

On Financial Statements Modelling and Fundamental Analysis

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Preface

This is the **first** workshop in a series of workshops/training events that are designed to fill the gap between financial theory and its practical applications. The main objective of this series of workshops is to provide the participants with hands-on training in various financial and business applications that cover a wide variety of topics such as financial analysis, fundamental and technical analysis, financial planning, portfolio selection and assets allocation, Value at Risk (VaR) and risk management. The workshops are designed, in particular, for students majoring in business, finance, accounting, and economics, and in general, for practitioners in the finance industry.

The main objective of this workshop is to show how financial analysts analyze and **project** the financial statements pertaining to a particular corporation. The results of the analysis can further be used to find the intrinsic value of the corporation, which is the actual value of its common stock. The process of valuing the intrinsic value of assets is known as **fundamental analysis**. This constitutes the second objective of the workshop.

In terms of content, the workshop covers four topics: **market analysis**, **data analysis**, **financial modelling**, and **fundamental analysis**. The first topic analyzes the macro and micro environments of financial corporations. The topic also discusses the various market structures in which firms may operate and the nature of competition in each structure. Analyzing the micro and macro environment of a financial firm is the first step in performing any financial analysis.

The second topic explores the various sources of data used by financial analysts to analyze, model, and project the financial statements of a typical financial corporation. In general, the sources of data can be classified into **primary sources** and **secondary sources**. The former sources include data obtained from the **Annual and Quarterly reports** prepared by the company itself as well as from the **Public Conferences Calls** hosted by the company after the publication of these reports. The latter sources include data provided from third parties (e.g., Bloomberg and Standard & Poor), sell-side analysts' reports, and industry reports. Both sources are analyzed thoroughly in the workshop.

The third topic discusses the analysis of financial statements, i.e., Income Statements, Balance Sheets, and Statements of Cash Flows. This topic is considered the core of the workshop. Participants will learn how to project the financial statements pertaining to a particular corporation over a future period of time known as the forecast horizon. The projected financial statements can then be used as guidelines on the firm's profitability and financial soundness. These guidelines, in turn, are used to find the real value of the corporation. The last statement is about fundamental analysis, which is the last topic in the workshop.

Although the focus of the workshop is on the analysis and projection of financial statements, there will be an emphasis on how to use Bloomberg's platform¹ to extract and analyze various financial data pertaining to financial corporations whose stocks are traded on Standard and

¹Bloomberg was founded by Michael Bloomberg and partners in 1981. The mission of the platform is to bring transparency to capital markets by gathering relevant information and providing access to users around the world. Today, Bloomberg has more than 15,000 employees in 192 locations in 72 countries around the globe. The platform offers financial data and multiple services for users to make sound financial decisions.

Poor Toronto Stock Exchange (SPTSX). For the sake of illustration, one specific publicly-traded company (Tim Hortons) will be used as an actual example for demonstration.

Chapter 1

Bloomberg Terminal Functionality

1.1 What is Bloomberg?

Bloomberg was founded in 1981 by **Michael Bloomberg** with the mission to bring transparency to capital markets by gathering relevant information and providing access to users around the world. Today, it has more than 15,000 employees in 192 locations in 72 countries around the globe.

Bloomberg offers multiple products: Bloomberg Professional Service, Bloomberg Enterprise Solutions, Bloomberg Business Solutions, Bloomberg Trade book, and Bloomberg News. The main segment that will be used and explored in this manual is the **Bloomberg Professional Service**.

Bloomberg Professional Service provides access to news, analytics, communication, charts, liquidity, functionalities, and execution services available for users to make sound financial decisions. There are over 30,000 unique analytics and billions of data points available on the system. It is a platform that is driven by menus. All information is organized into different categories that are searchable by selecting the category on the menu as shown in Figure 1.1.

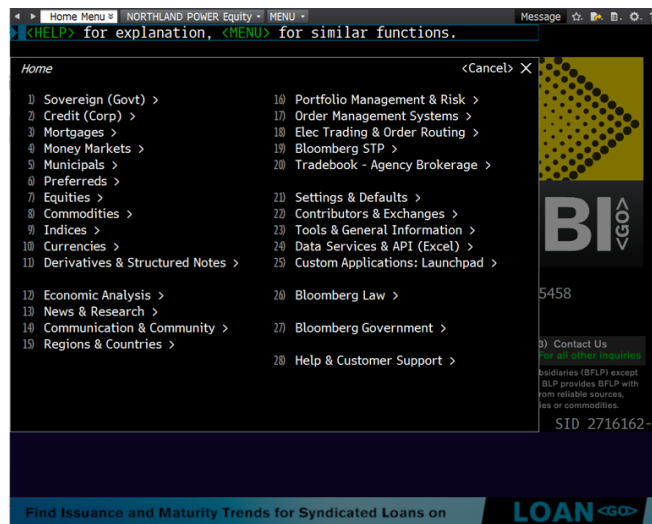


Figure 1.1: Bloomberg Professional Service home menu.

1.2 Getting Started: Creating an Account

Here are the steps you need to follow in order to create a Bloomberg account¹.

1. Initialize Bloomberg application by choosing its shortcut icon located on the desktop of your computer. This will open Bloomberg's login window as shown in Figure 1.2.



Figure 1.2: Bloomberg's login window.

2. Select your preferred language on the welcome screen and press "Enter" or <GO> to login.
3. Choose "Create a New Login" tab located at the bottom of the login page as shown from Figure 1.3.

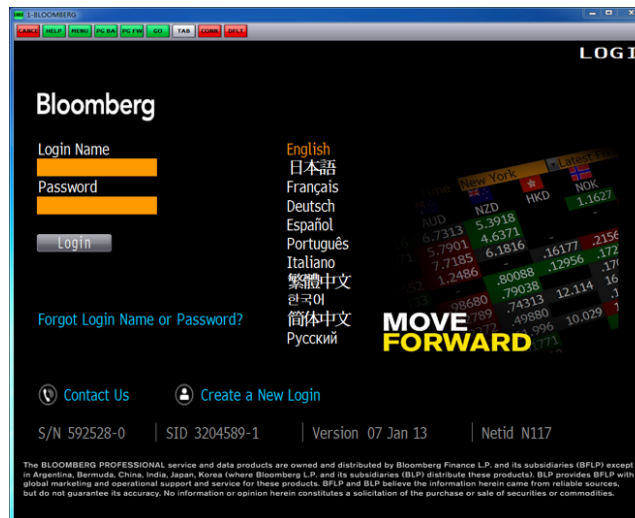


Figure 1.3: "Create New Login" tab on Bloomberg's login page.

¹Note that a cellphone is needed to create an account.

4. Fill out the application form as indicated².
5. Select your cell phone number to receive the validation code. The validation code will be received via a text message on your cell phone within two minutes of your registration. If the text message is not delivered within 5 minutes, press the "MENU" key on the Bloomberg keyboard to return back to the User Information page and re-enter your cell phone by choosing "Option 2" as shown in Figure 1.4.

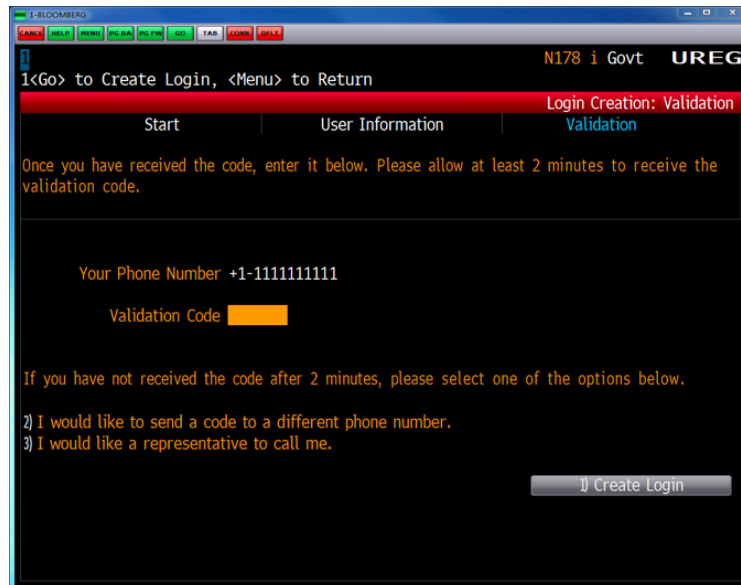


Figure 1.4: Validation code.

6. Once the code is validated, choose "Create Login" and finish all necessary registration steps.
7. Go back to the login page and enter your login information: your user name and password.

Now, since we are done with the registration, let us introduce some commonly used Bloomberg terminology.

1.3 Getting Started: Bloomberg Terminology

The first step to learning how to use Bloomberg terminal is to get familiarized with Bloomberg's operating system. Once you are logged into the system, four Bloomberg windows will appear. Each window is divided into four sections: **toolbar**, **command line**, **function area**, and **information panel** as shown in Figure 1.5.

The toolbar includes the menu button and a drop-down list of recent securities that you've searched within the window. The right side of the toolbar displays icons that help you perform some basic tasks such as exporting data to Excel, accessing Help, or adjusting your defaults and display.

The command line is the blue search box on top of the page as shown from Figure 1.5. It can be used to search any page displayed in the Bloomberg window. These pages are called

²All fields on the screen must be filled in order to proceed.

functions or **monitors**. If the user wishes to access any monitor, he or she can either type the exact function command code³ in the command line or type keywords in the command line and choose from the different suggestions which appear in a dropdown menu. The latter feature is known as Bloomberg's **autocomplete** feature.

The **function area** shows you the content of the function or monitor which is displayed. It contains data and information pertaining to the displayed monitor.

Finally, the **information panel** at the bottom of Bloomberg's window displays Bloomberg news and other features.



Figure 1.5: The four sections of Bloomberg Panel.

1.4 Bloomberg Keyboard

While a regular keyboard can be used, Bloomberg keyboard (see Figure 1.6) offers easier navigation.

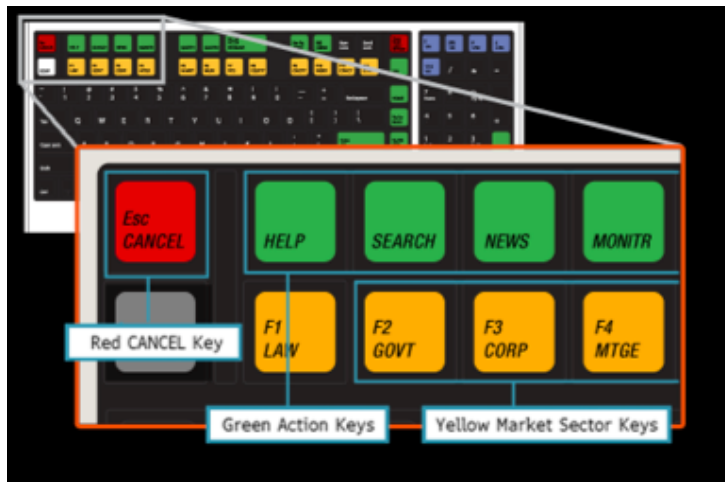


Figure 1.6: Bloomberg Keyboard.

³Each page has its own command code.

Bloomberg keyboard has the unique feature of having a colorful keypad. In particular, it has yellow, green, red, and blue keys. These keys help you access information quickly and easily, without using your mouse. It often has built-in speakers and a fingerprint scanner. Below is a brief description of each color and the functions of its keys.

1. Red keys are called “**STOP**” keys. There are two red keys in any Bloomberg’s keyboard:
 - (a) The **CANCEL** key, which is found on the upper left corner of the keyboard, is used when you want to restart from the **home** page. It clears the panel of any research that you’ve done, and takes you back to the main **home** page, which is like the **index** page of a website. The home page provides users with information on how to contact the account and/or product manager. By clicking on the account manager on the page, you can send a direct message to him/her.
 - (b) The **CONN DEFAULT** key, which is found on the upper right corner of the keyboard is the second red key, is used to login or logout of the system.
2. Green keys, located on the top row of Bloomberg keyboard, are called “**ACTION**” keys. The following are some useful green keys:
 - (a) The **HELP** key displays all functionality and information about the screen you are currently viewing. The command line to initiate this key is <HELP>.
 - (b) The **HELP HELP** connects you to the Bloomberg help desk, where a Bloomberg specialist will be able to immediately answer all questions related to the Bloomberg platform. You can access this functionality by pressing the HELP key twice.
 - (c) The **SEARCH** key is a search tool that allows users the ability to be able to explore all categories of Bloomberg Professional Service information, including functions, securities, companies and people. The results are grouped by category and relevance. The command line to initiate this key is <HL>.
 - (d) The **NEWS** key provides users access to real-time news from thousands of different sources, including Bloomberg’s exclusive news coverage, from every corner of the world. News relevant to specific markets, regions, companies, issues, and people of interest to the user can be filtered and displayed. The command line to initiate this key is <N>.
 - (e) The **MESSAGE** key works exactly like an e-mail account. Using the message key, you can send and receive e-mails with attachments using your e-mail address that you provided when you created your Bloomberg account. The command line to initiate this key is <MSG>.
 - (f) The **PRINT** key prints the screenshot of any Bloomberg window.
 - (g) The **MENU** key helps you navigate between screens by returning you to the previous level in the menu of the related function. All Bloomberg functions are organized into menus that are classified by market sector or product type. Each menu is part of a hierarchy, starting from the lowest hierarchical individual functions up to the Bloomberg home menu. Each time you press this key, it sends you back through the menu hierarchy all the way to the home menu. The MENU key (or CANCEL key) can be used to close any unwanted popup windows.
 - (h) The **GO** key executes any command in the command line.
3. Yellow keys are market sectors keys. The following is a brief description on each key and its functionality.

- (a) **F1** is the **law** market sector key. It displays the Bloomberg's **law page** which contains legal functions that provides users access to legal content, proprietary company information, market data and world-class news.
- (b) **F2** is the **government** market sector key. it provides information on the sovereignty of the market sector.
- (c) **F3** is the **corporation** market sector key. It provides credit and fixed income information on public corporations.
- (d) **F4** is the **mortgage** market sector key. It provides information on market sector mortgages.
- (e) **F5** is the **money market** key. The money market is the market where short-term and more liquid securities are traded.
- (f) **F6** is the municipal fixed income market sector key.
- (g) **F7** is the preferred securities market sector key. It displays information on preferred shares and preferred dividends.
- (h) **F8** is the equity market sector key.
- (i) **F9** is the commodities markets sector key.
- (j) **F10** is the key which displays the different market indices such as S&P/TSX index, Nasdaq index, and LSX index.
- (k) **F11** is the foreign exchange market sector key.
- (l) **F12** is the **alpha** key of any portfolio available on Bloomberg⁴.

1.5 Useful Bloomberg Functions for Financial Statements Analysis

1.5.1 Description Function: <DES>

The <DES> function takes the user to the **Security Description** page, which provides an overview about the equity security and contains a list of functions that include more information about the security. The function can access financial and fundamental data for a specific equity security such as a common stock, warrant, mutual fund, equity option, synthetic option, exchange traded fund (ETF). It is divided into four pages, each providing different categories of financial information about the specific security such as **Profile, Issue Info, Ratio, Revenue & EPS**. Each section of the page contains summarized information from a security function. The user can access a function by either clicking on the heading of the subsection, entering the number in the command, or typing in the function mnemonic in the command line.

The **Profile** page provides general information of the company including short description and snapshot of key real-time data such as share price, earnings, estimates, corporate information, and management.

The **Issue Info** page provides a snapshot of the company's issues, offering, holdings, and ownership. It allows the user to quickly access the company's exchange and identifier information, as well as analyze its public offerings and holders data.

The **Ratios** page provides performance and financial ratio data for the security. It provides the user with a summary view of the key performance ratios taken from the Financial Analysis, <FA>, function. It includes information about the data period that the information covers, issuance data,

⁴Alpha is the excess returns on a portfolio of n stocks. It shows by how much the current portfolio exceeds the market portfolio.

per share data, cash flow analysis, growth ratios, profitability ratios, and the capital structure of the company.

The Revenue & EPS page provides a breakdown of the company's historical revenue and earnings per share (EPS) data. It also displays the revenue by geographical region and product segment. It provides the user a quick way to obtain a complete overview of the company's recent performance and identify relative regional and segment strengths and weaknesses.

1.5.2 Line Chart Function: <GP>

<GP> is a function that displays real-time stock price. It can display the information in the form of a graph or in the form of a table. It can also display news at specific point in time by clicking on the **News** button. Analysis of the stock chart can be done on the security by using the **Security/Study** function. The **Event** function provides information about significant events that happened since its Initial Public Offering (IPO) date such as dividend paid, stock split, or mergers and acquisitions.

1.5.3 Financial Analysis Function: <FA>

<FA> is the function used to access the **Financial Analysis** page, which provides users with financial data about the security. This page includes all available financial statements, ratio analysis, and other financial information regarding the security in table or graph form. The graph form can be accessed by clicking on the bar graph icon located beside each item. The function can be organized into different periods, e.g., quarterly data, or in different types of currency. You can also extract necessary financial items and customize your own page using the "**9) Custom**" tab. The financial information displayed on the page can be exported into a Microsoft Excel file by clicking on the "**98) Output**" output.

1.5.4 Relative Valuation Function: <RV>

The <RV> function displays information about the security's direct competitors or peer companies. It provides information about each company's multiples, ownership, market share, comparables and other relevant information necessary to conduct a full company comparables analysis. The information is Excel exportable as well.

1.5.5 Bloomberg Industry Function: <BI>

In addition to the Relative Valuation function, the **Bloomberg Industry** function, <BI>, provides access to more information. In particular, this function analyzes each industry within the financial markets. PepsiCo Inc, for example, is included in the **Food Manufacturing and Beverages** section, which is found under the **Consumer Staples Section** also called **Beverages Global**. You can choose to view the <BI> page differently, by clicking on any of the categories indicated on the left sidebar as shown in Figure 1.7.

Once you select an industry within the Bloomberg Industry page, another page will be displayed as shown in Figure 1.8, where the Beverage Industry is selected. Taking a closer look at the sidebar, we notice that it has changed from the main Bloomberg Industry page. It is now divided into three sections: **Analysis**, **Data Library** and **Monitor**. The Bloomberg Industry can be very useful for both quantitative and qualitative analysis. Functions such as **Bear and Bull**, **News/Research** and **Industry Primer** provide relevant qualitative information. Other functions such as **Company and Comp Sheets** provide quantitative information about the industry.

Functions under the **Monitor** section such as **Comp Sheets**, **Markets**, **Ownership** and **Coverage**, provide the same type of information to that of the **Relative Valuation** page. The Relative Valuation page might look like an extension of the Bloomberg Industry's Monitor section. However, it only displays the most relevant competitors according to specific criteria chosen by Bloomberg benchmarks. In contrast, the Bloomberg Industry's Monitor functions display all available competitors for the company and the corresponding market information. This allows the user the freedom to decide which companies are more comparable against the company.

As users become more familiar with using Bloomberg terminal, faster and more efficient ways of finding and extracting information will be discovered. We strongly recommend the new users to consult the following Bloomberg Professional Services to gain more confidence in dealing with Bloomberg terminal.

1. **Bloomberg University.** After watching the tutorial sessions and obtaining all four BESS certification, you can start attending seminars held in a Bloomberg office near you.
2. **Bloomberg Representative.** Users can talk to a Bloomberg specialist by pressing the **Help** key twice. The specialist will answer all questions regarding extracting information or navigating through the website thoroughly.
3. **Self Learning.** Users are advised to use the **Help** key whenever they feel lost within the system. By doing so, they can learn and discover new ways to search for information.



Figure 1.7: Bloomberg Industry page.



Figure 1.8: Bloomberg Industry beverages page.

Chapter 2

Introduction: Types of Business Organizations, How do they Behave? Where do they Operate?

