it is rare to see the full value of Accounts Receivable become transferred into cash.

Sample balance sheet

PHARMACY ABC LIMITED			
Balance Sheet as of December 31, 200X			
ASSETS		LIABILITIES AND OWNER'S EQUITY	
CURRENT		CURRENT	
Cash	\$25,000	Accounts Payable and Accrued Liabilities	\$475,000
Accounts Receivable	215,000	Income Taxes Payable	10,000
Inventory	900,000	Due to Shareholder	275,000
Prepaid Expenses	10,000	Royalties Payable to Franchisor	60,000
Total Current Assets	\$1,150,000	Current Portion of Capital Lease Obligation	20,000
		Total Current Liabilities	\$840,000
FIXED		FIXED	
Equipment	10,000	Capital Lease Obligation	25,000
Automotive	5,000		
Furniture & Fixtures	25,000		
Leasehold Improvements	15,000		
Computer Equipment	20,000	OWNER'S EQUITY	
Signs	1,000	Capital Stock	1,000
Total Fixed Assets	\$76,000	Retained Earnings	360,000
TOTAL ASSETS	\$1,226,000	TOTAL LIABILITIES AND OWNER'S EQUITY	\$1,226,000

* Please note: Fixed Assets listed as the values net of accumulated depreciation

- Creditors are first in line to collect if a business becomes distressed. Equity holders (shareholders) are only entitled to the portion remaining once creditors have been paid off. One can use the BS to assess the debt-to-equity ratio of a business. The more debt on the balance sheet, the more *leveraged* a company is said to be. While debt can be very useful in bringing in the required resources to grow a business, it also increases the potential for financial distress.
- Liquidity can be assessed from the balance sheet. Liquidity refers to the speed by which an asset can be converted to cash. Assets are normally listed on the balance sheet in order of decreasing liquidity. Liquidity is very important, because the more liquid a business is, the less likely it is to experience financial distress.
- The reader of a BS must also be aware of the key difference between market value and book value. The values shown on the balance sheet for the firm's assets are book values – this represents what was actually paid for the assets at the time of purchase. That is why the BS out-

lines accounting values. Rarely does this value equal the market value – what the assets would be worth today if sold. Generally Accepted Accounting Principles (GAAP) requires that audited financial statements display assets at their book value. Due to inflation, book values are usually less than market values – however, GAAP rules are such that they reflect two key accounting principles: objectivity and conservatism.

2.2 The income statement

The income statement (IS) is a financial statement that summarizes the performance of the business over a stated period of time, generally one year. It is the financial statement that assists in measuring the profitability of a business. The income statement equation is: **Revenues – Expenses = Income**. The revenues of a business are usually referred to as the “top line” and the net income (income after taxes) as the “bottom line.”

The IS statement is usually prepared using GAAP. As a result, revenue is recorded when it

Sample income statement

PHARMACY ABC LIMITED	
Year Ended December 31, 200X	
SALES	\$6,500,000
COST OF SALES	
Opening Inventory	1,000,000
Purchases	4,500,000
Closing Inventory	(900,000)
	4,600,000
GROSS PROFIT	1,900,000
EXPENSES	
Amortization	27,000
Bank Charges and Interest	3,000
Credit Card Charges	10,000
Interest on Long-Term Debt	4,000
Penalties and Interest	5,000
Administrative Charges (Franchisor)	65,000
Advertising	60,000
Automotive and Delivery	30,000
Capital Tax	1,000
Courier	15,000
Entertainment and Meals	1,500
Equipment Rental	2,000
Insurance	10,000
Miscellaneous Store Expenses	8,000
Office	12,000
Professional Fees	35,000
Rent	220,000
Repairs and Maintenance	30,000
Royalties (to Franchisor)	273,000
Salaries and Benefits	900,000
Security	20,000
Taxes and Licenses	50,000
Telephone	8,000
Utilities	23,000
Total Expenses	1,812,500
PROFIT BEFORE TAXES	87,500
PROVISION FOR INCOME TAXES	6,000
NET PROFIT FOR THE YEAR	\$81,500

accrues. This is not necessarily when the cash is received. Revenue is often recognized at the time of sale, which need not be the same time as the time of collection. This creates accounts receivable (A/R). Costs shown on the income statement are based on the matching principle: revenues are matched with their associated costs and they are both recognized at the same time. The actual cash outflows to pay for the costs may have occurred at a very different time. This creates accounts payable (A/P). For example, the inventory used in generating revenue has to be recorded in the current period, but may not be paid for until sometime in the next period. Therefore, as a result of the method in which revenues and costs are realized, the figures shown on the income statement may not be at all representative of the actual cash inflows and outflows that occurred during that period.

The income statement also includes non-cash items. The most important non-cash item to be considered is depreciation – where the cost of an asset is written down over an extended period of time. Depreciation is another application of the matching principle because the revenues associated with an asset would generally occur over some length of time. As a result, the expense of purchasing an asset is matched with the benefits produced from owning it.

For example, if a business purchases a piece of equipment for \$10,000 and it is expected to have a working life of five years, and assuming it is written down in equal amounts over that period, every year for five years \$2,000 would be deducted from revenue as a depreciation expense. The important point here is that the \$2,000 deduction isn't cash, it is an accounting number employed in order to stay consistent with the matching principle.

The depreciation of common capital asset categories is governed by the Canada Revenue Agency (CRA). The annual depreciation write-off for tax purposes is referred to as the capital cost allowance (CCA). The CCA is subject to strict rules and limitations. Please visit the CRA website, www.cra-arc.gc.ca, for detailed rules concerning common capital asset classes such as computer hardware, software, furniture, and fixtures.

2.3 The cash flow statement

One of the most important pieces of financial information that can be obtained from financial statements is the change occurring in cash or cash flow for a company between two successive accounting periods. Cash flow simply refers to the difference between the dollars that come into a business in a given period and those that go out.

The purpose of the cash flow statement is to reveal the various types of cash flows within a

Sample cash flow statement

PHARMACY ABC LIMITED	
Statement of Cash Flows for the Year Ended December 31, 200X	
CASH FLOWS FROM OPERATING ACTIVITIES	
Net Profit for Fiscal Year	\$81,500
Adjustment for Amortization	27,000
	\$108,500
Changes in non-cash working capital items	
Accounts Receivable	(50,000)
Income Taxes	10,000
Inventory	100,000
Prepaid Expenses	500
Accounts Payables and Accrued Liabilities	(125,000)
Royalties Payable to Franchisor	(1,000)
	(65,500)
CASH FLOWS FROM INVESTING ACTIVITIES	
Purchase of Capital Assets	(5,000)
CASH FLOWS FROM FINANCING ACTIVITIES	
Advances to Shareholder	(1,000)
Repayment of Capital Lease Obligation	(17,000)
INCREASE IN CASH	\$20,000
CASH, BEGINNING OF YEAR	125,000
CASH, END OF YEAR	\$145,000
* Please note: Changes in non-cash working capital items are calculated by subtracting the start of year account balance from the end of year account balance. In the case of accounts receivable, there is a cash <i>outflow</i> because accounts receivables have <i>grown</i> by \$50,000 this year compared to last year.	

company. Cash flows relate to operating activities, investment in (or selling of) assets, and the issue (or redemption) of debt and equity.

The cash flow statement is often broken down into the following categories:

- **operating activities** (net profit, year-over-year changes in accounts receivable, etc.)
- **investing activities** (capital spending, payment of dividends, etc.)
- **financing activities** (issuing debt, paying off debt, issuing shares, etc.)

It is important to note the different types of cash flows. Operating cash flows measures the cash generated from the operations of the business. That number should usually be positive, because a company will be in trouble if operating cash flow is negative for an extended period of time. This means that the firm is not generating enough cash to pay operating costs. The total cash flow of the firm includes capital spending and additions to NWC. This number will frequently be negative because when a firm is growing, its spending on inventory and fixed assets can exceed cash flows from sales.

Examining cash flow can generate information that can be used in many ways. Many lenders will consider cash flow before extending loans, and many businesses will base their budgets for purchasing equipment and other fixed assets (capital budget) on an analysis of cash flow.

Another important point to consider with respect to cash flows is that net income is not cash flow. The two numbers are rarely the same. When looking at the economic and financial health of a business, cash flow is more revealing. In looking at our sample financial statements, while net profit for the year was \$81,500, the total cash flow for the year was only \$20,000. One reason for this discrepancy is that, as the note indicates on the cash flow statement, Pharmacy ABC allowed its accounts receivable to grow by \$50,000 over the previous year. This means that while the sales were made, the cash from an additional \$50,000 in sales has not been received.

3. Understanding key financial ratios

Successful managers will use financial statements and related information to calculate various financial ratios. Key financial ratios are used to analyze the success of various initiatives and decisions and to determine strategic areas that need to be addressed in the business.

We will examine key ratios that fall into the following categories:

- short-term solvency (liquidity) ratios
- turnover ratios
- financial leverage ratios
- profitability ratios

Generally speaking, pharmacy is a very stable and attractive business. The demand for pharmacy services (as measured by the number of prescriptions filled in one year) is increasing significantly each year thanks to the following factors:

- aging population
- earlier identification and treatment of chronic diseases
- direct-to-consumer advertising (DTCA) increasing product demand
- novel blockbuster products being developed and marketed every year

Despite the positive economic demand factors for pharmacy services, there is still the risk of business failure if the financial affairs of the business are not closely monitored.

3.1 Short-term solvency (liquidity) ratios

Short-term solvency (or liquidity) ratios are used primarily to assess a company's abilities to pay its bills over the short run without undue stress. These values would be very interesting to banks looking to lend money to a business.