This introductory chapter will set the stage for the main topic of this workshop: **financial statements Modelling**. To this end, it is best to start with a brief discussion on the types of business organizations, the economic behavior of a typical firm, and the various markets in which this firm can operate. We will cover these topics, respectively, in the following three sections.

2.1 Types of Business Organizations

In general, there are three forms of business organizations: (1) Sole Proprietorship, (2) Partnership, and (3) Corporation. In what follows, we give a brief discussion on each type followed by a summary of its key strengths and weaknesses.

2.1.1 Sole Proprietorship & Partnership

Sole proprietorship is a business owned by one person. It is easily and inexpensively formed and it is not subject to corporate income taxes. Any profit realized from the business is simply considered as part of the owner's personal income and, thus, is subject to personal income tax. The main disadvantage of this type of business is that the owner has unlimited liability; that is, in case of debts that exceed the total assets of the firm, the owner does not only lose the value of his or her company's total assets (after liquidation) but also some (or all) of his or her wealth can be taken away to satisfy these debts. Consider, for instance, Mr. Elliot, who is a sole owner. Suppose that the total assets of Mr. Elliot's company are \$20,000 and the total debts are worth \$25,000. Then, in this case, Mr. Elliot is legally obligated to pay \$5,000 from his own personal wealth to his debtors after liquidating his company to settle his debt. This unlimited liability property is considered the main disadvantage of a sole proprietorship. Another weakness could be due to the fact that it is difficult for the sole owner to obtain large sums of capital.

The second form of business organizations is partnership. In this type of business, partners could be **general** partners or **limited** partners. General partners run the business and are personally liable for all firm's debts (just like the case of a sole proprietorship). Limited partners do not run the business and their liability is only limited to their share in the company, i.e., in case of debt, they can only lose up to the amount they invested in the business.

2.1.2 Corporations

A corporation is a legal entity by itself. It is created by law and has the powers of an individual in the sense that it can sue and can be sued. A corporation makes profits or incurs losses. There are two ways for a corporation to raise funds (capital) to finance its operations: **debt financing** or **equity financing**. Debt financing is performed through issuing a debt instrument, e.g., a corporate bond.¹ Equity financing, on the other hand, is performed through issuing stocks in the financial market. The bond holders are the debtors of the corporation whereas the shareholders are its true owners. The corporation is obligated by law to pay the interest rate (cost of debt) on its issued bonds. However, there is no legal obligation on the corporation to distribute profits (dividends) to its shareholders. In a typical fiscal year, the net profit after tax (NPAT) can be partially or totally retained for the next year depending on the dividend policy of the corporation. If the NPAT is retained completely, shareholders will not receive any profit during that year. If, on the other hand, part of the NPAT is retained, the remainder will be distributed to the shareholders as dividends. It is worth noting that, although the shareholders are the true owners, they are referred to as **residual claimants**. This is because the company has to fulfill its obligations towards the bondholders (first claimants) first and then distribute dividends to the shareholders (if there is any profit left after paying the interest to the bondholders).

A common problem associated with any corporation is what is known as **the agency problem** or **the principal-agent problem**, where managers can be viewed as agents of the owners of the company who have hired them. The principal-agent problem arises from the fact that managers may place their personal goals ahead of the firm's goal, which is profit maximization. There are ways and means that shareholders can pursue to minimize this principal-agent problem; threat of firing and stock-based compensations strategy are examples.

As for the strengths (advantages) and weaknesses (or disadvantages) of a corporation, consider the following. The main advantage of corporations is that shareholders have **limited liability**, which ensures that they cannot lose more than what they have invested. As for the weaknesses, corporations are heavily taxed. In particular, any corporation is subject to **double taxation**: the earnings of the corporation are subject to **corporate tax**, and the earnings paid out to shareholders as dividends are subject to **income tax**. Another disadvantage is that corporations are subject to greater government regulations.

In addition to the previously mentioned types of private organizations, other types such as **state-owned enterprises**, which perform similarly to corporations but are owned by the government, and **non-profit organizations**, which provide goods and services to customers with the objective of just covering their costs, also exist. The revenue of the latter type of organizations is usually a combination of sales and donations. After this brief discussion on the different types of business organizations, let us now turn to the economic analysis of the behavior of a typical firm operating in any market structure.

2.2 Economic Analysis of a Firm's Behavior

We will start this section with a general statement regarding the behavior of **any** firm operating in **any** market structure: From an economic point of view, any firm operating in any market structure is pursuing one common goal, which is, simply, profit maximization. More formally, the firm's problem is to choose the **optimal input mix** which yields an **optimal quantity** of

¹A bond is a contractual agreement between the issuing firm and the bond holder by which the holder is entitled to receive a fixed payment every specific period of time till maturity. This fixed payment is computed based on a fixed interest rate (coupon rate) and is considered a cost for the issuing company and a return for the bond holder. For instance, a bond with a face value \$1000 and a coupon rate of 5% annually pays \$50 ($\$1000 \times 5\%$) every year till maturity. The 5% is considered the cost of issuing a debt instrument for the corporation. On the other hand, from the bond holder's perspective, the 5% is the rate of return realized on \$1000 investment.

output which achieves the **maximum profit**. For instance, for a typical firm using raw materials, machines, and labor as inputs in the production of a final product, the goal is to choose the best mix of inputs that produce an optimal amount output that yields the maximum profit for the firm. It turns out, as we will see shortly, that the necessary condition to ensure profit maximization for any firm is to produce up to an output level at which the marginal revenue generated from the last unit produced, MR , equals to its marginal cost, MC ; that is,

$$MR = MC \tag{2.1}$$

The **marginal revenue** is the additional revenue per additional unit produced. Mathematically, it is the first derivative of the total revenue, TR , function with respect to output q as

$$MR = \frac{d[TR]}{dq}. \tag{2.2}$$

For instance a \$5 marginal revenue means that an extra unit of output (one unit change in q) will generate \$5 extra in total revenue.

Similarly, the **marginal cost** of output is the additional cost per additional unit produced and it is expressed mathematically as the first derivative of the total cost function with respect to output as

$$MC = \frac{d[TC]}{dq}. \tag{2.3}$$

Since we are now clear regarding the definition of the marginal revenue and marginal cost of production, let us explain the meaning of the profit maximization condition. In particular, we are interested in answering the question: why any typical firm should produce up to the point where the marginal revenue generated from its last unit produced equal to its marginal cost. We shall begin with the intuition behind this condition, then we shall give a rigorous demonstration.

The rationale of achieving an optimal output is, like making any other optimal decision, based on reaching an **optimal plan**, where the firm (or the decision maker) has no tendency to deviate. In other words, an optimal plan is reached when a better alternative does not exist. In our case, the optimal output (the output where profit is at a maximum) is achieved when the marginal revenue of the last unit produced equals its marginal cost. To see why this is indeed the optimal plan, consider the following scenario. Suppose that the marginal revenue generated from the last unit sold exceeds its marginal cost of production; that is, $MR > MC$. It is clear that this output level produced is not the optimal output since the firm can still make more profit by increasing its production. The converse is also true; when $MC > MR$, the last unit of production is too costly for the firm and, therefore, the firm has an incentive to reduce output. The previous analysis suggests that the optimal plan is realized at a quantity of output such that the marginal revenue generated from the last unit equals to its marginal cost, i.e., when $MR = MC$. Once the firm reaches that level of output, it has no incentive to either increase or decrease production as it has reached an optimal plan (an optimal quantity of output).

Now, let us demonstrate this condition mathematically. Let q be the output produced by the firm under consideration. Let

$$\pi = TR - TC \tag{2.4}$$

be the firm's profit, which is defined as the difference between its total revenue and its total cost of production, where the total revenue is defined as the market price per unit, p , times the number of units sold; that is,

$$TR = pq, \tag{2.5}$$

and the total cost of production is defined as the sum of the firm's fixed cost, F , and its total variable cost, TVC , as

$$TC = F + TVC. \quad (2.6)$$

Assuming that the previous analysis is in the short-run² and suppose, for simplicity, that the firm under consideration is a price taker so that the market price p in (2.5) is constant, then the total revenue function is a straight line originating from the origin and sloping upward with a constant slope p as seen from Figure 2.1. As for the total cost function in the short-run, the theory of the firm³ states that it is increasing at increasing rate in the early stage of production and then it continues to increase but at a decreasing rate in the late stage as shown in Figure 2.1. A quick look at Figure 2.1, one can notice that the difference between both functions, i.e., π , is maximized at the maximum distance between the total cost curve and the total revenue. Since, geometrically, the distance between any two parallel lines is the maximum distance, then this implies that profit is maximized at the output level where the slope of the TR curve equals to the slope of the TC curve. The maximum profit condition is, thus,

$$\frac{\Delta TR_i}{\Delta q_i} = \frac{\Delta TC_i}{\Delta q_i},$$

or, simply,

$$MR_i = MC_i \quad (2.7)$$

for any firm i .

Observe that at the output level $q_1 < q^*$, where q^* is the optimal level of output, $MR > MC$. This is not optimal since the additional revenue generated from producing one extra unit of output exceeds the additional cost of production. The producer should increase his or her output. But, as output increases, the marginal cost of each extra unit will begin to increase as well until it is equal to the marginal revenue generated and that is when the producer stops, i.e., that is the level of output at which an optimal plan is reached. Using a similar argument, it is easy to see that the output level $q_2 > q^*$ is also not an optimal choice since, at that level, $MC > MR$, which means that the producer is incurring losses and thus, should reduce output. When output drops, the marginal cost of producing an extra unit will also drop until it is equal to the marginal revenue generated from producing an extra unit. Again, an optimal plan has been reached.

²The difference between the short-run and the long-run in production theory is that in the former only one factor of production is variable (labor) whereas, in the latter, all factors of production are variable. It is worth mentioning that as a result of this distinction, the shapes of the cost curves will differ in the short-run as opposed to the long-run. For more details on the theory of the firm (production and cost), see Fahmy, H. (2009). *Lecture Notes in Microeconomic Theory*, HF Consulting Co., Montreal, Canada.

³See Fahmy, H. (2009). *Lecture Notes in Microeconomic Theory*, HF Consulting Co., Montreal, Canada.

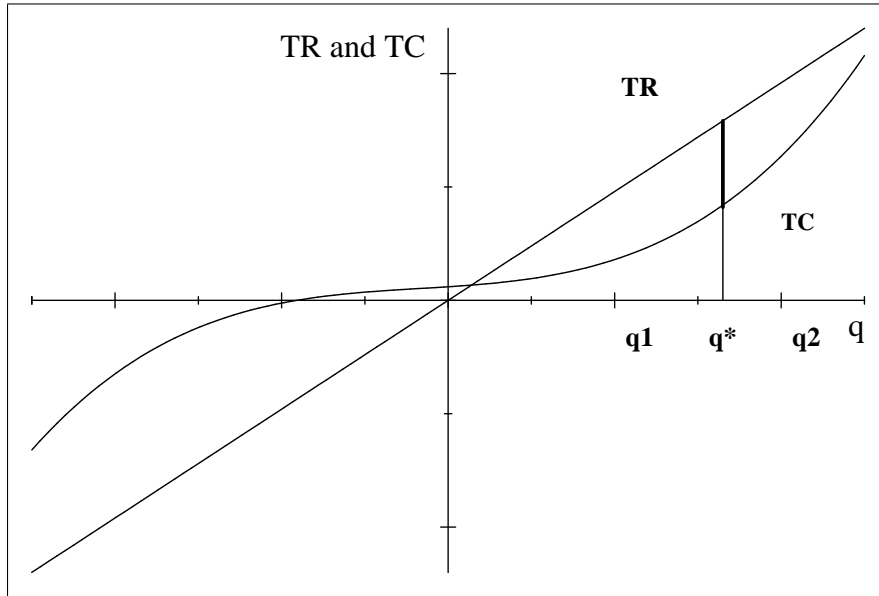


Figure 2.1: The total revenue and the total cost functions of a typical firm in the short-run. The profit maximization condition is such that $MR = MC$.

The following is an example to illustrate the profit maximization condition. Suppose you estimated the total revenue and the total cost functions pertaining to a HF Corporation as follows:

$$TR = 120q \quad (2.8)$$

and

$$TC = 4q^3 + 15q^2 + 12q + 30. \quad (2.9)$$

To find the output level that the firm should produce to achieve the maximum profit, we can make use of the profit maximizing condition and set the firm's marginal revenue equal to its marginal cost. We can then solve for the optimal output level as follows:

$$MR = 120,$$

$$MC = \frac{d[TC]}{dq} = 12q^2 + 30q + 12;$$

$$MR = MC \implies 120 = 12q^2 + 30q + 12,$$

or simply,

$$2q^2 + 5q - 18 = 0. \quad (2.10)$$

Solving for the roots of the quadratic equation in (2.10) yields the following two roots:

$$q = \frac{-5 \pm \sqrt{5^2 - 4(2)(-18)}}{2(2)} \implies q_1 = 2 \text{ and } q_2 = -\frac{9}{2}.$$

Ignoring the second negative root (since an output level cannot be negative), we conclude that this firm should produce up to an output level equal to 2 in order to maximize its profit.

2.3 Market Structure

Now we are ready for the analysis of the various market structures where our firm could be operating. Economists classify market structures into four types: (1) perfect competition, (2) monopoly, (3) monopolistic competition, and (4) oligopoly. Perfect competition is a kind of a benchmark structure. In other words, it is the **ideal**⁴ market that we as economists would like to see. Unfortunately, this market is too ideal so that it does not exist in real life. Being a hypothetical market though does not lessen its importance as a benchmark against which the performance of all other distorted markets can be measured. By distortion here I mean either **quantity distortion** or **price distortion** or both. A distorted quantity is a quantity above or below the equilibrium price. Similarly, a distorted price is a price that is above or below the equilibrium price. The price of a particular product and the corresponding quantity resulting from the hypothetical perfect competitive market are considered the equilibrium price and the equilibrium output, respectively, of that particular product. All prices and output levels resulting from any market structure other than perfect competition are distorted and the extent of distortion can be measured by contrasting these prices and quantities to their perfect competitive counterparts.

While, on one hand, the perfect competitive market is the most efficient and ideal market, on the other hand, the monopoly market is the least efficient and most distorted. A monopolist will always produce a quantity smaller than the perfect competitive output and will always charge a price higher than the perfect competitive price and, thus, causes both: quantity distortion and price distortion in the market. That's why some governments (including Canada) prohibit the formation of monopoly or cartels in the market. The following is a brief discussion on the characteristics of each market structure.

2.3.1 Perfect Competition

A perfect competitive market is a hypothetical structure built on the following assumptions:

1. There are many buyers and many sellers operating in such a market.
2. All firms sell homogeneous (exactly identical) products, i.e., the products sold have the same shape, same size, same color, same weight, and so on. Obviously, this assumption is not a realistic assumption. In reality, it is hard to find two identical products. The closest example would be **agricultural products**.
3. Since all producers in this market are selling homogeneous products, it follows that they are all **price takers**, i.e., they have no control over the market price. In business or economic terms, price control is referred to as "**market power**." Thus, in perfect competition, producers have no market power. The market price is determined by the interaction between the market supply and the market demand for the product. The resulting price is the equilibrium market price and all producers take that price as is.
4. We also assume **perfect information**; that is, consumers know the nature of the product sold and the price charged by each firm.
5. Each firm's output is small relative to the size of the industry's output.
6. Free entry to and exit from the market.

⁴The word "ideal" here means efficiency in terms of allocation of resources. This point will become clear shortly.

2.3.2 Monopoly

The second market structure is Monopoly. In this market there is only a single producer selling a single product that does not have close substitutes. Since the monopolist is the single producer, obviously he or she has full control over price if not regulated. As opposed to perfect competition, there are barriers to enter a market dominated by a monopolist. Having full market power, the monopolist can reduce the market price below the marginal cost of production of the potential entrant and, thus, preventing the latter from entering the market. It is worth mentioning that, in general, unregulated monopolies rarely persist over long periods because of the innovation of new production processes and new products in the long-run. However, a monopoly can continue to survive as a result of owning a patent or using predatory pricing.

Sometimes the nature of the industry itself forces a monopoly behavior. This is the case of a **natural monopoly**, where the average cost of producing any output declines with the scale of operations, i.e., the whole market might be supplied at least cost by a single firm. Usually this firm (the natural monopolist) is owned by the government. Trains, electricity, and utilities companies are all examples of natural monopolists.

An unregulated monopolist can exercise price discrimination among consumers by charging different prices to different units sold of the same products or different prices to the same number of units sold of the same products for reasons not associated with differences in cost. Basically, the price differences do not reflect the differences in costs, rather they reflect differences in buyer's valuations of the product.

The first type of discrimination (charging different prices to different units sold of the same product) is known as **perfect discrimination**. In practice, it is difficult to achieve this type of discrimination as the monopolist must be able to detect the willingness to pay for each consumer. In theory, if this is possible, i.e., if the monopolist is able to detect the willingness to pay (the demand curve) of his or her consumers, the monopolist can extract all of the consumer surplus by charging the maximum amount that they are willing to pay and thus, achieving a supernormal profit. In practice however, it is difficult to accurately estimate the willingness to pay of each customer. Although, perfect discrimination is very difficult to implement in reality, monopolists can still achieve the outcome realized under perfect discrimination by implementing a **two-part tariff pricing scheme**, where the consumers are charged a lump sum fee to enjoy the service provided by the monopolist and a price per unit consumed. The monopolist will set the fee equal to the consumer surplus and the price charged per unit equal to his/her MC of production. Examples of two-part tariff schemes implemented by monopolists are Disney Land in the United States and Wonderland in Canada.

The second type of discrimination (charging different prices to the same number of units sold of the same product) is commonly found in practice. Consider, for instance, the public transport agency in Montreal, Quebec, known as The Societe de Transport de Montreal (STM), which operates transit bus and rapid transit services in Montreal. This natural monopolist offers lower priced tickets to students and, thus, charges different prices to the same number of units sold of the same product.

2.3.3 Monopolistic Competition

The third market structure is monopolistic competition. This structure can be seen as a combination of monopoly and perfect competition; hence, its name. In this market structure, the industry, like perfect competition, is characterized by **many buyers and many sellers**, i.e., large number of small firms. The other feature which is similar to the monopoly structure is that the products sold in this market are **highly differentiated**, which implies that each firm acts as a monopolist in its own segment. Each firm capitalizes on its competitive advantage, i.e., each distinguishes itself from others by focusing on certain characteristics of its product to gain a competitive edge

Market Structure	Number of Firms	Types of Products	Price Control	Entry Barriers	Example
PC*	Many	homogeneous	no	free entry	Agriculture
Monopoly	1	single	full	high	Microsoft
Duopoly	2	slightly differentiated	some	high	Pepsi & Coke
Oligopoly	3-13	slightly differentiated	some	high	Steel
MC**	Many	highly differentiated	little	low	Clothing
* Perfect Competition					
** Monopolistic Competition					

Table 2.1: Various market structures.

in the market. This strategy leads to the establishment of brand names and advertising. This, in turn, gives the firm a degree of market power in its own market segment. This is the type of market that we experience every day. Examples of monopolistic competitive industries are clothing, cars, furniture, groceries, fast food, coffee, and so on.

The barriers to enter such a market are low. This, in turn, implies that competition is fierce and, thus, long-run equilibrium in such a market gives rise to **excess capacity**. The idea here is that in the long-run existing firms in a monopolistic competitive market will produce an output below their maximum capacity. This is due to the fact that there are low barriers to enter such a market so that when more firms enter in the long-run, the number of customers that each existing firm has will decrease, which, in turn, will result in excess capacity.