Current ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

- The higher the current ratio, the better, considering that this ratio measures the current assets that can be quickly converted to cash relative to the cash obligations of a business in the short term. However, a higher ratio (greater than 2) might suggest that excess current assets are being used in the form of inventory or underemployed capital.
- One has to be careful in looking at this number in isolation. For example, if a company borrows a significant amount of money from the bank, the cash account might increase significantly in the period in question; however, there will only be a corresponding increase in long-term debt (long-term liability) and no effect on current liabilities. This will cause the current ratio number to be skewed.
- A low current ratio is not necessarily a bad sign for a company with a large reserve of untapped borrowing power.
- From our sample balance sheet, the current ratio = $1,150,000 \div 840,000 = 1.369$.

Acid-test ratio (quick ratio)

$$\text{Quick Ratio} = \frac{[(\text{Current Assets}) - (\text{Inventory})]}{\text{Current Liabilities}}$$

- Inventory is often the least liquid current asset.
- Large inventories can also be the sign of short-term trouble (drop in business, poor inventory

management, etc.) because a large part of liquidity is tied up in slow-moving inventory.

- This ratio provides an indicator for the financial strength or weakness of a business – usually the higher the number the stronger the financial position.

3.2 Turnover ratios

Turnover ratios are useful in indicating how efficiently a business uses its assets to generate sales. These are often referred to as asset utilization ratios.

Inventory turnover and days sales in inventory

In a community pharmacy, the dispensary inventory is calculated separately from the other departments in order to maximize the inventory turns and maintain an appropriate inventory level given the significant costs associated with dispensary inventory. This is critical to the pharmacy cash flow. If a typical dispensary has set a goal of seeing inventory turn at least 12 times per year, by efficiently using inventory control systems, inventory turns can be enhanced significantly.

Cost of Goods Sold (COGS) is calculated by taking the starting inventory balance for the period, adding all inventory purchases within that period, and subtracting the closing inventory balance for the period (see the sample income statement for an example).

$$\text{Inventory Turnover} = \frac{\text{COGS}}{\text{Inventory}}$$

- This ratio approximates the number of turnovers of the inventory over the course of a given period.
- The key is maximizing this ratio without having too little inventory on hand because insufficient inventory results in foregone sales as well the additional costs of owing customers (filling a prescription balance, label and container costs, etc.).
- Pharmacy ABC has inventory turnover = $4,600,000 \div 900,000 = 5.1$ turns/year

$$\text{Days Sales in Inventory} = \frac{365 \text{ days}}{\text{Inventory Turnover}}$$

- This number represents how long on average it takes to turn over the inventory

Receivables turnover and days in receivables

$$\text{Receivables Turnover} = \frac{\text{Sales}}{\text{Accounts Receivable}}$$

- While the inventory ratios provide some indica-

tion related to how fast a business is selling their products, the receivables ratios look at how fast a business is collecting on those sales

- Pharmacy ABC receivables turnover = $6,500,000 \div 215,000 = 30.2$

$$\text{Days in Receivables} = \frac{365 \text{ days}}{\text{Receivables Turnover}}$$

- This ratio is commonly referred to as the average collection period.
- Pharmacy ABC Days in Receivables = $365 \div 30.2 = 12$
- Pharmacy ABC has 12 days of sales in receivables.

Receivables ratios in pharmacy are very important because inventory is generally purchased from central distribution warehouses and/or wholesalers. As a result, these entities have significant control with respect to payment terms. If a pharmacy doesn't respect its payment terms, it will lose access to the inventory it needs. Supposing the days in receivables number is 60 days. If a pharmacy is required to pay for its merchandise within 30 days, that means that the pharmacy is in essence financing its customers for 30 days (60 days average collection period - 30 days taken to pay supplier = 30 days.) This can be a significant strain on working capital, especially for pharmacies that have a large number of individual patient accounts, or large institutional accounts such as nursing homes, long-term care facilities, as well as third-party payers, etc.

Another thing to consider with respect to collecting receivables in the pharmacy is how third parties reimburse the pharmacy. Some third parties such as governments usually pay twice a month on fixed days; others may offer the choice of how the pharmacy wants to be reimbursed, and may charge something to get "same-day money." This also holds true for credit card and Interac payments. This should be considered when making arrangements with wholesalers, banner groups, or banks.

3.3 Financial leverage ratios

These ratios are also known as long-term solvency ratios, and are intended to address the firm's long-term ability to meet its obligations. These ratios all measure debt, equity, and assets at book value. While market values would be preferable, they are often not readily available.

Total debt ratio

$$\text{Total Debt Ratio} = \frac{[(\text{Total Assets}) - (\text{Total Equity})]}{\text{Total Assets}}$$

- It is very difficult to determine an optimum level of debt for a company, as it is industry specific.
- In the case of community pharmacy practices (and other retail industries), where there are generally not significant recurring capital costs (such as research, exploration, manufacturing equipment, etc.), it is fair to assume that an optimal debt level is lower than in many other industries.
- Total Debt Ratio Pharmacy ABC: $(1,226,000 - 361,000) \div 1,226,000 = 0.70$

Times interest earned (TIE) ratio

$$\begin{aligned} \text{TIE} &= \frac{\text{(Earnings Before Interest and Taxes)}}{\text{Total Interest}} \\ &= \text{EBIT} \div \text{Total Interest} \end{aligned}$$

- This ratio measures how well a company has its interest obligations covered. Failure to meet these obligations can result in bankruptcy. It is useful in determining how likely a bank will be to extend further credit to the business
- Pharmacy ABC TIE = $87,500 \div 4,000$ (interest on long-term debt) = 21.9
- This ratio shows that Pharmacy ABC can easily cover its interest obligations based on current earnings.

Cash coverage ratio

$$\text{Cash Coverage Ratio} = \frac{[(\text{EBIT}) + \text{Depreciation}]}{\text{Interest}}$$

- A problem with the TIE ratio is that it is based on EBIT, which is not really a measure of cash available to pay interest because depreciation (a non-cash expense) has been deducted out.
- Since interest is a cash outflow to a creditor, it is more accurate to add the depreciation amount back into the earnings number.

3.4 Profitability ratios

These measures are probably the best known and most widely used of all financial ratios. They are excellent measures for pharmacy owners and managers looking to measure the success of initiatives implemented. These measures are also very useful to assist in making strategic decisions. These ratios are intended to measure how efficiently the pharmacy uses its assets and how efficiently the pharmacy manages its operations. The focus is on the net income - the bottom line.

Looking at profit margins is a very useful management tool because many aspects involved in maximizing margins are under the control of

a department manager. Profit margins can be affected by such things as poor pricing strategies, poor advertising, theft, returns, and damages.

Profit margin

$$\text{Profit Margin} = \text{Net income} \div \text{Sales}$$

- This ratio measures how much out of every dollar of sales a business actually keeps in earnings.
- Analyzing profit margins is essential in determining where to strategically allocate resources – both human and financial.
- For example, if a pharmacy has moved into selling home health care aids, but the business is slow, and there is a significant amount of competition in the area, it may have to discount its prices to move inventory. As a result, margins will be lower and may not justify the investment in inventory, marketing, product training for staff, etc.

Return on assets (ROA)

$$\text{ROA} = \text{Net Income} \div \text{Total Assets}$$

- This is a measure of profit per dollar of assets – an indication of the efficient use of assets.
- It is a measure of performance of all the financial resources.

Return on equity (ROE)

$$\text{ROE} = \text{Net Income} \div \text{Total Equity}$$

- This is a measure of how well shareholders in the business have done in a given period. It allows shareholders to measure the success of their investment in the business.
- It is very important to stress though that ROA and ROE are both accounting rates of return. These numbers are based on book values and not market value of assets or equity of a business.

4. Time value of money

The fundamental premise behind the time value of money is that a dollar in your hand today is worth more than a dollar promised at some point in the future. Underlying the time value of money is the concept of a rate of return. A practical interpretation of this finance fundamental is that you could be earning interest on your money if it were

invested in some fashion that produced a return. Also, the impact of inflation devalues the worth of a dollar, and managers must account for inflation in their budgets and financial planning.

It is also very useful for pharmacy owners and managers to be able to compare monetary amounts that are paid or received at different times. Therefore, it is critical to successful financial management to become comfortable with the concepts of the time value of money, present and future values, and rates of return.

The effects of inflation can be misleading. Take the example of \$1,000 of company money that is not invested in a meaningful way. Assuming a modest inflation rate of 3%, according to the formula:

$$\text{Future Value in } t \text{ years} = (\text{Present Value}) \div (1.03)^t$$

that \$1,000 would only be worth \$863 in 5 years.

Appropriate rates of return need to be considered when determining where to invest resources in the business. The time value of money reminds managers to consider the effects of inflation, and consider **real rates of return** (annual net percentage return adjusted for inflation) when evaluating performance. For example, if the business returns margins of 10% in a given period, given a 3% inflation rate, that needs to be adjusted to 7% (10% – rate of inflation) to provide a more accurate picture of performance.

4.1 Present and future values

- Present Value (PV) represents what future cash flows are worth today.
- Future Value (FV) represents what cash flows are worth in the future.
- The interest rate, rate of return, or discount rate per period is represented by r .
- The number of periods (typically years) is represented by t .
- The cash amount is represented by C .

FV of C invested at r percent for t periods:

$$\text{FV} = C \times (1+r)^t$$

PV of C to be received in t periods at a rate of return of r per period:

$$\text{PV} = C \div (1+r)^t$$

$$\text{PV} = \text{FV} \div (1+r)^t$$

For example, if Pharmacy ABC wants to know what the value today of a compounding business that it predicts will break even at the end of year one, and will make \$30,000 profit in year 2 and \$50,000 profit in year 3 (assuming inflation is 3% per year):

$$PV = 0 + [(\$30,000 \div (1.03)^2)] + [(\$50,000 \div (1.03)^3)]$$

$$PV = 0 + \$28,278 + \$45,758$$

$$PV = \$74,036$$

Therefore, just based on the impact of inflation alone, those future cash flows of \$80,000 over the next three years are actually only worth \$74,036 today. Therefore, the value of this project assuming these predictions are accurate, is \$74,000.