2.3.4 Oligopoly Market

The last market structure is the oligopoly market, which is characterized by a few number of producers (two or more firms, at least one of which has a large market share). Usually the number of firms varies between 2 to 10 or 13 firms at most. The most important feature of such a market is that all the existing firms are producing **slightly differentiated** products, which makes the follower firms' strategies contingent on the leaders' strategies. Due to this type of leader-follower setup, game theory is at the core of oligopoly market. Discussing game theory is an interesting topic by itself but, unfortunately, it is beyond the scope of this workshop and, for this reason, we will limit the following discussion to summarize the two strategies followed by firms operating in an oligopoly market.

Firms operating in an oligopoly market can follow either a cooperative strategy, i.e., **collusion**, or non-cooperative strategy, i.e., **competition**. If the few players in the market **collude**, they will form a monopoly structure, which of course is illegal, and thus explicit collusion is unlikely to happen. So, collusion in this market is most likely **implicit** (also known as tacit collusion). Since it is implicit collusion, each firm will have a tendency to deviate from the collusion agreement (cheat) to make more profit. The cheater will be tempted to sell more at the high collusion price and, thus, make more profit. Therefore, we can say the outcome of collusion, if it happens, will **not** be sustainable because of **cheating**. One way to make the outcome sustainable is to impose a **credible threat** in case of cheating. On the other hand, if the firms decide to follow a non-cooperative strategy, they will compete either in terms of prices or in terms of quantities. Whatever the type of competition is, they will have to play the game! Table 2.1 summarizes the characteristics of all types of market structures.

Chapter 3

Data Sources for Financial Analysts

The first step in Modelling and analyzing financial statements is acquiring data. There are many avenues a financial analyst can pursue when shopping for data pertaining to a specific firm. A convenient way to group these sources of data is to classify them into **primary sources** and **secondary sources**. The former source includes data obtained from the **Annual and Quarterly reports** prepared by the company itself as well as from the **Public Conferences Calls** hosted by the company after the publication of these reports. The latter includes data provided from third parties (e.g., Bloomberg and Standard & Poor), sell-side analysts' reports, and industry reports. Both types (the primary and the secondary data sources) are discussed in detail in the following section.

3.1 Primary Data Sources

3.1.1 Annual and Quarterly Reports

Annual and Quarterly Reports are among the primary sources of data for financial analysts. **Annual Reports** are prepared by the company management for the purpose of providing investors and other stakeholders information on the company's operations, financial numbers and business conditions. Some of these reports are mandatory, i.e., enforced by regulators, whereas others are prepared solely for the shareholders of the corporation. The purpose of the mandatory reports is to ensure full disclosure and transparency of information. This results in a healthy investment environment; a well informed investor tends to make rational investment decisions, which, in turn, guarantees the existence of an efficient capital market. For corporations listed in the United States, mandatory Annual Reports enforced by U.S. regulators are called **10-K Reports**. For those listed in Canada, mandatory reports are called **Annual Information Forms**, or **AIF** for short. For companies cross-listed on both Canadian and U.S. exchanges, the regulatory form used is called **40-F**. In addition to the 10-K or AIF Reports, most corporations often prepare **Annual Reports** for their owners (shareholders). Those reports contain a **letter from the firm's Chief Executive Officer** or Chairman, a **Management Discussion & Analysis (MD&A)** section, and a **full set of financial statements** (Balance Sheet, Income Statement and Cash Flow Statements).¹

A **Quarterly Report** is just a detailed version of an Annual Report. In the U.S., a Quarterly Report is called **10-Q** Report. In Canada, there is no equivalent of a Quarterly Annual Information

¹In order to reduce the cost of disclosure, some corporations issue a more detailed 10-K or AIF designed to meet the regulatory disclosure requirements and, at the same time, provides the necessary information for shareholders.

Form. Usually the Quarterly Report is much shorter and contains less detailed discussions on the business conditions or operations. Financial disclosure in Quarterly Reports is less thorough than the disclosure in Annual Reports. For instance, an Income Statement in a Quarterly Report might display depreciation expense as part of the cost of goods sold and not as a separate entity as in the case of a detailed Annual Report.

In what follows, we give a step-by-step analysis on how to locate a company's mandatory reports (10-K or AIF reports) as well as its Annual or Quarterly Reports. We will use Tim Hortons Incorporation for demonstration.

Step-by-Step Instructions for locating Tim Hortons' Annual or Quarterly Report

The person or the department responsible for handling inquiries from shareholders, investors, and others who might be interested in the financial position of the company is known as **Investor Relations**. This is our starting point to learn about the Annual or Quarterly Reports issued by Tim Hortons. We proceed as follows:

1. Go to **Tim Hortons'** website, choose **"About Us"** tab and select the **"Investors Relations Home"** link as shown in Figure 3.1. You can also Google **"Tim Hortons' Investor Relations"** and the search engine will display the link to Tim Hortons' investor relations page.

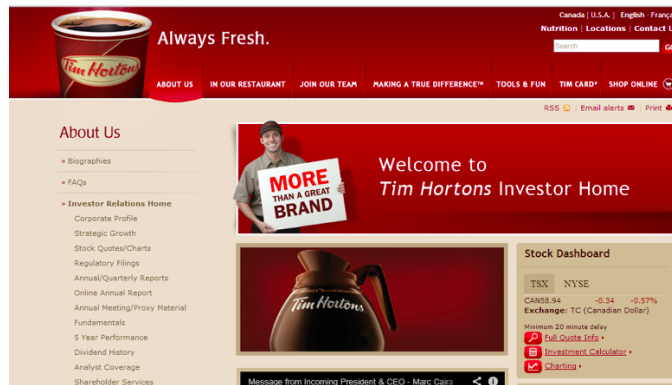


Figure 3.1: Tim Hortons' investor relations page.

2. On the side tab, select **"Annual/Quarterly Reports."** The page will display all of the company's Annual/or Quarterly Reports, which will be available to download in PDF file

format as shown in Figure 3.2.

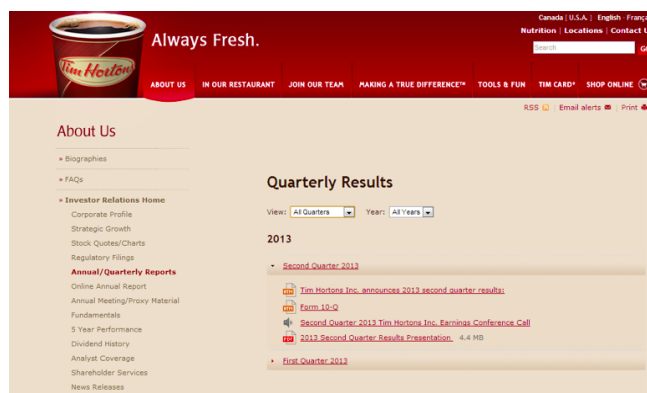


Figure 3.2: Tim Hortons' Annual and Quarterly Reports.

Overall, this process is the same for any corporation; find the company's **Investor Relations** page and navigate your way to the financial reports. Now, we turn to the mandatory reports.

Step-by-Step Instructions for Locating Mandatory Reports: EDGAR & SEDAR Systems

In the United States, mandatory reports filed by corporations are kept in an **Electronic Data Gathering and Retrieval** system or **EDGAR** system² for short. This system is provided by the United States Securities and Exchange Commission. There are many files in this system but the ones that we are interested in are the following:

- The **10-K Report**, which is filed annually to the U.S. Securities and Exchange Commission and contains information on business performance. This is a mandatory Annual Report that has to be filed by the corporation and must conform to the specific reporting requirements of the U.S. Securities and Exchange Commission. Some companies use their 10-K as their official Annual Report as well.
- The **10-Q Report**, which is a detailed version of the 10-K Report filed quarterly.
- The **8-K Report**, which is a report on unscheduled events or corporate changes that could be of importance for investors and shareholders.
- The **20-F Report**, which is a 10-K report filed by non U.S. companies.
- The **40-F Report**, which is a hybrid of an AIF and an 10-K report and is filed by Canadian companies wishing to offer their securities to U.S. investors.

Here is a step-by-step screen-shot instructions on how to locate a 10-Q or 10-K Report on the U.S. Securities and Exchange Commission website.

²The EDGAR system can be accessed from the web address: <http://www.sec.gov/edgar.shtml>.

1. Open the home page link³ and choose the "Search for Company Filings" tab.

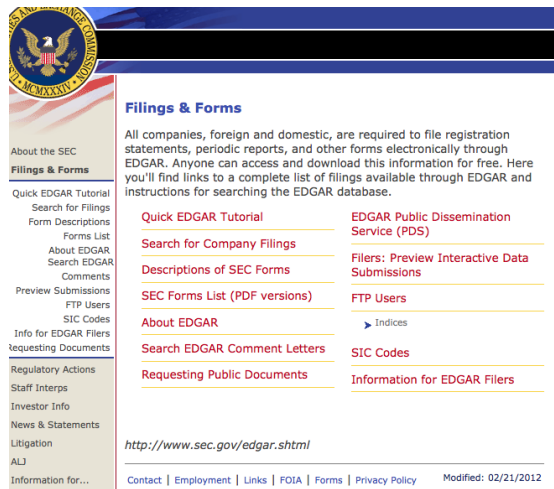


Figure 3.3: The United States' Electronic Data Gathering and Retrieval system or EDGAR system.

2. Choose the first option in the search menu, which reads: "company or fund name, ticker symbol, CIK (Central Index Key), file number, ..." as shown in Figure 3.4 below.

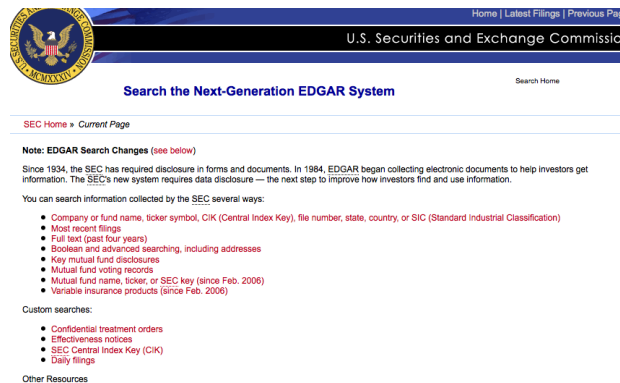


Figure 3.4: The Search menu of the EDGAR system.

3. Go to the "Fast Search" tab in the new opened window and enter the company's stock symbol or ticker symbol. This is the fastest and most efficient way of searching for filings since companies' subsidiaries may also have Securities and Exchange Commission filings, but we are only interested in the parent company's filings. Therefore, using the company's stock symbol or ticker is more efficient. Tim Hortons' ticker symbol for both U.S. and Canada is

³<http://www.sec.gov/edgar.shtml>.

THI as shown in Figure 3.5.

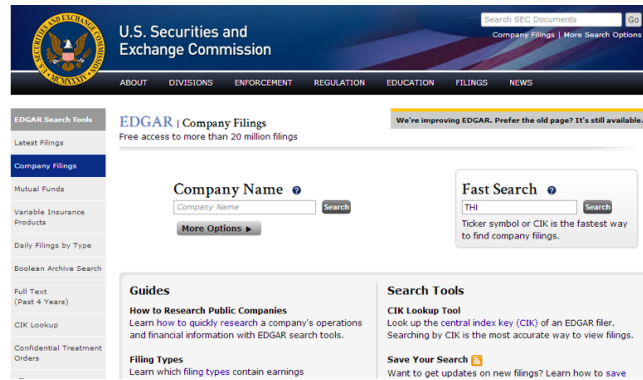


Figure 3.5: Using EDGAR system to search for company filing. Tim Hortons' ticker symbol is THI.

4. Finally, use the filing type sorter to find the filing you are looking for. For example, type in 10-K to find all Tim Hortons' 10-K Reports as shown from Figure 3.6.

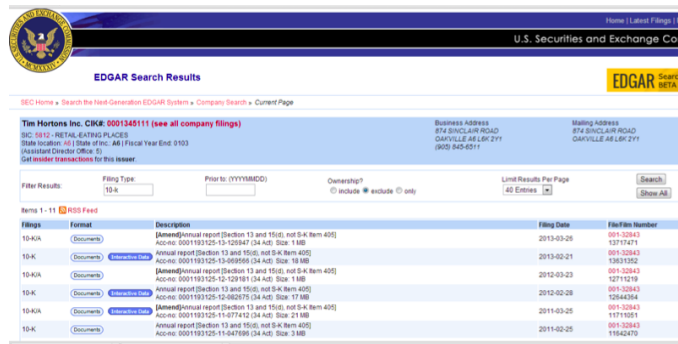


Figure 3.6: Tim Hortons' 10-K Report.

The **System for Electronic Document Analysis and Retrieval** or **SEDAR** for short is the Canadian equivalent of the EDGAR system⁴. Below is a step-by-step screen-shot instructions on how to locate an Annual Information Form and other files from SEDAR.

⁴SEDAR can be accessed from the web address: <http://www.sedar.com>.

1. Go to SEDAR home page and select your language.



Figure 3.7: The Canadian System for Electronic Document Analysis and Retrieval or SEDAR for short.

2. Choose the "Search Database" tab and select "Search for Public Company Documents."

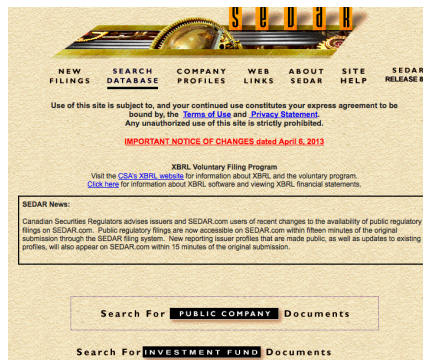


Figure 3.8: Searching for public company documents in SEDAR.

3. Fill in the company name (Tim Hortons) and, under document type, scroll to find the document of your choice, which is the Annual Information Form in our example, then click

on the link to download the file.



Figure 3.9: Locating and downloading Tim Hortons' Annual Information File.

3.1.2 Public Conferences Calls

The management of public companies usually hosts a public conference call after reporting the company's quarterly results. During the conference, the management presents its own remarks on the quarterly results and then holds a question & answer session for the public. Management's remarks involves its own assessment of the company, the trends in the industry (market analysis), and the expected future outlook of the company (future growth plans). The management's remarks and statements given during these conferences provide investors and analysts some sort of insight regarding the effectiveness of the corporation, its financial soundness, and the transparency of the management team in acknowledging the challenges that the company is facing and the actions taken to overcome these challenges. In addition to the management's remarks, the question & answer session is of crucial importance as it allows sell-side analysts (those who are employed by broker-dealers such as Goldman Sachs or Morgan Stanley) to ask the Chief Financial Officer of the company questions regarding the company's finances or operations. By listening to their answers, financial analysts gain further insight regarding the company's prospective plans and, consequently, adjust their financial model of the company accordingly. That's why public conferences are considered a valuable source of information for investors and financial analysts.

Conference calls are usually scheduled on the same day as when the company reports its quarterly results. The public can call in and listen to the conference call using the phone number published in the press release. Some companies offer a webcast version of the conference call on their investor relations webpage. Only limited companies provide free-transcript of their conference calls but Bloomberg users can find the transcript of the quarterly conference calls under the <EVT> security function. **Seeking Alpha**⁵ is another source for free conference call transcripts, but it requires registration.

To find historical webcasts of Tim Hortons' conference calls, use the same steps as those used to find the Annual and Quarterly Report (see the previous section). On the **Investor Relations'** home page, choose "**Annual/Quarterly Reports.**" A link will be provided to download an MP3

⁵<http://seekingalpha.com>.

version of the company's latest conference call.

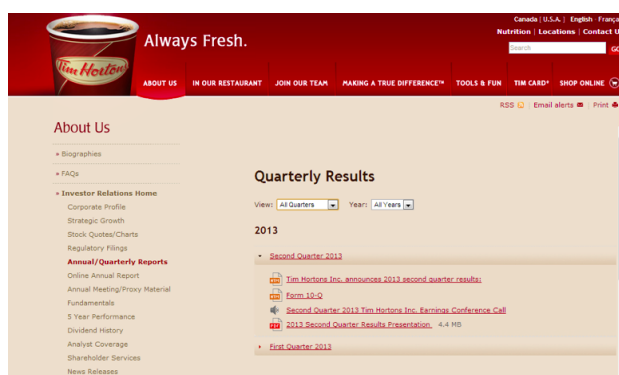


Figure 3.10: Historical webcasts of Tim Hortons's conference calls.

3.2 Secondary Data Sources

3.2.1 Third Party Providers

Third party providers such as **Bloomberg**, **Thomson First Call**, and **Standard & Poor** provide information such as consensus forecasts for public companies. These consensus numbers include forecasts of the company's earning per share (EPS) and revenue in the next fiscal year. Depending on the company, consensus numbers may include forecasts for gross margins, operating margins, production (for oil and gas or material companies), effective tax rates, interest expense, and so on. Furthermore, third party providers offer downloadable financial statements in Excel format and other financial ratios that may be of interest to the financial analyst. It is worth mentioning that sometimes the calculations of financial ratios differ from one provider to the other, e.g., using ending inventory versus average inventory in the computation of inventory turnover ratio, and, thus, it is important for the analysts who are using these ratios to verify how they have been calculated.

Although consensus numbers may not be good predictors of the company's future performance, they do provide a good sanity check against forecasts in your own model. For instance, if consensus revenue growth is only 5% while your forecast is 10%, you may need to go back and check your assumptions on how the company's revenue is expected to grow⁶.

3.2.2 Sell-Side Analysts' Reports

Sell-side reports can be either on an industry in general or on a specific company. These reports are particularly useful for financial analysts who are new to the industry under consideration. Although these reports are useful, they must be treated with caution. The analyst should not put too much emphasis on the final investment recommendations that these reports provide; the focus, however, should be on the key **drivers** mentioned in the report. These drivers are considered useful for the analysts when they formulate their own models. For example, a sell-side bank report will

⁶For Bloomberg users, the <EEO> and <EE> security functions provide details on consensus estimates. The <FA> security function contains various financial data including financial statements, financial ratios, and segment data. The data under <FA> can be exported to Excel for further analysis. Finally the <GF> security function graphs fundamental data such as revenue or EPS.

often contain discussion on bank capital, provision for credit losses, impaired loan formations, and other important topics that provide the financial analysts with a better view of the company. Also, a sell-side initiation report, which is a detailed report (50 to 100 pages long) written by the sell-side analyst when covering a particular company for the first time, contains detailed information on the company's operations, which may be useful for the financial analysts when developing their own financial models.

Also, it is worth noting that sell-side analysts frequently write general **industry reports** on the industry they cover. These reports contain information on the latest trends in the industry under consideration, the major players, and the market structure. Industry reports are considered another valuable secondary source of information. Below is a list of general industry reports:

- Canadian Association of Petroleum Producers for oil and gas data.
- Energy Information Agency for energy/oil and gas data.
- World Gold Council for gold mining data.
- Office of the Superintendent of Financial Institutions (OSFI), Basel Committee on Banking Supervision, and the Federal Reserve for data on banking.
- Statistics Canada (Statscan) and U.S. Census Bureau for consumer related data for retail companies.
- Mining Journal for mining data.
- Canadian Real Estate Association (CREA) for real estate.

3.3 Analysis of Primary and Secondary Sources of Data

We have already seen how to locate primary and secondary data sources. Now, we turn to their analysis. But, before doing so, it is constructive to give a quick review of a typical company's Annual Report.

3.3.1 A Review of an AIF and a 10-K Form

As mentioned earlier, AIF and 10-K are mandatory reports that Canadian and U.S. publicly traded companies, respectively, must file to regulatory authorities. Although these forms might sometimes be hard to read, they contain valuable information for financial analysts and, for that reason, it is important to go over the most significant items in these forms.

The 10-K Report contains the following key items:⁷

- **Item 1: Business.** The business section contains a description of the business and valuable information on the business operating units and its subsidiaries. A description of the industry in which the company is operating is also given in this section with reference to key success factors.
- **Item 1A: Risk Factors.** A comprehensive list of risks that may significantly affect the firm's financial strength and its operating efficiency.
- **Item 2: Properties.** A comprehensive list of properties owned and leased by the company.
- **Item 3: Legal Proceedings.** A list of outstanding legal proceedings that are still ongoing or have recently been settled.

⁷source:<http://www.sec.gov/about/forms/form10-k.pdf>

- **Item 5: Market.** A short description on the investability of the company's shares.
- **Item 6: Consolidated Financial Data.** Often tables that contain key financial data from the company's financial statements.
- **Item 7: Management Discussion & Analysis (MD&A).** The information and the analysis discussed in this section is provided by the company's own management. The analysis focuses on past and future performance of the company's business units. Past performance results are reviewed and broken down by business units. Future outlook of the company and the industry based on the management's assessment are discussed. For instance, a statement from the management of the company that reads: "Earning per share is expected to be between \$1 to \$1.05 next year" is an example of the company's future assessment of its financial position next year.
- **Item 8: Financial Statements.** This section includes the three financial statements in addition to a statement of changes in shareholder equity

The AIF is similar to the 10-K. The most important items of an AIF are:⁸

- **Item 3: Corporate Structure.** A full disclosure of the company's corporate structure is given in this section including names of all subsidiaries, joint ventures or partnerships.
- **Item 4: General Developments of the Business.** A three year historical overview of the company and any significant business events that might have taken place during the three years.
- **Item 5: Description of Business.** A description of the business and the industry in which the company is operating. This item is similar to item 1 in the 10-K Report.
- **Item 5.2; Risks Factors:** A comprehensive list of risks that may significantly affect the firm's financial strength and its operating efficiency. This item is similar to item 1A in the 10-K Report.
- **Item 7: Description of capital structure.** This item provides information on the company's capital structure.
- **Item 12: Legal Proceedings and Regulatory Actions.** This item discusses any current and/or future legal cases facing the company. It is similar to item 3 in the 10-K Report.

3.3.2 A Review of an Annual Report

An Annual Report is usually prepared to the company's shareholders every year. It is also used as a marketing document to convince investors to purchase their shares. In addition to graphs and charts, the main sources of information in the Annual Report are found in the following relevant sections.

The CEO's letter to shareholders

The CEO's letter to shareholders contains valuable information on the CEO's strategy regarding the future of the company and how will the company achieve its goals; both financial and operational. Financial analysts may compare past letters to actual results to assess the effectiveness of the CEO in forecasting the company's operations.

⁸source: http://www.osc.gov.on.ca/documents/en/Securities-Category5/rule_20111031_51-102_unofficial-consolidation-post-ifrs.pdf)

Management Discussion & Analysis (MD&A)

The MD&A section in the Annual Report is similar to the MD&A section in the 10-K or AIF. However, companies' MD&A section in the Annual Report is much more easier to read than its counterpart in a 10-K or an AIF. This section contains charts, summary tables and selected financials that supplement the discussion on the company's operations. By reading this section, analysts can gain valuable information that helps formulating their assumptions regarding the company's operations.

Financial Statements

The financial statements section contains the company's historical Income Statements, Balance Sheets, and Cash Flow Statements. This section also includes historical statements of changes in shareholder equity and statement of comprehensive income. It is worth mentioning that the footnotes pertaining to the previous statements provide information on the assumptions that were used by the management team in their preparations. Thus, it is extremely important for the analyst to review these notes carefully before attempting to perform any modelling of financial statements.

Chapter 4

Financial Statements Modelling

In the previous chapter, we learned how to locate and extract financial data. This chapter discusses the use of these data in financial modelling. In particular, the chapter discusses how to analyze and forecast the various components of the financial statements, i.e., Income Statement, Balance Sheet, and Cash Flow Statement, pertaining to a specific company. The chapter provides guidelines on analyzing and modelling each statement in general, then, illustrates the various modelling techniques using actual data of the Canadian fast food company Tim Hortons Inc.

The resulting **projected model** is considered a comprehensive example of financial statement modelling using real financial data. The projected model is based on various **assumptions**, which are mainly inferred and derived from the management's guidance statements provided in the 10-K report or documented during their quarterly conference calls. It is worth mentioning that the forecasted financial statements, which are considered the outcome of the model, are extremely sensitive to all assumptions suggested by the financial analyst. As mentioned earlier, different assumptions may result in different forecasts and, thus, making reasonable assumptions and hypotheses regarding the projected financial statements is crucial in ensuring the validity of the projected model.

4.1 Income Statements Modelling

The purpose of modelling Income Statements is to forecast earnings of the company under consideration over a particular projected period of time. Earnings are important drivers of the company's stock price in the long-run. Therefore, it is paramount to accurately forecast their components; namely, **revenues** and **expenses**. The MD&A section of the company's Annual Report and the footnotes of the financial statements are extremely important to financial analysts in formulating accurate forecasts. Modelling financial statements does **not** follow a standardized set of procedures; rather, it involves the use of value judgements and the formulation of certain assumptions in assessing the financial viability of the company under consideration. Therefore, we can say that the model is only as good as the assumptions and the value judgements used in its formulation.

4.1.1 General Guidelines on Income Statements Modelling

Below are some general guidelines on modelling Income Statements. We begin by briefly reviewing the components of Income Statements in general. A typical Income Statement consists of the following relationships:

$$\text{Gross Profit} = \text{Revenue} - \text{Cost of Goods Sold};$$

$$\text{Operating Income}^1 = \text{Gross Profit} - \text{Operating Expenses};$$

$$\begin{aligned} \text{Earning Before Tax (EBT)} &= \text{Operating Income} - \text{Interest} \\ &\quad \pm \text{Non-Operating Gains/Losses}; \end{aligned}$$

$$\text{Net Income to Firm} = \text{EBT} - \text{Provision for Income Taxes};$$

$$\begin{aligned} \text{Net Income to Shareholders} &= \text{Net Income to Firm} - \text{Minority Interests} \\ &\quad - \text{Preferred Dividends}, \end{aligned}$$

where **Minority Interest**, which is also known as **Non-Controlling Interest**, is a non-current liability that is recorded in a parent company's Balance Sheet. It represents the proportion of a subsidiary company that is not owned by the parent company. For instance, consider two companies P and S such that company P (the parent company) owns 80% of company S (the subsidiary). Suppose that the latter is a \$200 million company. Thus, company P owns \$160 million of S. In other words, P has 80% voting control over company S. Since P has significant control over S (because it has over 50% voting power), it is considered the parent and S is the subsidiary. The proportion of net income that the parent company does not own of the subsidiary company, which is \$40 million ($20\% \times \200), is classified as minority interest in the parent company's Income Statement.

A general consolidate Income Statement for a typical financial corporation takes the following form. A quick look at the general consolidated Income Statement, one can notice that the major components (or accounts) that are usually modelled in an Income Statement are Revenues and Cost of Goods Sold (COGS), Operating Expenses, Interest and Other Non-Operating Income or Expenses, Provision for Income Taxes, Minority Interest, number of Shares Outstanding, and basic and diluted Earning Per Share (EPS). In what follows, we give a brief discussion on modelling each component and illustrate using the actual financial data of Tim Hortons Inc.

Consolidated Income Statement for a Typical Financial Corporation	
	Revenue
–	Cost of Goods Sold
=	Gross Profit
–	Operating Expenses
=	Earning Before Interest, Taxes, Depreciation & Amortization (EBITDA)
–	Depreciation & Amortization
=	Earning Before Interest & Taxes (EBIT)
–	Interest Expense
±	Non-Operating Gains/Losses
=	Earning before Tax (EBT)
–	Provision for Income Taxes
=	Net Income to Firm
–	Minority Interests
–	Preferred Dividends
=	Net Income to Shareholders

4.1.2 Modelling Revenues and Cost of Goods Sold

The easiest and most commonly used technique in modelling **Revenues** and **Cost of Goods Sold** is the **growth rate method**, where the analyst takes the consolidated Revenue and Cost of Goods

¹ Also known as Earning Before Interest and Taxes (EBIT).

Sold values and project their growth over the projected future period using a specified constant growth rate. The growth rate method is only appropriate for mature businesses. These businesses are generally known as **blue chip**² companies with well-established record of **stable** sales growth. Examples include Coca Cola and Proctor & Gamble. The revenue growth of these large mature businesses is normally similar to the growth rate of the economy's **real gross domestic product** (real GDP), which, for most advanced economies, ranges between 4% to 6%. The growth rate method is based on the **implicit** assumption that there are no major changes, such as major acquisitions for instance, in the underlying business and the **explicit** assumption that the business only grows at the same rate as that of the underlying economy.

Although the previously mentioned growth rate method is easy to compute, some analysts prefer more detailed methods of modelling Revenue and Cost of Goods Sold. This is especially true for divisions or subsidiaries that contribute significant amount of sales to the parent company.³

By definition, **revenue** is the **market price**⁴ of the product sold, p , times the **quantity** sold, q . Thorough analysis of p and q , based on estimating the market demand and any external factors affecting the industry in which the company is operating, yields a good forecast for the revenue figure⁵. For instance, for oil and gas companies, the forecasted price is the factory price of oil and gas which differs according to the region and the quality, e.g., light or heavy crude oil; for mining companies, the forecasted price is the price of the corresponding commodity (not the final product). The quantity sold is the number of units, e.g., barrels of oil, sold.

As for the Cost of Goods Sold, a thorough analysis breaks the components of the final product down into groups and computes the cost of each component in each group by forecasting the purchase price of each item and the corresponding quantity purchased. In order to do that, the company under consideration must disclose detailed cost information, i.e., it must disclose in detail the fixed and variable costs of each component that goes into the production of the final product. Since mandatory disclosure requirements do not require companies to release detailed costs information, modelling of Cost of Goods Sold varies according to the assumptions made by the analyst and the information on costs gathered from the company's Annual Reports.

In this workshop, we will use the simple growth rate method in modelling Revenues and Cost of Goods Sold. For illustration, we will use Tim Hortons' financials to forecast the company's Income Statement, Balance Sheet, and Cash Flow Statement over a **future period** of time known as the **forecast horizon**. The forecast horizon ranges between one year and 5 years. Many financial analysts follow the convention in the industry and choose a forecast horizon of 5 years. In my opinion, a 5-year projection period is only suitable for mature businesses with stable financials. In reality, however, companies' financials could vary significantly from one year to the other due to internal or external factors. This is true even for mature businesses. Thus, a safer and more accurate forecasting strategy is to predict the company's financial statements over one-year future period and redo the forecasting exercise at the end of each year. We will follow this strategy in this workshop. However, for the sake of consistency with the standard practice in the profession, a 5-year projection of Tim Hortons' financial statements will be given in Appendix C.

Since we have historical data⁶ on Tim Hortons' financial statements over a period of 5 years

²According to the New York Stock Exchange, the term **blue chip** refers to a leader company in its industry that has a reputation for quality and the ability to make profit in good times and bad.

³According to the International Financial Reporting Standards (IFRS) and the U.S. Generally Accepted Accounting Principles (GAAP), a division or a subsidiary is considered significant to the parent company in its contribution if it contributes more than 10% of total sales.

⁴This is the market price from the firm's perspective, i.e., the factory price and **not** the retail price of the good under consideration.

⁵Note that as long as we are dealing with an industrial project, we can consider quantities and their market prices. Yet, in case of a service, since we cannot differentiate between q and p , we should consider the **value** of the service provided when forecasting the revenue figure.

⁶The company's historical performance provides guidance for projecting its future growth. In Tim Hortons' case, historical data over the period from 2008 to 2012 will be used to predict its future performance in 2013.

from 2008 to 2012, we will treat **year 2012** as the **current** year and perform the **projections** for **year 2013**. Therefore, the resulting financial statements of 2013 are the company's projected statements.

The first Income Statement account that we are about to forecast for 2013 is Tim Hortons' **Total Revenue**. A quick look at Tim Hortons' Income Statement as shown in Appendix A, Table A1, one can notice that Tim Hortons' Total Revenue Account consists of 2 different accounts: (1) **Sales From Distribution Channels**, or **Sales** for short, and (2) **Franchise Revenues**. The latter account is further divided into two sub-accounts (a) **Rents and Royalties** and (b) **Franchise Fees**.

We will begin with the first account: **Sales**. These are revenues received from the sale of raw materials to franchisees. A quick look at Tim Hortons' historical Income Statements from 2008 to 2012 as shown in Table A1, one can immediately notice that Sales is the major component of Tim Hortons' Total Revenue for it is averaging about 70% of Total Revenue in the past 5 years. In order to forecast future Sales, we need to identify the **sources** of sales growth. In general, there are **two** key sources of growth in sales for any company: **volume growth** and **price growth**. Volume growth indicates the percentage change in the quantity, i.e., the number of units, sold whereas price growth indicates the percentage change in sales price. Note that in our case, Tim Hortons Inc. is selling its raw materials, e.g., coffee beans, to its franchisees and, therefore, price growth is basically the percentage change in commodity prices. According to the information given in Tim Hortons' Annual Report, the company's current⁷ volume growth figure is 7%, i.e., the percentage increase in the quantity sold from year 2011 (last year) to year 2012 (current year) is 7%. As for the price growth, following the commodity-price consumer-price connection, which states that commodity prices are affected by inflation and vice-versa, and since inflation rate in Canada is around 2.5% to 3%, it is reasonable to assume a 3% annual growth rate in commodity prices. Using the previous two sources of sales growth (the historical volume growth figure of 7% and the price growth figure of 3%), one could predict the company's sales growth to be around 10.21% for 2013 as

$$\begin{aligned} \text{Sales}_{2013} &= \text{Sales}_{2012} \times (1.07) \times (1.03) \\ &= \$2,225.659 \times 1.1021 \\ &= \$2,452.899 \text{ million.} \end{aligned}$$

The forecasted 2013 Sales figure of \$2,452.899 million is shown in Tim Hortons' projected Income Statement for 2013 in Table A1, Appendix A. It is also worth mentioning that the 10.21% sales growth figure assumption is consistent with Tim Hortons' management guidance that was published in their Annual Report⁸.

The second component of Tim Hortons' Total Revenue Account is **Franchise Revenues**, which is divided into two sub-accounts (a) **Rents and Royalties** and (b) **Franchise Fees** as shown from Tim Hortons' Income Statement in Table A1, Appendix A.

Let us consider the first sub-account: (a) the **Rents and Royalty Fees** Account. These are rents and fees paid to Tim Hortons from its franchisees. Since royalty fees are calculated by multiplying the **Royalty Rate** by the **Total Franchise Sales**, it follows that the Royalty Rate and the Franchise Sales are the two drivers of royalty fees. Therefore, in order to predict the future value of royalty fees for 2013, we need to forecast the previous two drivers first. Historical data on both drivers are presented in Table 4.1. Consider the **first driver**: the **Total Franchise Sales**. A quick look at Table 4.1, one can notice that the Canadian franchise sales grew by 7.4% in year 2009, 6.2% in 2010, 7.4% in 2011, and 6.2% in 2012. The average growth rate over the four years is 6.8%. Similarly, the average growth rate for the U.S. franchise sales over the same historical

⁷Recall that in the projected model, year 2012 is considered the **current** year and 2013 is the projected year.

⁸See page 55 of the company's Annual Report. A copy of this page is found in Appendix B for convenience.

period is 11.5%. These average growth figures are used to predict the Total Franchise Sales figure of CA\$6,938.213 million for 2013. This figure is computed, as shown in Table 4.1, by taking the actual 2012 Canadian and U.S. franchisee sales figures of CA\$5,907.481 million and US\$532.214 million respectively, growing them by the average franchise sales growth rates of 6.8% and 11.5% respectively, and converting the US\$593.419 million (US\$532.214(1 + 0.115)) to Canadian dollars using Bloomberg's forecasted⁹ exchange rate of 1.06 Canadian dollar per one U.S. dollar; that is,

$$\begin{aligned} \text{Total Franchise Sales}_{2013} &= [\text{CA}\$5,907.481(1 + 0.068)] \\ &\quad + [\text{US}\$532.214(1 + 0.115) \times 1.06] \\ &= \text{CA}\$6,309.189 + \text{CA}\$629.024 \\ &= \text{CA}\$6,938.213 \text{ million.} \end{aligned}$$

Now, let us consider the **second driver**: the **Royalty Rate**, which is computed by dividing the Rents and Royalties figure (row (1) in Table 4.1) by the Total Franchise Sales figure in Canadian dollars (row (6) in Table 4.1). Historically, over the past five years, the Royalty Rate slightly varied between a minimum of 12.1% in 2012 and a maximum of 12.3% in 2009 as shown from row (7) in Table 4.1. The average royalty rate over the historical 5-year period is 12.2% of Total Franchise Sales. This average figure of 12.2% is taken to be the forecasted Royalty Rate for the projected year 2013.

Finally, based on our projections for the previous two drivers (12.2% franchise rate and \$6,938,213 franchise sales), the projected value for Rents & Royalties for 2013 is computed by multiplying 2013's projected Total Franchisee sales of \$6,938.213 million by the 12.2% projected franchise rate. This gives

$$\begin{aligned} \text{Rents \& Royalties}_{2013} &= \$6,938.213 \times 12.2\% \\ &= \$846.462 \text{ million} \end{aligned}$$

as shown from row (1) in Table 4.1.

The second sub-account is: (b) the **Franchise Fees Account**. **Franchise fees** are fees paid by franchisees for either renewing current licence agreements for existing owners or for issuing new licence agreements for new owners. The **two** drivers of Franchise Fees are the **number of stores** paying the licence fees and the **franchise fee per store**. A forecasted value for each driver is needed in order to estimate the total Franchise Fees for 2013. We proceed with the former.

The yearly number of stores that are expected to pay licence fees consists of the number of **new stores**, which are acquiring licences for the first time, and the number of existing stores, which are renewing their existing licences. The number of new stores projected in 2013 is 270 stores according to management guidance. Estimating the number of existing stores that are expected to renew their license at the beginning of 2013 is the challenging part of calculating the total number of stores due for renewals in 2013. According to the business description (item 1) in the company's Annual Report,¹⁰ current licence agreements are renewed every 10 years for existing owners. Then, if we assume a **constant** annual number of new stores, 10% of the existing stores will renew their licences every year. Although, the assumption of a constant number of store opening every year may seem restrictive, it is in fact quite reasonable given the limited information at hand. Therefore, at any given year, the number of stores that are expected to pay licence fees is the number of new

⁹Bloomberg's foreign exchange forecasts can be found by using the function <FXFC>. Note that the projected model developed here assumes that the forecasted exchange rate is given as is from Bloomberg; no attempt was made to forecast or predict that rate.

¹⁰See page 14 of the company's Annual Report. A copy of the page is found in Appendix B for convenience.