5. Inventories

We have previously discussed the importance of calculating inventory turnover. Inventory typically represents the largest current asset for community pharmacies. In today's competitive retail pharmacy landscape, inventory accounting methods and management practices have become profit generating tools. Community pharmacies need to invest in advanced inventory management systems, as poorly designed systems can drain profits and put your business at a competitive disadvantage to another pharmacy.

Inventory cost can be measured by using a periodic or perpetual inventory system. In a periodic system, cost of goods sold (COGS) is determined by adding purchases (P) to the beginning inventory (BI) and subtracting the ending inventory (EI). In a perpetual system, each receipt and each issue of an inventory item is recorded in the inventory records to maintain an up-to-date perpetual inventory balance at all times.

$$COGS = BI + P - EI$$

The more sophisticated perpetual inventory systems allow for detailed evaluation as to which prescription, over-the-counter, and front-store products are moving the most frequently. These systems allow for quicker decision making on inventory levels, product selection, etc. Given the significance of merchandise inventories to a retail outlet such as a community pharmacy, close examination of inventory levels can have a significant effect on margins and asset utilization. Within the dispensary, these systems also give you the control over the days supply parameter, and allow a pharmacy to only replace what is sold based on when the pharmacy will sell it. Many of these systems have a minimum-on-hand metric, which triggers a reorder up to a maximum amount. A good pharmacy software system will have an inventory control system that should be maximized. For the front store, a point-of-sale (POS) system will help manage the inventory much more closely.

It is also worthwhile to consider the various inventory costs. Carrying costs represent the direct and opportunity costs related to keeping inventory on hand. These include¹:

- storage and tracking costs
- human resources for handling expired goods
- insurance and taxes
- losses due to obsolescence, deterioration or theft
- the opportunity cost of capital on the invested amount
- restocking charges for returning excess inventory

The other types of costs associated with inventories are shortage costs. These are the costs associated with having inadequate levels of inventory on hand. Shortage costs for a pharmacy can include restocking costs, as well as the costs associated with filling balances owed for prescriptions already processed.

A basic trade-off in inventory management exists because carrying costs increase with inventory levels while shortage costs decline with increasing inventory levels.

The goal of inventory management should be to minimize the sum of the carrying costs of excessive inventory and the shortage costs associated with too little inventory.

6. Financial costs and managerial decision making

When evaluating a strategic course of action in the operation of a community pharmacy, it is necessary to consider the various costs when determining the business case for a certain initiative or in deciding where to allocate limited resources. For example, a pharmacy owner may be faced with the decision of investing in acquiring the necessary equipment and building an infrastructure for servicing nursing homes and long-term care facilities in the area, or investing in developing a specialty compounding practice. If this pharmacy does not have the space, human resources and/or resources to invest in both projects, how do we determine between the two choices?

There are a number of costs that need to be considered:

- variable and fixed costs
- sunk costs
- opportunity costs
- direct and indirect costs
- margin

Fixed costs are those that do not change when

the volume of sales changes during a given period of time. An example of a fixed cost would be construction costs on space for a specialty compounding laboratory within the pharmacy. Regardless of the output of products from the lab, the cost to construct the space would stay the same.

Variable costs are those that change when the volume of sales or production changes. These costs are zero when there are no sales. For example, as prescription volumes increase, the number of staff in the dispensary will need to increase as well. As the volume of sales increases for specialty compounded products, the demand for raw materials and inventory will change as well.

Sunk costs are those that have already been incurred and cannot be removed, and therefore should not be considered an investment decision. The cost cannot be changed by the decision to accept or reject a project – the pharmacy has to pay these costs no matter what. For example, if the management team of the pharmacy had decided to send a team of pharmacists and technicians for an all-expenses-paid trip to San Francisco as a reward for their performance during the previous period, and at the same time, to receive training in specialty compounding, this training is a sunk cost. Regardless of the decision to consider building a compounding lab and focus on marketing specialty products to the specialists and family physicians in the area, the pharmacy has already incurred these training/vacation costs, so these costs should not factor into our analysis of the project.

When we think of costs, we normally think of out-of-pocket costs, those that actually require spending money. An **opportunity cost** is somewhat different – it requires us to give up a benefit. The opportunity cost is the most valuable alternative that is given up if a particular investment is undertaken. For example, if the pharmacy owns the space in which it operates and purchased the retail space next door many years ago, the opportunity cost of building a specialty compounding laboratory in that space could be the value of selling or leasing that space to another business.

Direct costs are those that are directly attributable to the manufacturing of a product or the sale of a given product, whereas **indirect costs** are exactly the opposite – they are not directly attributable to the manufacturing or sale of a given product. These costs need to be considered when evaluating **profit margins**, which are the earnings remaining after paying off all expenses, expressed as a percentage of total revenue. For example, if total revenue from specialty compounding in one year is \$200,000, and the sum of the direct and indirect costs to achieve these revenues was \$160,000, then the profit margin for this area of the business in that period = $[(\$200,000 - \$160,000)] \div \$200,000 = 20\%$.