	Historical					Projection
	2008	2009	2010	2011	2012	2013
(1) Rents & Royalties	601,870	657,909	687,039	733,217	780,992	846,462
Y/Y percentage change [†]		9.3%	4.4%	6.7%	6.5%	
Franchise Sales:						
(2) CA Franchise Sales [▲]	4,546,027	4,880,934	5,181,831	5,564,263	5,907,481	6,309,190
Y/Y percentage change [†]		7.4%	6.2%	7.4%	6.2%	6.8% [‡]
(3) US Franchise Sales ^{▲▲}	345,429	409,882	439,227	472,969	532,214	593,419
Y/Y percentage change [†]		18.7%	7.2%	7.7%	12.5%	11.5% [‡]
(4) Exchange Rate [◆]	1.07	1.14	1.03	0.99	1.00	1.06
(5) US Franchise Sales [*]	369,609	467,265	452,404	468,239	532,214	629,024
(6) Total Franchise Sales ^{**}	4,915,636	5,348,199	5,634,235	6,032,502	6,439,695	6,938,213
(7) Franchise Rate ^{***}	12.2%	12.3%	12.2%	12.2%	12.1%	12.2% [‡]
[†] Year by year percentage change [‡] Average [▲] In Canadian dollars ^{▲▲} In US dollars [◆] Canadian dollars per 1 US dollar [*] (5) = (3) × (4) in (\$000) Canadian dollars ^{**} (6) = (2) + (5) ^{***} Rents and Royalties as % of Franchise: (7) = (1)/(6)						

Table 4.1: Historical (2008-2012) and projected (2013) data on Tim Hortons' Royalty Fees and Franchise Sales in thousands of Canadian dollars.

stores during that year plus 10% of stores outstanding at the beginning of the year. Historical data on the number of stores outstanding at the beginning of each year from 2008 to 2012 is found in Table 4.2. Using the new openings plus 10% of the outstanding number at the beginning of each year, we can see that the number of stores that paid franchise fees were 520 stores in 2009, 603 stores in 2010, 669 stores in 2011, and 677 stores in 2012 as shown from the historical computations in Table 4.2. For year 2013, the projected number of new stores is 696 stores, which is the sum of the new 270 stores and 10% of the 4264 existing stores at the beginning of the year.

The total yearly franchise fees collected over the historical period (2008-2012) are found in Tim Hortons' historical Income Statements under the **Franchise Fees** Account and are copied in the first row of Table 4.2 for convenience. The yearly **franchise fee per store** can be computed by dividing the yearly franchise fees by the number of stores that paid those fees. The historical values are recorded in Table 4.2 from the period between 2009 and 2012.¹¹ The average estimated franchise fee per store is computed by summing the franchise fee per store from 2009 to 2012 and dividing the result by 4. This gives approximately \$165,000. This figure will be taken as our **projected franchise fee per store** for 2013.

Adding the 10% of the 4264 stores outstanding at the beginning of 2013 to the new 270 stores gives us a projected number of 696 stores that are expected to pay franchise fees for 2013. Multiplying the 696 stores by \$165,000 franchise fee per store yields a projected franchise fees of \$114.840 million as shown in the first row of Table 4.2 and in the projected Income Statement for 2013 in Table A2 in Appendix A.

Remark 1 *In order to forecast the end-of-year number of stores in 2013, we need to make an assumption regarding the expected number of store closures in 2013. One could take the average number of store closures over the period between 2009 and 2012 and take it to be the projected number for 2013. This approach, however, has two flaws: first, taking the average of yearly relative number of stores, i.e., the number of store closures relative to the total number of existing stores, is more meaningful than just taking an absolute average of the number of closures and second, the number of store closures in 2010 (and even the relative number of store closures in 2010) seems to be higher than all the other historical values. This number is considered an outlier and should not be taken into consideration because, otherwise, the results will be biased. Perhaps a better strategy is to take the average of the relative number of closures in 2011 and 2012, or to make an assumption regarding 2013. From the analysis of the company's profile in 2012 and the expected performance in 2013, it seems that the company is expected to show growth in all of its activities. This suggests that the number of store closures in 2013 is projected to be slightly lower than 2012. From Table 4.2, the relative number of store closures in 2012 is approximately 0.6% ($\frac{26}{4014} \times 100$). Therefore, we will assume that the number of store closures in 2013 is 0.5% of total number of existing stores at the beginning of the year. It is also reasonable to entertain this assumption for the period between 2013 and 2017 for it is consistent with the management's prediction of the company's performance in the near future. Therefore, the predicted number of store closures in 2013 is 21 stores and the predicted end-of-year number of stores is 4513 stores as shown from the projections in Table 4.2.*

¹¹2008 data were not available.

	Historical					Projection 2013
	2008	2009	2010	2011	2012	
(1) Franchise Fees in (\$000)	93,808	90,033	94,212	107,579	113,853	114,840
Store Calculations:						
(a) Beginning of Year Number of Stores		3437	3578	3750	4014	4264
(b) New Stores Openings	193	176	245	294	276	270*
(c) Store Closures		(35)	(73)	(30)	(26)	(21)
(e) End of Year Number of Stores [†]		3578	3750	4014	4264	4513
Licence Renewal Calculations:						
(g) 10% of (a) are Due for Renewal [‡]		344	358	375	401	426
(h) New + Due for Renewal Stores [◆]		520	603	669	677	696
(2) Franchise Fee per Store in (\$000) [◇]		173.140	156.239	161.806	168.173	
(3) Average Franchise Fee per Store Approximately in (\$000) [▲]						165
<p>*Based on management guidance. [†](e) = (a) + (b) - (c) [‡](g) = 10% × (a) [◆](h) = (b) + (g) [◇](2) = (1)/(h) [▲](3) = $\frac{173.140+156.239+161.806+168.173}{4} \approx 165$ thousand dollars</p>						

Table 4.2: Historical (2008-2012) and projected (2013) data on stores and licence renewal in Canadian dollars.

To sum up, the projected components of Tim Hortons' **Total Revenue** Account for 2013 are as follows: the projected **Sales** figure is \$2,452.899 million, the projected **Rent and Royalties** figure is \$846.462 million, and the projected **Franchise fees** figure is \$114.840 million. Altogether, they constitute a projected **Total Revenue** figure of 3,414.201 million Canadian dollars for 2013.

The second account in Tim Hortons' financial statement is the **Cost of Goods Sold**. We will follow the percentage of sales approach in modelling this account. Over the historical period from 2008 to 2012, the Cost of Goods Sold, which is expressed as a percentage of Sales, varied between 58% to 63%. The Cost of Goods Sold of the current year, i.e., year 2012, represents 62.8% of 2012's Total Revenue. In the absence of any significant changes in the micro and macro economic conditions of the industry and the economy respectively, it is reasonable to use the same percentage in projecting the Cost of Goods Sold for 2013. Thus, the 2013's projected Cost of Goods Sold is the product of the forecasted Total Revenue amounting \$3,414.201 million and the projected Cost of Goods Sold percentage of 62.8% as

$$\begin{aligned} \text{Cost of Goods Sold}_{2013} &= \$3,414.201 \times 0.628 \\ &= \$2,143.833 \text{ million.} \end{aligned}$$

The projected value of the Cost of Goods Sold is shown in the fifth row of the sixth column of Table A1, Appendix A.

4.1.3 Modelling Costs & Expenses

Costs and Expenses will also be projected using a percentage of sales approach. Using a common size analysis similar to the one used for projecting the Cost of Goods Sold, most Costs and Expenses accounts can be valued at a constant fraction of Total Revenue.

The first and most important account of Costs and Expenses is the **Operating Expenses (OPEX)** Account. The operating expenses are the ongoing expenses for running a business or a product. These expenses could be fixed or variable. By fixed expenses, we mean expenses that do not vary with the number of units produced, i.e., expenses incurred regardless whether the company is producing or not. Examples of fixed operating expenses include salaries and machinery leasing fees. Variable expenses are expenses that vary directly with production. Examples of variable expenses include raw materials and other production related expenses. Using the percentage of sales approach in modelling OPEX has the appealing advantage of being an easy to implement approach. In general, financial analysts favor the percentage of sales approach because of its convenience and easy implementation. In case of OPEX, however, it is worth mentioning that implementing the percentage of sales approach should be treated with caution because some expenses are not directly related to Total Revenue and, thus, should not be modelled as a percentage of a forecasted Total Revenue figure. Consider rent, for instance. It is an operating expense that varies according to inflation rate and **not** according to Total Revenue. Some other OPEX are even fixed as mentioned earlier. Finally, note that whether the analyst is using the percentage of sales approach or any other approach in forecasting OPEX, he or she is advised to review the management's notes and comments provided in the company's Annual Report for guidance.

To keep the analysis simple, we will follow the percentage of sales approach in forecasting Tim Hortons' OPEX for 2013. A quick look at Tim Hortons' historical Income Statement (see Table A1, Appendix A), one can notice that the OPEX Account has decreased from 10.6% of Total Revenue in 2008 to 9.2% of Total Revenue in 2012. According to the management's guidance provided on past conference calls, expenses are expected to decrease further in 2013 and 2014. Following the management's guidance, we will assume a decrease in OPEX to 9.1% of the projected Total Revenue in 2013; that is,

$$\begin{aligned}\text{Operating Expenses}_{2013} &= \$3,414.201 \times 0.091 \\ &= \$310.692 \text{ million.}\end{aligned}$$

The **Franchise Cost** Account was about 3.7% of Total Revenue in 2012 and is expected to remain at the same percentage of Total Revenue for 2013. Thus, the projected Franchise Cost value for 2013 is

$$\begin{aligned}\text{Franchise Costs}_{2013} &= \$3,414.201 \times 0.037 \\ &= \$126.325 \text{ million.}\end{aligned}$$

General and Administrative Expenses is another cost account in Tim Hortons' Income Statement. By looking at the Income Statement, we notice that the General Administrative Expense Account has decreased from 6.4% of Total Revenue in 2008 to 5.1% in 2012. Based on the planned staff reduction in Tim Hortons' corporate office that was announced in the second quarter conference call, we assume that the General and Administrative Expenses Account will decrease to 5.0% of Total Revenues in 2013; that is,

$$\begin{aligned}\text{General and Administrative Expenses}_{2013} &= \$3,414.201 \times 0.05 \\ &= \$170.710 \text{ million}\end{aligned}$$

as shown from the projected Income Statement in Appendix A, Table A1.

Sometimes the company may have a one-time item recorded in its Income Statement such as gains or losses on sale of a long term asset (equipment for example). These transactions are non-recurring in nature and the associated gains or losses are irrelevant to future forecasts. In this case, the item should be ignored when forecasting future revenues.

The company may also have other items recurring more than once such as investment income. These transactions should be treated on a case-by-case basis. Here is an example to illustrate

this last point. Consider, for instance, a company with a **continuous** track record of achieving investment income amounting between a minimum of \$100 million and a maximum of \$120 million over the last 5 years. Then, it is appropriate in this case to model an average of \$110 million of investment income for future years. If, however, investment income exhibits an **irregular** pattern, then taking an average income over the past 10 years may be appropriate.

In Tim Hortons' case, the **Equity Income** Account, representing the average income received from Tim Hortons' equity investment in other companies, was roughly about -0.5% of total revenue in 2011 and 2012. The pre-2011 figures included income from an investment that was sold in 2011. Therefore, a reasonable hypothesis is to assume that the -0.5% rate will prevail in 2013. Thus, the projected Equity Income figure for 2013 is

$$\begin{aligned}\text{Equity Income}_{2013} &= \$3,414.201 \times (-0.005) \\ &= -\$17.071 \text{ million.}\end{aligned}$$

The **Other Income** Account averaged a rate of 0.05% of Total Revenue from 2008 till 2012, with a maximum of 0.15% and a minimum of 0% . The average rate of 0.05% is insignificant and, for that reason, will be ignored. Thus, no projections will be made for this account. The same is true for the **Corporate Reorganization** Account and the **Asset Impairment** Account.

That being said, the final projected **Total Costs and Expenses** for 2013 is \$590.657 million as shown from the projected Income Statement in Table A1, Appendix A.

4.1.4 Modelling Operating Income

Operating Income is calculated as the difference between Gross Profit and Total Costs and Expenses. If other extraordinary gains (losses) are incurred during the year, the gains (losses) should be added (or subtracted) to the Operating Income figure. The sale of Maidstone by Tim Hortons in 2010 is an example of extraordinary gain that was added to the Operating Income in 2010 (see Tim Hortons' Income Statement in Table A1, Appendix A).

In the projected year of 2013, no extraordinary gains or losses are incurred and, therefore, the projected Operating Income of 2013 is computed as

$$\begin{aligned}\text{Projected Operating Income}_{2013} &= \text{Projected Gross Profit}_{2013} \\ &\quad - \text{Projected Costs \& Expenses}_{2013} \\ &= \$1,270,368 - \$590,657 \\ &= \$679.711 \text{ million.}\end{aligned}$$

Now, we turn to modelling Interest Income and Interest Expense accounts.

4.1.5 Modelling Interest Income & Interest Expense

Interest Income is modelled as a percentage of **Total Revenue**. Over the last five years, Interest Income averaged around 0.1% of Total Revenue. Guided by this historical figure, we will assume in our projection model that interest income will stay at 0.1% of Total Revenue for 2013. Therefore, the projected Interest Income figure for 2013 is

$$\begin{aligned}\text{Interest Income}_{2013} &= \$3,414.201 \times 0.001 \\ &= \$3.414 \text{ million}\end{aligned}$$

as shown from the projected Income Statement in Table A1 in Appendix A.

Interest Expense is usually forecasted after short term debt and long term debt have been forecasted.¹² The Interest Expense Account is the weighted average interest rate times the total debt outstanding. The value of the latter is projected in Section 4.2.

¹²Debt forecasting is classified under balance sheet modelling which is discussed in Section 4.2.

	2012	2013
(a) Beginning of year shares outstanding		153,404,839
(b) Expected number of shares repurchased		(11,711,888)
(c) End of year shares outstanding = (a) - (b)	153,404,839	141,692,951
(d) Average number of shares = [(a)+(c)]/2		147.549 million
(e) Projected Net Income to Shareholders		\$427.296 million
(f) Projected EPS = (e)/(d)		\$2.90

Table 4.3: Projected EPS calculations for 2013.

4.1.6 Modelling Income Tax Expense and Minority Interest Expense

Tax structure is fairly constant for stable businesses such as Tim Hortons. In such cases, using an average **Effective Tax Rate** over the last few years is appropriate in modelling Income Tax Expense. The Effective Tax Rate is calculated by dividing the Income Tax Expense by the Pre-Tax Income as

$$\text{Effective Tax Rate} = \frac{\text{Income Tax Expense}}{\text{Pre-Tax Income}},$$

where **Pre-Tax Income** refers to the **Earning Before Tax** Account (see the Income Statement in Table A1). This, in turn, implies that if the Effective Tax Rate is forecasted (as an average say), then the Income Tax Expense can be easily projected by multiplying the forecasted Effective Tax Rate by the Pre-Tax Income (Earning Before Tax).

Note that in practice, it is perhaps useful to separate the Income Tax Expense into 2 different components; one for current taxes and the other for deferred taxes. This separation helps in forecasting the **Deferred Income Taxes** (for assets and liabilities) Account in the Balance Sheet (see the Balance Sheet statement in Table A2) if the analyst wishes to continue on to forecasting the Balance Sheet accounts. Finally, it is worth mentioning that tax modelling can be tricky especially if there is a lot of permanent differences that contribute to widening the gap between the Effective Tax Rate paid by the company from the Statutory Tax Rate mandated by law. Fortunately, we do not have to worry about these differences in our case.

The Income Tax Expense Account is estimated using the **Effective Tax Rate** provided by Tim Hortons' management in its 2012's Annual Report, which is 28%. Using 2013's projected Earning Before Tax figure of \$600.245 million as shown from the projected Income Statement in Table A1 in Appendix A, the projected Income Tax Expense is computed as follows:

$$\begin{aligned} \text{Income Tax Expense}_{2013} &= 0.28 \times \$600.245 \\ &= \$168.069 \text{ million.} \end{aligned}$$

As for forecasting Minority Interest Expense, or **Minority Interests** for short, which is usually deducted after deducting income tax, the analyst can either keep it constant for future years or increase it by a constant growth rate in line with the growth rate of Total Revenues. The former method is used for small values whereas the latter is used for large values. In Tim Hortons' case, the recent values of Minority Interests were insignificant (about \$3 million in 2011 and \$4.881 million in 2012). Moreover, no guidance was provided for this item. Therefore, it is reasonable to keep it constant for 2013 at its reported value of \$4.881 million in 2012 as shown from the projected Income Statement in Table A1 in Appendix A.

4.1.7 Modelling Earning Per Share

Two drivers are needed to forecast the Earning Per Share (EPS) Account: **Net Income** to shareholders and the **average** number of **Shares Outstanding** during the projected period (year

2013). The latter driver is computed by forecasting the number of Ending Shares Outstanding and taking the average of both the Beginning and Ending Shares Outstanding; that is,

$$\text{Projected EPS}_t = \frac{\text{Projected Net Income}_t}{\text{Average Shares Outstanding}_t},$$

where

$$\text{Average Shares Outstanding}_t = \frac{\text{Beginning}_t + \text{Ending Shares Outstanding}_t}{2}.$$

For $t = 2013$, the previous formula becomes

$$\text{Projected EPS}_{2013} = \frac{\text{Projected Net Income}_{2013}}{(\text{Ending Shares}_{2013} + \text{Beginning Shares}_{2013})/2},$$

where the projected figure for Net Income to shareholders for 2013 is \$427.296 million from our previous analysis (see the previous section on Income Statement modelling), the beginning shares outstanding of 2013 are the ending shares outstanding of 2012, which are 153,404,839 shares as shown from Table 4.3. The figure for the ending shares outstanding of 2013 has to be projected. To this end, the analyst should consult the outlook provided by the management on share issuances, which is found in the MD&A or the financial statements' footnotes.¹³ In our case, the number of Ending Shares Outstanding is calculated by subtracting any shares repurchased during the year from the Beginning Shares Outstanding number. Since the expected number of repurchased shares in 2013 is 11,711,888 shares,¹⁴ then the number of Ending Shares Outstanding in 2013 is

$$153,404,839 - 11,711,888 = 141,692,951 \text{ shares},$$

and consequently, the average number of shares for 2013 is

$$\begin{aligned} & \frac{(\text{Ending Shares}_{2013} + \text{Beginning Shares}_{2013})}{2} \\ &= \frac{153,404,839 + 141,692,951}{2} \\ &= 147.549 \text{ million shares}. \end{aligned}$$

Therefore, the projected EPS for the year 2013 is

$$\text{Projected EPS}_{2013} = \frac{\$432.177 \text{ million}}{147.549 \text{ million shares}} = \$2.90.$$

The **diluted EPS** is another performance metric used to assess the earning ability of the corporation. The diluted EPS is computed using a similar formula to that of the basic EPS metric. The only difference is that the diluted EPS formula takes into account any potential dilutions, i.e., it assumes that all convertible securities were exercised¹⁵ and any additional share issuances due to stock-based compensation were considered. The formula for the diluted EPS computation is

$$\text{Diluted EPS} = \frac{\text{Net Income to Shareholders}}{\text{Number of shares outstanding} + \text{All diluting potential shares}},$$

¹³For many stable blue chip companies, equity is rarely issued so forecasting the number of Ending Shares Outstanding is straight forward. However, the analyst must consider share issuances as a result of stock options, restricted share grants and other share-based compensations. These can be found in the footnotes of the financial statements.

¹⁴The exact computation of this number is found in Section 4.2.9 on Modelling the Common Stock Account.

¹⁵Example of convertible securities are outstanding convertible preferred stocks, convertible debentures (bonds), and stock options.

where the numerator is the same as in the basic EPS formula, but the denominator is larger. The denominator assumes that all options and convertible securities were exercised at the beginning of the period so that the number of outstanding shares during that period is larger.

A large difference between a company's basic EPS metric and its diluted EPS shows high potential dilution for the company's shares. This is a bad news for shareholders in the sense that if all convertible bonds, stocks, options, and warrants are exercised at once, the EPS will drop significantly and the shareholder might end up losing his or her share in the corporation. Of course this scenario is highly unlikely for it is difficult to exercise all convertibles at once. Yet, as a shareholder, it is important to know the potential impact on your share in the worst case scenario.