7. Other cost considerations in managerial decision making

Net working capital (NWC)

Normally a project requires that the pharmacy invest in NWC in addition to fixed assets (such as equipment in the case of the compounding lab). A project generally needs some amount of cash on hand to pay for expenses that arise. Also, a project will need an initial investment in inventories and perhaps in accounts receivable to cover any anticipated sales on credit. It is important to consider that the initial investment in NWC at the beginning of a project should be recovered later in the project as inventories are sold, receivables are collected, and bills are paid. Ideally, the pharmacy will supply working capital at the beginning of a project and recover it when the project matures or begins to wind down. There may also be ongoing NWC needs during the term of the project depending on the nature or length of the initiative.

Financing costs

In analyzing a proposed investment, financing costs (such as interest paid) are generally not included in the analysis because the pharmacy is interested in the cash flow generated by the assets of the project. Reviewing the cash flow statement, interest paid is a cash flow to creditors, not a cash flow from operations. The mix of debt or equity used to finance a project is a managerial variable and primarily determines how project cash flow (cash flow from operations) is divided between business owners and creditors (i.e., will the cash generated from operations be used to pay interest and debt or pay equity holders in the business?). This is not to suggest that project financing arrangements aren't important considerations; they are simply analyzed separately.

Cash break-even

A business needs to be very concerned about cash flow. If sales volume is the critical variable in analyzing a given project, we need to consider the relationship between sales volume and cash flow. The cash break-even analysis is used to determine the sales volume needed to pay for fixed expenses, taking into consideration the variable costs associated with those sales. To calculate it, use the following variables and equation²:

- Q = number of units sold
- P = sales price per unit
- VC = variable cost per unit
- OCF = operating cash flow
- FC = fixed costs

$$OCF = [(P - VC) \times Q] - FC$$

Cash break-even occurs when the $OCF = 0$. Therefore, the equation is rearranged to:

$$Q = (FC + OCF) \div (P - VC)$$

$$Q = (FC + 0) \div (P - VC)$$

$$Q = FC \div (P - VC)$$

8. Performance measurement using financial variables

A focus on quantitative analysis, and the accurate tracking of costs for a given project or business unit within the pharmacy allows for objective performance measurement. The time and investment in systems that track variable, fixed, sunk, direct, and indirect costs allow for very detailed performance measurement. This allows for the objective assessment of strategic decisions, budgetary planning for the next period, and benchmarks for compensation strategies for employees and managers involved in given projects.

The focus for any owner or manager when allocating resources within the business must be profitability. Profitability leads to sustainability, which allows for the pharmacy to better meet the needs of its employees and the clients they serve. Therefore, detailed performance measurement should be an integral part of any strategic decisions undertaken by the business.

Return on investment (ROI)

ROI is a very commonly used term in both the finance and management disciplines; however, it can mean different things to different people. The classic definition of ROI is based on cost-effectiveness. ROI is a measure of the pharmacy's (or a given project's) profitability, which is usually calculated by taking income divided by the investment required. In the case of the business as a whole, ROI is measured by looking at net income and the combination of equity and long-term debt investment. In the case of a given project or initiative, such as the development of a specialty compounding facility, the ROI is measured looking at the income generated relative to the investment into this specific project.

$$ROI = \text{income generated} \div \text{investment made}$$

ROI measures how effective spending is within the business.

Given that the ROI equation is essentially income divided by investment, a major drawback

of this measurement when used in isolation to support compensation structures or decisions is that it could result in decisions being made that are not in the best interest of the company. This is true in situations where costs are cut significantly to minimize investment and increase the ROI ratio. Excessive cost cutting without careful examination of the bigger effect on the business can have a very detrimental effect.

Return on sales (ROS)

Another measure of profitability, ROS is equal to a given period's pre-tax income divided by total sales, providing an insight into the amount of profit generated per dollar of sales.

$$ROS = \text{Gross income} \div \text{total sales}$$

$$ROS \text{ Pharmacy ABC Ltd.} = 87,500 \div 6,500,000 = 0.014 = 1.4\%$$

Therefore, the ROS for Pharmacy ABC Limited was only 1.4% based on sales of \$6,500,000.

Residual income (RI)

Residual income is a financial measure that seeks to overcome the limitations of ROI analysis. RI seeks to ensure that decisions that are good for the business as a whole (in both the short and long term) are made.

$$RI = \text{Income} - (\text{Required Rate of Return} \times \text{Overall Investment})$$

RI involves looking at the predicted income for a project and subtracting the required rate of return multiplied by the overall investment needed. The higher the RI value, the more significant the business case is for a given project.

For example, if the pharmacy decides that it needs to earn a 13% return on an investment to justify undertaking any project in that period (this equates nicely to a real rate of return of 10% if we consider inflation as being 3% in the current period), we can compare two separate projects.

Project 1: Investment in a Compounding Laboratory: \$100,000
Income for the Period: \$15,000
Required Rate of Return (RRR) = 13%
 $RI = \$15,000 - (0.13 \times \$100,000) = \$2,000$

Project 2: Investment in Nursing Home Servicing Infrastructure: \$350,000
Income for the Period = \$47,000
RRR = 13%
 $RI = \$47,000 - (0.13 \times \$350,000) = \$1,500$

9. Management and financial planning

9.1 Short-term considerations

There are a number of questions that pharmacists involved in the operations and management of a community pharmacy need to consider in the short term:

- How much money should be kept on hand to cover working capital needs?
- What credit terms should be extended to customers?
- What type and how much inventory should be kept on hand?
- Is there a need to borrow funds to cover short-term expenditures (like working capital needs)?