That being said, the projected diluted EPS for 2013 can be computed as follows:

$$\text{Projected Diluted EPS}_{2013} = \frac{\text{Projected Net Income}_{2013}}{\text{Adjusted Average Shares Outstanding}_{2013}},$$

where projected net income remains unchanged at \$427.296 million, whereas the average shares outstanding of 147.5 million are adjusted to 148 million shares as per management guidance regarding the potential issuance of 0.5 million shares in 2013 due to stock-based compensation. Therefore, the projected diluted EPS for 2013 is

$$\text{Projected Diluted EPS}_{2013} = \frac{\$427.296 \text{ million}}{148 \text{ million shares}} = \$2.89.$$

4.2 Balance Sheet Modelling

4.2.1 What is a Balance Sheet?

The Balance Sheet is a summary statement of the firm's financial position at any given point in time. The statement balances the firm's assets (what it owns) against its financing or liabilities, which can be either debt (what it owes) or equity (what was provided by the owners). The left-hand-side of any Balance Sheet shows the firm's assets. The right-hand-side shows the firm's liabilities and equity (or claims against these assets). A distinction should be made between short term and long term assets and liabilities. The **Current Assets (CA)** and **Current Liabilities (CL)** are short term assets and liabilities respectively. This means that they are expected to be converted into cash within one year or less. In addition to shareholders' equity, all other assets and liabilities are considered long term. The assets are listed in order of their liquidity, i.e., in order of how fast they can be converted into cash.

Working Capital (WC), or **Gross Working Capital (GWC)**, is the capital required to finance Current Assets. **Net Working Capital (NWC)** is defined as Current Assets minus Current Liabilities as

$$\text{NWC} = \text{CA} - \text{CL},$$

where CA consists of Cash, Accounts Receivables, Inventories (raw materials, supplies, packaging materials, spare and small tools), Work in Progress, and Finished Products, whereas CL consists mainly of Accounts Payable.

Working Capital finances the time lag between two offsetting balance accounts. In general, a typical business has four operational gaps that need to be financed. These gaps are as follows:

- (1) **The gap between sales and cash collection.** The cash required to finance the time difference between sales and cash collection is called **Accounts Receivable (A/R)**.
- (2) **The gap between production and sales.** During the period between production and sales, raw materials, wages, and other overhead costs must be paid. The cash required to finance the gap between production and sales is called **Inventory of Final Products**.

- (3) **The gap between buying raw materials and using them in business.** Usually raw materials are purchased and kept in stock until they are used in production. The cash required to finance the gap between buying raw materials and using them in business is called **Inventory of Raw Materials**. The **Gross Working Capital** is simply the sum of (1), (2), and (3).
- (4) **The gap between purchases and payments for these purchases.** Sometimes the company may have payment allowances which need to be taken into consideration. This is the fourth gap. An example is the gap between buying raw materials and actually paying the amount due. The amount of capital saved as a result of this gap is called **Accounts Payable (A/P)**.

Subtracting the payment allowances, i.e., the A/P, from the GWC gives the NWC figure as

$$\text{NWC} = \text{GWC} - \text{A/P},$$

where, as mentioned above, GWC is the sum of A/R, Inventory of Final Products, and Inventory of Raw Materials. Therefore, in order to estimate GWC, we need to estimate each of its three components.

The **A/R Account** is computed as

$$\text{A/R} = \frac{\text{Net Credit Sales}}{\text{A/R turnover ratio}},$$

where

$$\text{A/R turnover ratio} = \frac{12 \text{ month}}{\text{coverage period}}.$$

The A/R turnover ratio measures the number of times the A/R Account is replaced over a period of one year (12 month). For instance, if the value of net credit sales is \$10,000 and the coverage period is 3 months, then the A/R turnover ratio equals to $12/3 = 4$ times and, consequently, the A/R is estimated to be

$$\text{A/R} = \frac{\$10,000}{4} = \$2,500.$$

A higher A/R turnover ratio is often viewed as a good indicator of the efficiency of any business in collecting its receivables from its customers. In practice, since we usually do not have data on coverage periods, we use Total Revenue as a proxy for Net Credit Sales and divide it by the reported A/R figure to estimate the A/R turnover ratio, which can be then used for forecasting (more on that later); that is,

$$\text{A/R turnover ratio} \approx \frac{\text{Total Revenue}}{\text{A/R}}.$$

The **Inventory of Final Products** is computed in a similar manner as follows:

$$\text{Inventory of Final Products} = \frac{\text{Annual Cost of Operations}}{\text{Inventory of Final Products turnover ratio}},$$

where the **Cost of Operations** includes the **Cost of Raw Materials** plus all **Other Costs**.

The **Inventory of Raw Materials** is computed as

$$\text{Inventory of Raw Materials} = \frac{\text{Annual Cost of Raw Materials}}{\text{Inventory of Raw Materials turnover ratio}},$$

and finally, the **A/P** Account is computed as

$$\text{A/P} = \frac{\text{Total Purchases on Credit}}{\text{A/P turnover ratio}},$$

where Total Purchases are computed as

$$\text{Total Purchases} = \text{Ending Inventory} - \text{Beginning Inventory} + \text{Cost of Goods Sold.}$$

4.2.2 Modelling Working Capital

Now, let us apply what we learned in the previous section to project the Working Capital Account of Tim Hortons Inc. for 2013. In order to project the Working Capital, we need, first, to project the turnover ratios for all Current Assets. The reason behind projecting the turnover ratios instead of just directly projecting the Current Assets accounts is to make fewer assumptions as possible since, as we will see shortly, these projected ratios are calculated based on our forecasted Total Revenue and Cost of Goods Sold, and thus, no further assumptions are needed to compute their forecasted values, whereas directly forecasting the account under consideration implies making new hypothetical projections. After all, we are trying to make fewer assumptions as possible. Another reason for projecting the turnover ratios instead of directly projecting the account under consideration is to ensure that all projected values are consistent for they are based on the same set of assumptions.

The first Working Capital Account is the A/R, which is computed by dividing the **Net Credit Sales** by the **A/R turnover ratio**. However, as discussed in the previous section, since corporations usually do not disclose their Net Credit Sales, **Total Revenue** is used instead. Historical figures on Tim Hortons' Total Revenue and its A/R are found in the company's historical Income Statement and Balance Sheet, which are found in Appendix A, Table A1 and A2 respectively. The figures are also given in Table 4.4 for convenience. In order to compute the projected A/R figure for 2013, we need to project the A/R turnover ratio for 2013 and then multiply it by the projected Total Revenue of \$3.414 billion. The A/R turnover ratio for 2012, which is computed by dividing the Total Revenue figure by the A/R figure of 2012, is 18.2 times as shown in Table 4.4.¹⁶ Usually for large, well established corporation, turnover ratios remain unchanged and therefore, it is reasonable to keep the projected turnover ratio at 18.2 for the future short-run. Dividing 2013's forecasted Total Revenue figure of \$3.414 billion by the projected A/R turnover ratio of 18.2 yields a projected A/R balance of approximately \$187.6 million as shown from Table 4.4.

Now, we turn to the second Working Capital Account: **Inventory of Final Products** and **Inventory of Raw Materials**. Since no distinction was made between inventories of final products and raw materials (see the company's Balance Sheet in Table A2), we will use the term "**Total Inventory**" to denote both types. Tim Hortons' **Total Inventory turnover ratios** over the past 5 years, i.e., from 2008 till 2012, were 16.5, 16.4, 15.2, 12.9, and 18.3, respectively, as shown from Table 4.4. These turnover rates, were computed by dividing the Cost of Goods Sold (row (b) of table 4.4) by Total Inventories (row (d) of table 4.4). According to these historical turnover ratios, the average total inventory turnover rate is approximately 15.9 times. This average turnover rate will be taken to be the total inventory turnover rate for the projected year 2013. The reason behind using the 5-year average as the forecasted inventory turnover, as opposed to just using 2012's ratio as in the case of A/R turnover (see above), is that the A/R turnover seems to have grown steadily over time, making it more plausible to stay around its latest value in the future. On the other hand, the inventory turnover seems to oscillate around a mean of 15.9 and, thus, an average figure over a longer period seems plausible to capture the essence of this variable. The projected

¹⁶Note that the A/R turnover ratio, as well as the other turnover ratios found in Table 4.4, were rounded to the first decimal place. The same rounding approach is used for the projected turnover ratios of 2013.

	Historical					Projection 2013
	2008	2009	2010	2011	2012	
(a) Total Revenue	2,043,693	2,242,138	2,536,495	2,852,966	3,120,504	3,414,201
(b) COGS	1,180,998	1,318,576	1,527,405	1,774,107	1,959,416	2,143,833
(c) Beginning Inv. **	60,281	71,505	80,490	100,712	136,999	107,000
(d) Ending (Total) Inv.	71,505	80,490	100,712	136,999	107,000	134,832
(e) Purchases*	1,192,222	1,327,561	1,547,627	1,810,394	1,929,417	2,171,665
(f) A/R	159,505	179,942	182,005	173,667	171,605	187,593
(g) A/P	157,210	135,248	142,444	177,918	169,762	201,080
(h) A/R turnover ratio [†]	12.8	12.5	13.9	16.4	18.2	18.2
(i) Inv. turnover ratio [‡]	16.5	16.4	15.2	12.9	18.3	15.9
(j) A/P Turnover ratio [◆]	7.6	9.8	10.9	10.2	11.4	10.8

**Inv. = Inventories
 *Total purchases = Ending Inventory - Beginning Inventory + GOGS, i.e., (e) = (d) - (c) + (b)
[†]A/R turnover ratio = Total Revenue / A/R, i.e., (h) = (a)/(f)
[‡]Inventory turnover ratio = COGS / Total Inventory, i.e., (i) = (b)/(d)
[◆]A/P turnover ratio = Purchases / A/P, i.e., (j) = (e)/(g)

Table 4.4: Historical (2008-2012) and projected (2013) Working Capital schedule for Tim Hortons' Inc. Values are in thousands of Canadian dollars except for turnover ratios.

ending inventory balance for 2013 is obtained by dividing the projected 2013 Cost of Goods Sold of \$2,143 million by the projected inventory turnover of approximately 15.9. This yields a projected **Ending (Total) Inventory** balance of \$134.8 million for 2013 as shown in Table 4.4.

Finally, in order to forecast the company's A/P for 2013, we need, first, to compute a projected value for its A/P turnover ratio. At any year t , The A/P turnover ratio is computed by dividing the company's **Total Purchases** at time t by its A/P at time t . The company's Total Purchases at time t are computed as

$$\text{Total purchases}_t = \text{Ending (Total) Inventory}_t - \text{Beginning Inventory}_t + \text{COGS}_t,$$

where the Beginning Inventory figure at time t is taken to be the Ending (Total) Inventory at time $t - 1$. The historical computations of Total purchases and A/P turnover ratios over the period from 2008 to 2012 are found in Table 4.4. The forecasted A/P turnover ratio figure for 2013 is assumed to be 10.8, which is the average A/P turnover ratio over the last three years, i.e., over the period from 2010 to 2012. The reason behind using **three** years A/P turnover average (instead of five) to project the A/P turnover ratio of 2013 is that the A/P turnover ratios of the two excluded years (2008 and 2009) were far from the normal trend and, thus, were considered outliers and dropped from the analysis.

The projected value of Total Purchases for the year end 2013 is computed as

$$\begin{aligned} \text{Total Purchases}_{2013} &= \text{Ending (Total) Inventory}_{2013} - \text{Ending Inventory}_{2012} \\ &+ \text{COGS}_{2013} \\ &= \$134.8 - \$107 + \$2,143.8 = \$2,171.7 \text{ million.} \end{aligned}$$

The projected A/P balance for 2013 is, therefore, obtained by dividing projected Total Purchases of \$2,171.7 million by the projected A/P turnover of 10.8. This gives a projected A/P balance of \$201.1 million.

So far, we projected the A/R, A/P, and Ending Inventory Accounts for 2013. The last item that needs to be projected in this section is the **Restricted Cash** Account. This account is used

to record the cash received when customers load their Tim cards. To project this item, we will assume that it increases proportionally with Total Revenue. According to the projected Income Statement modelled earlier (see Table A1 in Appendix A), the Total Revenue growth rate was projected to be around 9.4% for 2013. This growth rate will be used to project the Restricted Cash Account for 2013. Therefore, the projected Restricted Cash Account for 2013 is

$$\begin{aligned} \text{Projected Restricted Cash}_{2013} &= \text{Restricted Cash}_{2012} \times 1.094 \\ &= \$150,574 \times 1.094 \\ &\approx \$164.7 \text{ million} \end{aligned}$$

Other Working Capital accounts, such as Notes Receivables, Deferred Income Taxes both in CA and CL, Advertising Fund both in CA and CL, and Accrued Liabilities accounts are projected for 2013 to remain the same as their corresponding figures in 2012 with the exception of the 2013 figure for Other Accrued Liabilities, which is taken to be the weighted average of the previous five years. The Deferred Income Taxes account represents temporary differences in calculation of taxes between tax reporting and financial reporting. As long as the business is a going-concern, Deferred Income Taxes should remain at a stable level. Notes Receivable, Accrued Liabilities and Advertising Fund accounts are assumed constant in 2013 due to the limited information on their expected future trends.

4.2.3 Modelling Other CA and CL Accounts

The only two remaining accounts of CA and CL are **Cash & Cash Equivalents** and **Current Portion of Debt**. The former is projected after projecting the Cash Flow Statement in Section 4.3 and, for that reason, we will postpone its projection for now. The latter account is projected as follows.

The **Current Portion of Debt** account, which is also known the **Short-Term Debt** Account, is modelled using the company's **debt repayment schedule**, which shows the amount of debt that matures each year over the forecasted horizon. Tim Hortons has two long-term debt accounts: **Long-Term Debt** Account and **Capital Leases** Account. Each account has its own repayment schedule.¹⁷ Information regarding Tim Hortons' debt repayment schedules is gathered from the company's 2012 Annual Report. In particular, note 15 in page 118 on **Long-Term Debt** and note 18 in page 123 on **Capital Leases**.¹⁸

By convention of accounting standards, the portions of long-term liability that must be paid in the coming year (12-month) are classified as **Current Liabilities**; that is, the year-end **Current Portion of Debt** Account balance is the **sum** of the portion of **Long-Term Debt** and the portion of **Capital Leases** that must be paid in the following year. In other words,

$$\begin{aligned} \text{Current Portion of Debt Balance}_t &= \text{Portion of Long-Term Debt Payment}_{t+1} \\ &\quad + \text{Portion of Capital Leases payment}_{t+1}. \end{aligned}$$

According to note 15 and note 18, the amounts of Long-Term Debt and minimum Capital Leases payments due in 2014 are \$10.9 million and \$18.7 million respectively. Thus, the forecasted Current Portion of Debt Account for 2013 is \$29.6 million (\$10.9 + \$18.7) as shown from Tim Hortons' projected Balance Sheet in Table A2, Appendix A. Note that the Current Portion of Debt Account balance for 2012 amounting \$20.8 million will be paid off completely in cash in 2013. This last point will become clear when we discuss the Cash Flow Statement in Section 4.3. Now, we turn to the projection of Long-Term Assets and Long-Term Liabilities.

¹⁷Both schedules are discussed in detail in Section 4.2.6.

¹⁸Both pages are found in Appendix B for convenience.

	2008	2009	2010	2011	2012	2013
Implied Depreciation Schedule:						
Accumulated Amortization*	579,847	713,837	725,859	827,562	935,260	
Depreciation Expense	99,141	133,990	12,022	101,703	107,698	
PP&E Schedule:						
		Historical				Projection
PP&E (Beginning Balance)	1,203,259	1,332,852	1,494,032	1,373,670	1,463,765	1,553,308
+ Capital Expenditures	174,247	157,971	132,912	181,267	235,808	273,861
- Depreciation Expense	(99,141)	(133,990)	(12,022)	(101,703)	(107,698)	(114,945)
- Errors	54,487	137,199	(241,252)	10,531	(38,567)	
PP&E (Ending Balance)	1,332,852	1,494,032	1,373,670	1,463,765	1,553,308	1,712,224
PP&E (Ending Balance)	1,332,852	1,494,032	1,373,670	1,463,765	1,553,308	
Depreciation Expense	99,141	133,990	12,022	101,703	107,698	
Depreciation (% of PP&E)	8.2%	10.1%	0.8%	7.4%	7.4%	7.4%
*Amortization balance at the end of 2007 was 480,706.						

Table 4.5: Historical (2008-2012) and Projected (2013) Depreciation and Property Plant and Equipment Schedules. Values are in thousands of Canadian dollars except for percentages.

4.2.4 Modelling Property Plant & Equipment (PP&E)

Two terms immediately come to mind when considering Property Plant & Equipment (PP&E): depreciation and amortization. Our first order of business is to compute the **Implied Depreciation Expense** over the historical period between 2008 and 2012. Guided by these values, we will be able to project the depreciation rate for 2013. The Implied Depreciation Expense is computed by taking the first difference in Accumulated Amortization as shown from the first two rows of Table 4.5. For instance, the Implied Depreciation Expense of \$99,141 in 2008 is computed by taking the difference between the Accumulated Amortization of 2008 and 2007; that is, (\$99,141 = \$579,847 – \$480,706). The reason we are computing the implied depreciation is that we do not have historical values on depreciation by itself and, consequently, we need to derive it from the historical Accumulated Amortization values. The resulting Implied Depreciation figures will be taken as proxies for the historical Depreciation Expenses between 2008 and 2012.

The Property Plant & Equipment (PP&E) schedule is computed according to the following accounting identity:

$$PP\&E_t = PP\&E_{t-1} + \text{Capital Expenditures}_t - \text{Depreciation Expense}_t.$$

The historical ending balances of PP&E are computed as shown in the historical PP&E schedule in Table 4.5, where the balances of Capital Expenditures between 2008 and 2012 are copied from the company's historical Cash Flow Statement and the historical Depreciation Expenses figures are the implied values that were calculated in the first part of the table. Note that in order for the ending balances of the PP&E Account to be consistent with the historical values reported in Tim Hortons' Income Statement, some adjustments were made to account for the approximation errors of the implied depreciation as shown from the fourth row of the PP&E Schedule in Table 4.5.

From the previous PP&E identity, it is clear that the two main drivers of future PP&E are **Depreciation Expense** and **Capital Expenditures**. A quick look at the historical (implied) depreciation figures reported in the bottom part of Table 4.5, one can notice that the rate computed

as a percentage value of the PP&E reached a noticeable low value of 0.8% of PP&E in 2010. Before and after 2010 the rates were way higher than 0.8%. Consequently, taking an average depreciation percentage is not recommended. The recent rate of 7.4% of PP&E, which prevailed in 2011 and 2012, seems to be a more reasonable projected percentage depreciation rate. We will take this rate to be the projected depreciation percentage in 2013. Applying the 7.4% depreciation rate to the beginning net PP&E balance of \$1,553 million 2012, as shown from Table A2 in Appendix A, gives a projected depreciation for 2013 amounting \$114.945 million ($\$1,553 \text{ million} \times 7.4\%$).

Capital Expenditures are forecasted using the management guidance provided in the Annual Report for the fiscal year 2013. According to the report, Capital Expenditures are expected to be anywhere in the range of \$250 to \$300 million. We will consider the geometric mean of \$274 million as the projected Capital Expenditures for 2013 in our model. Using the geometric mean, as opposed to the arithmetic mean, is reasonable here since we have a minimum and a maximum expected values. In general, an arithmetic mean is useful when we have multiple values and we expect the projected one to be close to the historical data. A geometric mean, on the other hand, is useful when we have an upper and a lower bound on our forecast as it simply shows the mid-distance between the two bounds. The geometric mean is computed as

$$\text{Geometric Mean} = \sqrt{\min \times \max},$$

where min and max denote the minimum value and the maximum value respectively.

Therefore, from the previous identity, the 2013 year-end projected PP&E balance is \$1,712 million as follows:

$$\begin{aligned} \text{PP\&E}_{2013} &= \text{PP\&E}_{2012} + \text{Capital Expenditures}_{2013} - \text{Depreciation expense}_{2013} \\ &= \$1,553 + \$274 - \$114.9 \\ &= \$1,712 \text{ million.} \end{aligned}$$

4.2.5 Modelling Other Long-Term Assets

Other long-term assets such as long-term Notes Receivable, long-term Deferred Income Taxes, Equity Investments, and Other Assets are assumed to remain constant at their respective 2012 year-end figures throughout the projected period of 2013. The main reason behind keeping these accounts constant is the limited information available regarding their future trends. In such cases, one should follow the precautionary approach and keep these accounts fixed over the forecasted horizon.

The **Intangible Assets** Account is reduced by the amortization expense provided by Tim Hortons' management.¹⁹ The intangible assets' amortization expense was estimated at \$0.9 million in 2013. No guidance regarding future intangible asset acquisition was provided by the management. Any projected year-end balance is computed by subtracting the guided amortization expense from the intangible asset figure at the beginning of the year. Therefore, the 2013 year-end Intangible Assets Account balance of \$2.7 million is calculated by subtracting the \$0.9 million amortization expense from the beginning balance of \$3.6 million as shown in Table A2, Appendix A.

4.2.6 Modelling Long-Term Debt and Capital Leases

In general, a company borrows, or is engaged in debt, in order to raise funds to finance certain activities. The nature of the activity determines the type of borrowing needed to financing it, i.e., short-term or long-term borrowing. For instance, daily production operations are best financed by short-term debt, e.g., by issuing short-term bonds or by taking short-term loans from commercial

¹⁹See footnote 11, page 115 in the company's 2012 Annual Report. The page is also found in Appendix B for convenience.

Long-Term Debt Schedule in \$000	2012	2013	2014
Long-Term Debt (Beginning Balance)		359,471	1,248,530
+ New Debt Issues		900,000	
- Current Portion of Debt (move to CL)	(11,947)	(10,941)	(10,545)*
Long-Term Debt (Ending Balance)	359,471	1,248,530	1,237,985
*From Tim Hortons' Annual Report.			

Table 4.6: Long-Term Debt Schedule. Values are in thousands of Canadian dollars.

banks. Fixed assets, on the other hand, are best financed by issuing long-term debt instruments such as long-term bonds. In Tim Hortons' case, the company is using two long-term financing sources; namely, **Long-Term Debt** and **Capital Leases**. As we will see shortly, the two accounts will be forecasted using historical trends and management guidance.

Consider the **Long-term Debt** Account. At any year t , the Ending Long-Term Debt Balance is computed from the following formula:

$$\begin{aligned} \text{Ending Balance of Long-Term Debt}_t &= \text{Beginning Balance of Long-Term Debt}_t \\ &\quad + \text{New Debt Issues}_t \\ &\quad - \text{Current Portion of Debt Balance}_t, \end{aligned}$$

where the Beginning Balance of Long-Term Debt at year t is the Ending Balance of Long-Term Debt at year $t - 1$ and the Current Portion of Debt Balance at year t is the **minimum payment** on Long-Term Debt **due in year $t + 1$** . The current portion of Long-Term Debt balance in year t is moved to the Current Liabilities Account in the Balance Sheet of the same year. For 2013, the projected ending balance of the Long-Term Debt is computed as

$$\begin{aligned} \text{Projected Long-Term Debt}_{2013} &= \text{Ending Balance of Long-Term Debt}_{2012} \\ &\quad + \text{New Debt Issues}_{2013} \\ &\quad - \text{Current Portion of Debt Balance}_{2013}, \end{aligned}$$

where the Current Portion of Debt Balance in 2013 is the **minimum payment** on Long-Term Debt **due in 2014**. From Tim Hortons' Balance Sheet (Table A2, Appendix A), the Ending Balance of Long-Term in 2012 is \$359.5 million. As for the new issues, due to an announced capital structure change, Tim Hortons is leveraging its Balance Sheet by issuing \$900 million of Long-Term Debt in 2013 and using the proceeds to buy-back its shares in the open market. Finally, as mentioned in Section 4.2.3, information on the portion of Long-Term Debt that is due in any given year is found in note 15, page 118 of the company's Annual Report. According to the report, the minimum amount of Long-Term Debt due in 2014 is approximately \$10.9 million and, thus, the projected Long-Term Debt for 2013 is

$$\text{Projected Long-Term Debt}_{2013} = \$359.5 + \$900 - \$10.9 = \$1,249 \text{ million}$$

as shown from the Long-Term Debt Schedule in Table 4.6. Notice that the minimum payment of the Long-Term Debt Account of \$10.9 million due in 2014 is recorded in 2013 and moved to the Current Portion of Debt Account in the **Current Liabilities** in 2013's Balance Sheet.

The second source of debt financing is **Capital Leases**. Note 18 in page 123 of the Annual Report on Capital Leases²⁰ provides a stream of minimum lease payments, or required cash outflows over the period between 2013 and 2017. In particular, the company is projecting minimum

²⁰See Appendix B.

Capital Leases Schedule in (\$000)	2012	2013	2014
Capital Leases (Beginning Balance)		104,383	105,731
+ New Issuances		20,000	20,000
- Minimum Payment Due (moved to CL)	(19,690)	(18,652)	(18,315)
Capital Leases (Ending Balance)		105,731	107,416

Table 4.7: Capital Leases Schedule. Values are in thousands of Canadian dollars.

payments of \$19.690 million in 2013, \$18.652 million in 2014, \$18.315 million in 2015, \$16.226 million in 2016, and \$13.923 million in 2017.

The Capital Leases figure at any year t is computed in the same way as the Long-Term Debt Account. At any given year t ,

$$\begin{aligned} \text{Ending Balance of Capital Leases}_t &= \text{Beginning Balance of Capital Leases}_t \\ &\quad + \text{New Issuance}_t \\ &\quad - \text{Minimum Payment Due}_{t+1}, \end{aligned}$$

where Beginning Balance at year t is the Ending Balance at year $t - 1$ and the last term represents the portion of Capital Leases that will be moved to the Current Liabilities of year t . Based on the Company's history, we will assume New Issuance of Capital Leases to be \$20 million yearly over the forecast horizon. Therefore, the projected Capital Leases in 2013 is computed as

$$\begin{aligned} \text{Projected Capital Leases}_{2013} &= \text{Ending Balance of Capital Leases}_{2012} \\ &\quad + \text{New Issuance}_{2013} \\ &\quad - \text{Minimum Payment Due}_{2014} \\ &= \$104.383 + \$20 - \$18.652 \\ &= \$105.7 \text{ million.} \end{aligned}$$

The previous computations are shown in the Capital Leases Schedule in Table 4.7. Notice that the minimum payment of the Capital Leases Account of \$18.7 million due in 2014 is recorded in 2013 and moved to the Current Portion of Debt Account in the **Current Liabilities** in 2013's Balance Sheet.

4.2.7 Modelling Interest Expenses

The **Interest Expenses** Account is the sum of all debt expenses incurred by a corporation. The cost of debt is computed by multiplying the amount borrowed by the interest rate charged on that amount. The cost of debt varies according to the type of debt; the rate on short-term bonds is different than the rate charged by commercial banks on short-term loans, and so on. Therefore, in order to project the Interest Expenses Account, first we need to identify the sources of finance, then project the amount of debt due in 2013 along with its expected interest rate, then multiply the amount projected by the corresponding projected rate and sum. In Tim Hortons' case, the company is using two sources of financing; namely, **Long-Term Debt** and **Capital Leases**. In what follows, we will project the cost of each type.

Consider the **Long-Term Debt** Account. From Tim Hortons' Balance Sheet, the amount of Long-Term Debt in 2012 is \$359.5 million. This figure is taken to be the Outstanding Long-Term Debt in the beginning of 2013. To compute the interest expense on 2012's debt, we should use the company's current interest rate. According to Note 15, page 118 of the company's Annual Report, the company's **weighted average effective interest rate** on total debt as at December 30, 2012 is 6.2%.

In addition to the projected Long-Term Debt Outstanding in the beginning of 2013, following management guidance, a **new** issuance of \$900 million will be made in 2013. Since the \$900 million in debt is a new issue, we cannot use the company's 2012 weighted average effective rate on total debt of 6.2% to calculate the cost of the new issue because the rate is subject to different factors, which are dynamic in nature. Instead, we should forecast the interest rate on the new issue. To this end, an assessment of Tim Hortons' risk of default is needed. The idea here is that the interest paid on bonds is considered a cost for the issuing company and a return for the bond holder, i.e., the investor. The higher the risk²¹ of the issuing company, the more the rate of return required by investors in order to hold the bond and, hence, the higher the cost of issuing such bond. Fortunately, we do not have to assess the riskiness of Tim Hortons' bonds as there are credit rating agencies, such as Moody's and Standard & Poor's, which are specialized in assigning credit ratings of the debtor's ability to repay the interest on the debt and of the likelihood of default. Tim Hortons' bonds are classified as BBB by the credit rating agencies. The yield on bonds of similar rating is around 5.2%.²² This rate will be taken as the projected interest rate on Tim Hortons' new bond issuance in 2013.

From the previous discussion, the interest on the old debt is 6.2% and the interest on the new debt is 5.2%. Both figures can then be taken to compute **the weighted average effective interest rate on Long-Term Debt** by simply multiplying each type of interest rate by the weight of the corresponding debt type; that is, at any given year t ,

$$\text{Weighted Average Interest}_t = \left[\left(\frac{\text{Old Debt}_t}{\text{Total Debt}_t} \right) \times 6.2\% \right] + \left[\left(\frac{\text{New Debt}_t}{\text{Total Debt}_t} \right) \times 5.2\% \right].$$

For 2013, the Weighted Average Interest is found to be 5.5% as

$$\begin{aligned} \text{Weighted Average Interest}_{2013} &= \left[\left(\frac{\$359,471}{\$1,259,471} \right) \times 6.2\% \right] + \left[\left(\frac{\$900,000}{\$1,259,471} \right) \times 5.2\% \right] \\ &= 5.5\%. \end{aligned}$$

The previous computation is summarized in the top part of Table 4.8. The projected Interest Expenses on Long-Term Debt (LTD) in 2013 is then computed by multiplying the total amount of debt by the weighted average rate as

$$\text{Interest Expenses on LTD}_{2013} = \$1,259,471 \times 5.5\% = \$69.1 \text{ million.}$$

Now, we turn to the projection of the Interest Expenses on **Capital Leases**.

The Capital Leases Ending Balance of 2012, which is taken to be the Beginning Balance of 2013, is \$104.383 million as shown from Tim Hortons' historical Balance Sheet in Table A2, Appendix A, or from the Capital Leases Schedule in Table 4.7. Adding \$20 million of new leases in 2013 as per our previous assumption, gives a total Capital Leases balance of \$124.383 million in 2013. To compute the interest rate on Capital Leases, we treat the leases as a project characterized by a net present value (NPV) and a stream of cash flows over its expected life time. In project valuations, the stream of cash flows are the net benefit (cash in minus cash out) that the project is expected to generate over its life time. The **internal rate of return** (IRR) of the project is the rate that equates today's value of the project, i.e., its NPV, to the present value of all expected cash flows and it is computed from the following formula:

$$\text{NPV} = \sum_{t=1}^n \frac{\text{Net Cash Flow}_t}{(1 + \text{IRR})^t},$$

²¹There are many types of risks. The risk that I am referring to here is the company's specific risk, e.g., default risk or the risk of bankruptcy.

²²The credit rating of Tim Hortons can be found on Bloomberg using the function <CRPR> and the yield of BBB bonds can be found by searching the yield on a BBB bond index, such as the Moody's Baa (BBB) bond index.

Calculation of Weighted Average Interest Rate	2013
(a) Long Term Debt (Old Debt)	359,471
(b) Interest on Old Debt (%)	6.2%
(c) New Issuance of Long Term Debt	900,000
(d) Interest on New Debt(%)	5.2%
(e) Total Long-Term Debt = (a) + (c)	1,259,471
(f) Weight of Old Debt = (a)/(e)	0.285
(g) Weight of New Debt = (c)/(e)	0.715
(h) Weighted Average Rate = (f)×(b)+(g)×(d)	5.5%
(i) Interest Expenses on Long-Term Debt = (h)×(e)	69,087
(j) Capital Leases (Beginning Balance)	104,383
(k) New Issuance of Capital Leases	20,000
(l) Total Capital Leases = (j) + (k)	124,383
(m) Interest on Capital Leases (%)	11.09%
(n) Interest Expenses on Leases = (l)×(m)	13,807
(o) Revolver (see Revolver Schedule)	0
Interest Expenses = (i) + (n) + (o)	82,893

Table 4.8: Interest Expense Schedule. Values are in thousands of Canadian dollars except percentages.

where n is the expected life time of the project. In case of Capital Leases, we do not have cash inflows; only projected cash outflows, i.e., minimum lease payments, over the expected life time of the lease. Thus, the IRR of the lease is simply its cost in percentage and is computed as

$$\text{NPV of Lease} = \sum_{t=1}^n \frac{\text{Minimum Lease Payment}_t}{(1 + \text{IRR})^t},$$

where n is taken to be the life time of the lease agreement. Therefore, in order to compute the IRR of Capital Leases, we need information on its NPV, expected life time, and expected future minimum payments. The previous information are found in the company's Annual Report.

Note 18 in page 123 on Capital Leases in Tim Hortons' Annual Report describes the components and terms of the company's Capital Leases. In particular, the company occupies land and buildings and uses equipment under numerous lease agreements expiring on various dates. Land and Building leases, still according to the note, have an initial term of 10 to 30 years. In reality, a 30-year term is highly unlikely. Most of the terms are 10 to 16 years long. Therefore, a reasonable hypothesis here is to take the average of 13 years as the life time of the projected Capital Leases. This means that the minimum lease payments will be projected over 13 years from 2013 till 2025. According to Note 18 in Tim Hortons' Annual Report, the expected stream of minimum lease payments of \$19.7, \$18.7, \$18.3, 16.2, and \$13.9 million for the period between 2013 and 2017. To compute the minimum lease payments in the remaining 8 years, i.e., between 2018 and 2025, we will assume for simplicity that the company will not take more leases after 2017 and it will make constant minimum lease payments until the existing balance of Capital Leases is exhausted by 2025. Subtracting the previous minimum lease payments expected between 2013 and 2017 from the total Capital Leases yields approximately \$127 million that needs to be allocated in equal payments over the remaining 8 years. This gives a minimum payment of \$15.875 million annually for the period between 2018 and 2025. Finally, according to page 124 of the same report, the present value of the net minimum lease payments is given to be \$113.217 million. Using this NPV and the 13 minimum payments,

the Capital Leases' IRR is computed from the following equation:

$$\begin{aligned} \$113.217 \text{ million} &= \frac{19.7}{(1 + \text{IRR})^1} + \frac{\$18.7}{(1 + \text{IRR})^2} + \frac{\$18.3}{(1 + \text{IRR})^3} + \frac{\$16.2}{(1 + \text{IRR})^4} + \frac{\$13.9}{(1 + \text{IRR})^5} \\ &+ \sum_{n=6}^{13} \frac{\$15.875}{(1 + \text{IRR})^n}. \end{aligned}$$

Solving the previous expression for IRR yields a rate of 11.09%. This rate is taken to compute the Interest Expenses on Capital Leases.

To sum up, the projected Interest Expenses figure for 2013 is computed as:

$$\begin{aligned} \text{Interest Expenses}_{2013} &= \text{Total Long-Term Debt}_{2013} \times \text{Weighted Average Effective Rate}_{2013} \\ &+ \text{Capital Leases}_{2013} \times \text{IRR} \\ &+ \text{Revolver Debt}_{2013} \\ &= (\$1,259,471 \times 5.5\%) + (\$124.4 \times 11.09\%) + \$0 \\ &= \$82.9 \text{ million,} \end{aligned}$$

where the Revolver Debt amount is computed from the Revolver Schedule, which will be discussed in detail in Section 4.3.4.

4.2.8 Modelling Other Liabilities

Other Liabilities are treated in the same way as other assets. No specific guidance is given on these accounts. Therefore, they are kept constant over the forecast horizon.

4.2.9 Modelling Common Stock Account

The main driver of Tim Hortons' Common stock Account is **share repurchases**. Each year, the account is reduced by an amount equal to the number of shares repurchased multiplied by the stated value. The latter is the value of one stock recorded in the accounting books and does not relate to the market price. It is for accounting purposes only and has been instigated as a level of protection in case of bankruptcy in order to assure a certain liquidation value. It is closely related to the legal capital.

The stated value is currently \$2.84 per share, which is calculated by dividing the balance of the Common Stock Account at the end of 2012 by the number of shares outstanding at the end of 2012. The excessive amount paid over the \$2.84 per share is allocated as a reduction to **Retained Earnings** in order to keep the Balance Sheet balanced.

According to Tim Hortons' Annual Report, the company announced that it is planning to undergo a change in its capital structure by issuing \$900 million long-term debt in 2013 and using the proceeds to buy back its shares in the open market in 2014. Moreover, earlier in 2012 before the announcement of the capital structure change, the company has announced \$200 million share repurchases financed by internal cash flow. Therefore, the total amount of share repurchases over the two years (2013 and 2014), financed either from issuing long-term debt or from cash flow, amounts to \$1,100 million. The management did not specify an exact expected amount of share repurchases in 2013 and 2014; they only announced that repurchases will be slightly higher in 2013. Accordingly, we will forecast \$600 million repurchases in 2013 and \$500 million in 2014.

To compute the number of shares on average that can be purchased each year, we need to forecast the average yearly share price, P , over the projected period. The future growth rate of share price is assumed to be consistent with the growth rate of earnings, i.e., the growth rate of

Calculations of the Stated Value of Common Stock	2013
Common Share Account (Year-End 2012)	\$435,033
Basic Shares Outstanding (Year-End 2012)	153,405
Stated Value Per Share	\$2.84
2013 Program Repurchase Amount	\$600,000
Share Repurchase Price	\$51.23
Amount of Shares Purchased	11,711,888

Table 4.9: Common Stock Account calculations. Values are in thousands of Canadian dollars.

the **Net Income to Shareholders** Account. From the projected Income Statement discussed in the previous section, Net Income to Shareholders increased from \$402,885 in 2012 to \$427,296 in 2013. Therefore, the growth rate of earnings in 2013 is 6.06%. Thus, the projected share price in 2013 is

$$P_{2013} = P_{2012}(1 + 0.0606),$$

where $P_{2012} = \$48.3$ is the recorded stock price of Tim Hortons' stock. Accordingly, the projected stock price for 2013 is \$51.23 as

$$\begin{aligned} P_{2013} &= \$48.3(1 + 0.0606) \\ &= \$51.23. \end{aligned}$$

Given a projected share price of \$51.23 in 2013, we conclude that the \$600 million can repurchase 11,711,888 shares. Table 4.9 summarizes the previous results.

The amount deducted from the Common Stock Account is $11,711,888 \times \$2.84$ or approximately \$33.2 million. The remaining \$566.8 million ($\$600 - \33.2) is deducted from Retained Earnings. This deduction will keep the Balance Sheet checked in balance for the \$600 million decrease on the asset side will be consistent with the \$600 million drop in the liability and equity side.