In the short term, managers need to consider their operating cycle and their cash cycle.

Operating cycle

The operating cycle is defined as the average time period between the acquisition of inventory and when cash is collected from receivables. In the chain community pharmacy business, there may be fewer receivables because a majority of purchases are paid for upon receipt of the prescription or purchase of front-store goods. The presence of large institutional accounts (e.g., long-term care facilities) or high-dollar patients who are extended credit to facilitate payment can affect the operating cycle.

$$\text{Operating Cycle} = \text{Inventory Period} + \text{Accounts Receivable Period}$$

where:

- Inventory Period is defined as the time it takes to acquire and sell inventory
- Accounts Receivable Period is defined as the time between the sale of inventory and the collection of the receivable

Cash cycle

The cash cycle is the time between cash disbursements to vendors and cash collection from customers. It is a measurement of the length of time in days that pass from when the pharmacy collects the cash from a sale to when the pharmacy actually pays for the inventory.

$$\text{Cash Cycle} = \text{Operating Cycle} - \text{Accounts Payable Period}$$

where:

- Accounts Payable Period is the time between receipt of inventory and payment for it

For example:

A pharmacy purchases \$100,000 in home health care products for a large customer. The invoice is paid 30 days after receipt of the inventory. That inventory is sold 15 days later on credit to the customer. That customer pays the bill 45 days later.

$$\text{Operating Cycle} = 45 \text{ days} + 45 \text{ days} = 90 \text{ days}$$

$$\text{Cash Cycle} = 90 \text{ days} - 30 \text{ days (time taken to pay for inventory)} = 60 \text{ days}$$

This cash cycle represents the time between paying for the merchandise and the time taken to receive payment from the customer.

These values assist in determining working capital needs of the business in the short term and help to highlight the performance of the company in collecting receivables and enhancing cash flow from operations. The longer the cash cycle, the greater the financing required to meet working capital requirements.

9.2 Long-term considerations

A lack of effective and thorough long-term planning is a commonly cited reason for the failure of many businesses in the Canadian marketplace. The basic elements of a meaningful longer-term financial plan include the following:

- Consideration of the capital budget – are there investment opportunities (e.g., specialty compounding, nursing home/LTC business) that will require investment in fixed assets?
- The debt to equity ratio of the business – is there room to borrow money for expansion or investment? What amount of borrowing is sought by the pharmacy to achieve its goals?
- Compensation strategies for key employees – consideration of profit sharing, dividends, etc.

When looking at financial needs, it is also useful to employ sensitivity analysis – looking at best case, worst case, and expected case scenarios, and how they relate to the strategic plan of the business moving forward.

Most financial planning models require the manager to specify some assumptions about the future. Based on these assumptions, the model generated predicts values for the variables that need to be considered. While models can vary significantly in their complexity, they should include the

following elements:

- Sales forecast – this variable is usually the driver, in that it will determine the value of a number of different variables.
- Asset requirements – the projected capital spending needs to be considered, as it has a significant effect on cash flow and potentially on borrowing needs.
- Estimations of any shortfalls or surpluses anticipated in financing based on the sales forecast and asset requirements
- Description of the economic environment and related assumptions (level of sales growth, anticipated interest rates on borrowing, corporate tax rates, etc.)

10. Employment income considerations

Pharmacists involved in the operation and/or management of a pharmacy may have some flexibility in how their income from the business is generated – beyond just a standard hourly wage or fixed salary. To maximize the availability of after-tax funds and minimize total corporate and personal taxes, an owner/manager should consider the appropriate mix of salary and dividends to receive as compensation.

The following factors should be considered³:

- Income taken out of the business as salary or bonus is taxed the same, and generally speaking for high income earners, salary or bonus income is taxed at a higher rate than income taken out of the business as a dividend.
- Whether tax credits or losses are available to reduce corporate tax otherwise to thereby potentially minimize the need to draw salaries from the business instead of dividend income which is taxed more favorably than salary income.
- Salary or bonus compensation in the current period creates earned income necessary for RRSP contributions in the subsequent year, whereas dividend income does not count toward earning RRSP contribution room. Therefore pharmacists looking to earn RRSP room and make annual RRSP contributions need to earn salary or bonus income.
- Share redemption or reduction of shareholder advances to a corporation as an alternative to paying either dividends or salary can result in a tax-free return of paid-up capital or debt.

Any bonuses declared can be deducted from

current taxable income within the company, provided bonuses are paid out within 180 days of the end of the fiscal year.

References

1. Beechy TH, Conrod JED. *Intermediate Accounting*. 2nd Ed. Toronto: McGraw-Hill Ryerson Limited; 2002.
2. Ross SA, Westerfield RW, Jordan BD et al. *Fundamentals of Corporate Finance*. 4th Ed. Toronto: McGraw-Hill Ryerson Limited; 2002.
3. Buckstein, J. *Personal Tax Planning 2004/2005*. Toronto: Certified General Accountants of Ontario; 2004.

Questions

1. The cash flow statement breaks cash flow down into all of the following categories except:
 - a. investing activities
 - b. divisional activities
 - c. operating activities
 - d. financing activities
2. What statement best describes the relationship between accounting values and market values?
 - a. Accounting values are generally lower than market values.
 - b. Accounting values are generally higher than market values.
 - c. Accounting values are generally equal in value to market values.
 - d. Accounting values consider the effect of inflation, whereas market values do not.
3. Which of the following are non-cash transactions?
 - a. issue of equity from the company treasury
 - b. purchase of a fixed asset
 - c. purchase of a current asset
 - d. depreciation on purchased equipment
4. Which of the following items could have a positive effect on net working capital (NWC)?
 - a. collection of accounts receivable
 - b. reduction in accounts payable
 - c. purchase of fixed assets
 - d. securing short-term bank financing
5. Which profitability ratio is most useful to a manager of an established retail business with significant real estate holdings in determining performance for the year?
 - a. Return on Assets (ROI)
 - b. Return on Equity (ROE)
 - c. Profit Margin
 - d. both a and b
6. What's the present value of a \$10,000 payment to be received in 36 months' time, assuming that inflation is expected to run at 3% per year over that period of time?
 - a. \$8,890
 - b. \$9,151
 - c. \$10,000
 - d. \$10,927

7. Using residual income (RI) as a decision making tool, and assuming the revenue, costing, and total investment estimations for a three-year period have been agreed upon by the management team, which project is the most attractive if management is looking for a required rate of return of 50% for the three-year period as a whole? Which project is least favorable?

Project 1: Creation of a specialty compounding lab
Projected Income: \$155,000
Projected Investment: \$250,000

Project 2: Development of a niche market in homeopathy and natural products
Projected Income: \$60,000
Projected Investment: \$100,000

Project 3: Hiring of a regular part-time pharmacist for paid patient consultations on women's health
Projected Income: \$ 120,000
Projected Investment: \$180,000

- a. Most favourable: Project 1; Least favourable: Project 3
 - b. Most favourable: Project 2; Least favourable: Project 1
 - c. Most favourable: Projects 1 and 3; Least favourable: Project 2
 - d. Most favourable Projects 2 and 3; Least favourable: Project 1
8. Which is not a consideration that management needs to concern itself with in short-term planning?
- a. minimizing front store inventories and increasing prescription drug inventories
 - b. obtaining an extension on an operating line of credit
 - c. whether or not to consider purchasing dispensary automation equipment
 - d. reviewing customer accounts
9. Which of the following increases the length of the cash cycle period?
- a. increased inventory turnover
 - b. extended customer credit terms
 - c. taking discounts on early payment of outstanding invoices
 - d. b and c

10. What situation below would not necessarily have an impact on return on investment (ROI) calculations?
- decreasing dispensary staff hours
 - declaring a dividend at the end of the fiscal year
 - leasing instead of buying equipment
 - decreasing inventory levels
11. What factor below is a reason for differences between the income statement and cash flow statement?
- The income statement looks at periods of one year.
 - The income statement is concerned with net income whereas the cash flow statement is not.
 - The income statement does not consider non-cash items.
 - The income statement considers depreciation.
12. The following is *false* with respect to the current ratio
- It only considers short-term assets and liabilities.
 - A low current ratio is a sign of significant financial distress.
 - It can be skewed by the securing of long-term debt.
 - None of the above.
13. The Acid-Test Ratio can help to determine all but one of the following:
- average margins
 - a drop in business
 - poor inventory management
 - financial distress
14. Which financial statement is a snapshot in time?
- cash flow statement
 - income statement
 - balance sheet
 - b and c
15. An understanding of Net Working Capital (NWC) is critical for what reason?
- forecasting the need for capital spending
 - forecasting cash requirements
 - calculating the number of outstanding accounts
 - establishing credit terms
16. Which financial statement is best used to determine liquidity?
- balance sheet
 - income statement
 - cash flow statement
 - statement of retained earnings (shareholders' equity)
17. Financial leverage ratios all measure:
- equity
 - market value of assets
 - share price
 - none of the above
18. Which financial leverage ratio is the most useful in determining long-term solvency for a company with a significant amount of long-term debt, and hence a significant interest burden?
- total debt ratio
 - times interest earned ratio
 - cash coverage ratio
 - debt/equity ratio
19. Which of the following is an inventory carrying cost?
- increase in shipping rates
 - a backorder of merchandise from the manufacturer
 - customer return
 - insurance
20. Which of the following is true from income derived from a business?
- Salary and dividend income are treated in the same way.
 - Salary and bonus income are treated in the same way.
 - Salary and dividend income count toward RRSP contributions in the next period.
 - Salary and dividend income count toward RRSP contributions in the current period.