4.2.10 Modelling Retained Earnings

In order to model the **Retained Earnings** Account, the analyst needs, first, to model dividends. Since Tim Hortons' management has a target payout ratio of 35 to 40 percent, it is reasonable to assume a mid-point target pay-out ratio of 37.5% in our model. The projected dividends paid in any given year t is equal to the dividends paid in year $t - 1$ plus the average of the amount paid out over a projected period of n years. This amount paid corresponds to the Net Income to Shareholders multiplied by the average pay-out ratio of 37.5%; that is,

$$\text{Dividends}_t = \text{Dividends}_{t-1} + \frac{1}{n} [(\text{Net Income}_t - \text{Net Income}_{t-1}) \times 37.5\%].$$

The choice of n is subjective and depends on the analyst's judgement. Tim Hortons spreads this 37.5% over a certain period in order to take into account the possible changes in income over the life time of the corporation and hedge against downturns, thus allowing them to keep paying dividends in the future. Usually, financial analysts use 3 to 5 years in their adjustments. In our case, the choice of $n = 3$ seems reasonable for it best fits Tim Hortons' historical dividend

payments. Following this rationale, the 2013 projected dividends is computed as

$$\begin{aligned}\text{Dividends}_{2013} &= \text{Dividends}_{2012} + \frac{1}{3} [(\text{Net Income}_{2013} - \text{Net Income}_{2012}) \times 37.5\%] \\ &= \$130.5 + \frac{1}{3} [(\$427.3 - \$402.9) \times 37.5\%] \\ &= \$133.6 \text{ million.}\end{aligned}$$

Using the forecasted dividends, the analyst can then forecast Tim Hortons' Retained Earnings by adding Net Income in a given year to the previous year's Retained Earnings balance and then subtracting Dividends. Because of the share repurchases, the analyst needs also to subtract the excessive amount that is not allocated to the Common Stock Account as discussed in the previous section.

The Excessive Amount paid over the stated value for repurchase of the shares is calculated as

$$\begin{aligned}\text{Excessive Amount}_{2013} &= (\text{Price Paid}_{2013} - \text{Stated Value}_{2013}) \times \text{Amount Repurchased}_{2013} \\ &= (\$51.23 - \$2.84) \times 11,711,888 = \$566,786,852\end{aligned}$$

Therefore, the Retained Earnings for any given year t are computed as

$$\begin{aligned}\text{Retained Earnings}_t &= \text{Retained Earnings}_{t-1} + \text{Net income}_t - \text{Dividends Paid}_t \\ &\quad - \text{Excessive Amount over the stated value of } \$2.84 \text{ for share repurchases}_t.\end{aligned}$$

For 2013, the previous equation becomes

$$\begin{aligned}\text{Retained Earnings}_{2013} &= \text{Retained Earnings}_{2012} + \text{Net income}_{2013} - \text{Dividends Paid}_{2013} \\ &\quad - \text{Excessive Amount over the stated} \\ &\quad \text{value of } \$2.84 \text{ for share repurchases}_{2013} \\ &= \$893.6 + \$427.3 - \$133.6 - \$566.8 = \$620.6 \text{ million.}\end{aligned}$$

4.2.11 Modelling Other Equity Accounts

Other equity accounts are **Contributed Surplus** Account and **Accumulated Other Comprehensive Income** Account. The Contributed Surplus Account shows any earnings that a company makes from sources other than profits. An example would be issuing and selling shares at a price higher than their par value. The importance of forecasting this account is to help investors and shareholders to distinguish between operational and non-operational income. Earnings from Contributed Surplus are not part of the ongoing business operation and, thus, are classified as non-operational income.

The **Contributed Surplus** Account in any given year t is modelled by adding year t 's **Stock-Based Compensation Expense**²³ figure from the Cash Flow Statement to the Contributed Surplus Account in year $t - 1$; that is,

$$\text{Contributed Surplus}_t = \text{Stock-based Compensation}_t + \text{Contributed Surplus}_{t-1}.$$

Since the stock price is driven by changes in the company's Total Revenue, it is not unreasonable to entertain the assumption that it is expected to grow proportionally to Net Income. Net income

²³Stock-based compensation is a way of compensation used by corporations to reward its executives. The idea is that by making compensations that are stock-based, executives will be motivated to work harder since their compensations are tied to the increase in the company's stock price.

growth rate was forecasted to be 6.06% in 2013 as mentioned in the previous section. Following the previous rationale, the projected Contributed Surplus for year 2013 can be calculated as follows:

$$\begin{aligned}
 \text{Contributed Surplus}_{2013} &= \text{Stock-based Compensation}_{2013} + \text{Contributed Surplus}_{2012} \\
 &= [\text{Stock-based Compensation}_{2012} \times (1 + 0.0606)] \\
 &\quad + \text{Contributed Surplus}_{2012} \\
 &= [\$12,581 \times (1 + 0.0606)] + \$10,970 = \$23.6 \text{ million.}
 \end{aligned}$$

The **Accumulated Other Comprehensive Income** (AOCI) Account measures gains and losses of a corporation that have yet to be realized from variety of sources such as gains and losses on securities and derivatives, foreign investments, and currency hedges. Given the nature of this account and its components, it is difficult to predict it with high degree of accuracy. In practice, most analysts prefer to use the safe approach and assume that this account remains constant at its 2012's figure. We will entertain this assumption in our model.

The **Shares Held in Trust** Account are also assumed to remain constant at its 2012 level for the same reason mentioned above.

4.3 Cash Flow Statement Modelling

The Net Cash Flow of a corporation is the sum of the Net Cash Flow from Operations (CFO), the Net Cash Flow from Investing (CFI), and the Net Cash Flow from Financing (CFF). The three accounts are modelled in the following sections.

4.3.1 Modelling Cash Flows from Operations

To model the cash flow of a company, we begin with the Net Income figure and adjust it for non-cash items including Depreciation and Amortization Expenses. Then, we account for changes in the components of the Working Capital Account, i.e., changes in CA and CL Accounts, excluding the debt related items such as Capital Leases. An increase in CA or a decrease in CL represents a cash **outflow** while a decrease in CA or an increase in CL represents a cash **inflow**.

In Section 4.2.4, the projected Depreciation Expense for 2013 was found to be \$114.945 million (see Table 4.5) and according to Note 11, page 115, in the company's Annual Report, the estimated intangible Amortization Expense for 2013 was approximately \$0.9 million. Therefore, the projected value of the **Depreciation and Amortization** Account is \$115.845 million as shown from the projected Statement of Cash Flows in Table A3, Appendix A.

The projected value of the **Stock Based Compensation** Account is its 2012 value grown by the growth rate of Net Income to Shareholders, which was projected as 6.06% in the previous section.

Together, all pervious projections yields a projected Net Cash Flow from Operating Activities of \$492.919 million as shown from Table A3 in Appendix A.

4.3.2 Modelling Cash Flows from Investing

The most important item of the Cash Flow from Investing section of Tim Hortons' Statement of Cash Flows is the **Capital Expenditures** Account. This account is the counterpart of the **Operating Expenses** Account. While the latter is an ongoing cost of running a product or service, the former is the cost of one-time expense involved in developing a product or a service. Recall from Table 4.5, Section 4.2.4, that the projected figure of Capital Expenditures in 2013 was \$273,861 million. This figure corresponds to the Cash Outflow from Investing Activities. There is no specific guidance given by Tim Hortons' management on Investments or Advertising

Expenditures. Therefore, we will assume that these accounts will not incur outflows in 2013, and consequently, will be kept constant. The projected balance of Net Cash From Investing Activities is $-\$273.861$ million in 2013 as shown from the projected Statement of Cash Flows in Table A3, Appendix A.

4.3.3 Modelling Cash Flows from Financing

The Cash Flow from Financing reconciles changes in the Balance Sheet that are related to certain equity and debt accounts. For instance, cash dividends paid to shareholders is an considered an outflow while cash received from the issuance of bonds is an inflow. The projected Net Cash Flow From Financing figure of $\$165.7$ million in Table A3, Appendix A, is calculated by adding the following changes in Tim Hortons' Equity and Debt accounts:

- (1) $\$600.0$ million cash **outflow** due to repurchases of common shares in 2013.
- (2) $\$133.6$ million cash **outflow** due to a the dividends payments projected in 2013.
- (3) $\$920.0$ million cash **inflow** raised from **long-term obligations**, i.e., new issuances of Long Term Debt and Capital Leases expected in 2013.
- (4) $\$20.8$ million cash **outflow** used to pay down **short-term debt obligations** in 2013. These obligations are the ending short term debt balance in the prior year, i.e., year 2012.

Based on the previous projections, the projected Net Cash Flow for 2013 is computed as

$$\begin{aligned}
 \text{Projected Net Cash Flow}_{2013} &= \text{CFO}_{2013} + \text{CFI}_{2013} + \text{CFF}_{2013} \\
 &= \$492.919 - \$273.861 + \$165.659 \\
 &= \$384.717 \text{ million.}
 \end{aligned}$$

That figure in addition to the Cash figure at the beginning of 2013, which is the balance of the Cash Account in the Balance Sheet at the end of 2012, yields a projected Cash figure of $\$504.856$ million for 2013 as shown from Table A3, Appendix A.

4.3.4 Adding a Revolver to Ensure Positive Cash Balance

Most companies wish to maintain a minimum cash level for their operations and an adequate level of short term liquidity. To satisfy this need for short term liquidity, a **Revolver**, i.e., a revolving line of credit, is used. The company pays a small commitment fee up-front to the bank and, in return, the bank allows the company to borrow up to a specified amount. We assume in our model that Tim Hortons will maintain a cash balance equal to at **least** 5% of Total Revenue.²⁴ Given the forecasted Total Revenue of $\$3,414.2$ million in 2013 (see the projected Income Statement in Table 1, Appendix A), the year-end cash balance must be at least $\$170.7$ million (5% of the $\$3,414.2$ million).

To determine whether the Revolver should be triggered or remain unused, the **Pre-Revolver Cash Flow** must be calculated. The Revolver will be triggered if the Pre-Revolver Cash Flow is negative.

The Pre-Revolver Cash Flow is computed by adding four components: (1) Beginning Cash Balance, (2) Cash Flow from Operations, (3) Cash flow From Investing, and (4) Cash Flow from

²⁴Tim Horons' cash as a percentage of sales dropped historically from 10% of sales in 2008 to 4% in 2011 and 5% in 2010. Based on these rates, the model assumes that Tim Hortons will maintain a cash balance equal to at least 5% of Total Revenue.

Financing (excluding the Revolver), then subtracting the required minimum cash balance; that is,

$$\begin{aligned} \text{Pre-Revolver Cash Flow} &= \text{Beginning Cash Balance} + \text{CFO} + \text{CFI} + \text{CFF}(\text{pre-Revolver}) \\ &\quad - \text{minimum cash balance.} \end{aligned}$$

The following is an example to illustrate the previous formula. Assume a Beginning Cash Balance of \$100 million, Cash Flow From Operations of \$30 million, Cash Flow from Investing of $-\$40$ million, and Cash Flow from Financing (pre-Revolver) of \$10 million. Assume further that the minimum cash balance is \$80 million. Then, the Pre-Revolver Cash Flow is

$$\begin{aligned} \text{Pre-Revolver Cash Flow} &= \$100 + \$30 - \$40 + \$10 - \$80 \\ &= \$20 \text{ million.} \end{aligned}$$

Because the result is positive, the Revolver will **not** be triggered as the minimum cash balance is satisfied and the company is solvent. If we assume, however, that the Cash Flow from Investing in the example above is $-\$90$ million instead of $-\$40$ million, then the Pre-Revolver Cash Flow will be $-\$30$ million as

$$\begin{aligned} \text{Pre-Revolver Cash Flow} &= \$100 + \$30 - \$90 + \$10 - \$80 \\ &= -\$30 \text{ million.} \end{aligned}$$

This implies that \$30 million needs to be borrowed from the Revolver in order to maintain the minimum cash balance of \$80 million. Therefore, \$30 million has to be added to the Balance Sheet as Revolver Debt under **Long-Term Liabilities** (see Table A2, Appendix A) and \$30 million has to be added as Cash Inflow in the **Cash Flow from Financing** section in the Statement of Cash Flows (see Table A3, Appendix A).

Fortunately, in our case, Tim Hortons' Pre-Revolver Cash Flow is positive from 2013 and, therefore, the Revolver is not expected to be triggered for that year. However, it is expected to be triggered in the years between 2014 and 2017

4.4 Checking the Model

Modelling financial statements is a fairly complicated process with numerous calculations and formulas. Once we finish all financial statement schedules and projections, we should verify that the model is free from any computational errors. The process of verifying the validity of the model is called **auditing**. While there is no unique way or approach to audit a model, it is recommended to review it in the reverse order of the steps which were used to build it. We suggest the following procedure:

1. Start from the final balances in the projected financial statements.
2. Check the formulas used in your computations and make sure that each one is connected to the right cell in the supporting Excel schedule.
3. Review the calculations used in the supporting schedules.
4. Make sure that your results are consistent with the model's assumptions.
5. Always justify the assumptions of the model.²⁵

Auditing a model may seem like a tedious task. However, if the auditor follows a clear and systematic approach, this will increase the likelihood of finding any errors, which, in turn, makes the model more reliable.

²⁵For a list of all the assumptions used in this model, see Appendix C.

Chapter 5

Ratio Analysis

The reasons behind analyzing and projecting the financial statements pertaining to a particular firm are twofold: (1) To assess the firm's performance and (2) to compute the intrinsic value, i.e., the fundamental value, of its common stock. The former is possible through **Ratio Analysis** whereas the latter is possible through **Fundamental Analysis**. We begin with ratio analysis.

Ratio Analysis is the process of interpreting certain ratios computed from the historical and projected financial statements of the corporation in order to assess its performance. A complete assessment of any firm's performance is an assessment of its **liquidity, activity, debt, risk, and profitability**. Each characteristic can be evaluated from the computation and interpretation of certain ratios as we will see shortly. Parties interested in ratio analysis are shareholders, creditors, and the firm's own management. For instance, creditors, e.g., bond holders, are interested in the liquidity of the firm, which is the firm's ability to pay the interest and the principal of the debt. Shareholders are more interested in the firm's risk-reward relation. Managers, on the other hand, are after evaluating the firm's activities.

In order to evaluate all the previous aspects of the firm's performance, the previous measures of liquidity, activity, debt, risk, and profitability must be compared to either the **industry averages** or to their **historical values**. The former is known as **cross section ratio analysis** whereas the latter is known as **time series ratio analysis**. A combined analysis can also be used. Whether it is time series or cross section, the analysis reveals anomalies or potential problems in the company that require improvement or further investigations.

In the following few sections, we give a brief discussion on the previous ratios. The ratios are classified into five categories according to their type. However, before we proceed, a few words on ratio analysis are in order. **First**, note that one should not judge the performance of a corporation from just analyzing one ratio. It is paramount to evaluate all aspects of the firm's activities in order to make an informative evaluation. **Second**, ratios with large deviations from the industry average indicate a serious problem that requires further analysis. **Third**, in time series ratio analysis, comparing different ratios must be performed using financial statements evaluated at the same point in time during the year. **Fourth**, in cross section ratio analysis, differences in accounting methods and treatments adopted by other firms in the industry can result in different numbers within the financial statements for the same item. This, in turn, can result in different industry averages that look like outliers when compared to the corresponding ratios pertaining to the firm under consideration. **Fifth**, the selected industry, or the **universe** in cross section analysis, may contain companies that have business segments that are significantly different from the company under consideration. This could be another cause of industry averages that look like outliers in the analysis.

5.1 Different Types of Financial Ratios

5.1.1 Liquidity Ratios

Liquidity ratios are measures of the firm's ability to satisfy its short-term obligations as they come true using its short-term assets. In other words, these ratios are used to assess the **liquidity** of the firm. There are two basic measures of liquidity: the **Current Ratio**, CR , and the **Quick Ratio**, QR , which is also known as the **Acid-Test** ratio.

The CR is defined as the ratio of Current Assets to Current Liabilities; that is,

$$CR = \frac{\text{Total Current Assets}}{\text{Total Current Liabilities}}.$$

It is a general measure of liquidity and it should be greater than 1, otherwise the firm will have trouble meeting its short-term obligations. A Current Ratio that is well above the industry average is indicative of a good liquidity position. But, as we just said, it is a general measure of liquidity as the Current Assets also include Inventories, which are the least liquid assets. Thus, a more precise measure of liquidity is the one that measures the Current Assets excluding Inventories relative to the total Current Liabilities. This is the Quick Ratio and it is defined as

$$QR = \frac{\text{Total Current Assets} - \text{Inventories}}{\text{Total Current Liabilities}}.$$

The Quick Ratio measures the ability of the firm to pay off its short-term obligations without relying on the sale of Inventories. This ratio should also be greater than 1 to ensure a good liquidity position.

In general, if the liquid assets of a firm can cover all its short-term liabilities, i.e., if the CR and QR are greater than one, then it is a clear indication that the firm can pay off its short-term obligations with ease. Therefore, in theory, larger ratios are usually better. In practice, however, higher ratios may not always be a signal for good liquidity and lower ratios may not always be a bad sign of liquidity. For instance, a firm may have a high Current Ratio, yet it may have a liquidity problem. The reason is that Current Ratio is flawed for it assumes that all Current Assets can be quickly converted to cash in order to pay the firm's current obligations, which may not be the case. Therefore, it is important to be aware that these ratios do not fully reflect the true liquidity of a company. Some Current Assets may not be as liquid and the task of converting them into cash may not be an easy one.

5.1.2 Activity Ratios

In general, Activity Ratios measure the speed with which various accounts are converted in; either inflow or outflow. Activity Ratios measure also the firm's effectiveness in managing its assets. The first ratio in this category is the **Average Age of Inventory**, AAI , which is defined as

$$AAI = \frac{360}{\text{Inventory turnover}} = \frac{360}{\frac{\text{Inventory}}{\text{Cost of Goods Sold}}},$$

and gives the number of days Inventory is kept. For a grocery, for instance, AAI is expected to be low because inventory turnover is usually high.

The second Activity Ratio is the **Average Collection Period**, ACP , which measures the average number of days the firm has to wait to receive cash from its customers. The ACP is defined as

$$ACP = \frac{\text{Accounts Receivable}}{\text{Average Sales Per Day}} = \frac{\text{Accounts Receivable}}{\frac{\text{Sales}}{360}}$$

and it is useful in assessing the firm's credit and collection policy.

The third ratio in this category is the Average Payment Period, APP , which measures the average number of days needed to pay the Accounts Payable. The ratio is defined as

$$APP = \frac{\text{Accounts Payable}}{\text{Average Purchases Per Day}} = \frac{\text{Accounts Payable}}{\frac{\text{GOGS}}{360}}.$$

Note that the difference between APP and ACP is known as "**the spread**." In general, the larger the spread, the more it is beneficial for the firm. It is also worth mentioning that when assessing the firm's ACP and APP , further information that are not published in the company's financial statements are needed. The company's extended credit terms and information on its annual purchases are examples.

Finally, the **Total Asset Turnover**, TAT , ratio measures the firm's efficiency in using its Total Assets to generate Sales. The ratio is simply defined as

$$TAT = \frac{\text{Sales}}{\text{Total Assets}}.$$

In general, the quicker a firm can convert its sales to cash, the more efficient it is in using its resources to generate cash inflows. There is no exact number of days or multiple of turnover to determine whether a company is operationally efficient. Thus, a historical or industry comparison should be used. However, in theory, **reasonably** larger turnover ratios or low average periods are beneficial to the firm and its shareholder value.

Again, in practice, these ratios may not fully reflect the operational efficiency of the company, especially when interpreted in isolation, because operational efficiency is directly related to the requirements of the industry in which it operates. An internet company, e.g., Google for instance, has fewer assets than manufacturers or retailers, and may in some cases generate an unreasonably high Receivables Turnover and Total Asset Turnover ratio. Therefore, understanding the operating structure of the company is significant in producing accurate analysis. Of course, common sense should also be employed; a Total Asset Turnover of 1000 times, for instance, means that the old assets are liquidated or disposed of and converted in within less than a third of a day!

5.1.3 Debt Ratios

In general, firm's assets are financed through the use of either fixed-income securities or equity. Financing through fixed-income securities, e.g., debt and preferred equity, creates **financial leverage**. The idea of financial leverage is simply the magnification of risk and return as a result of financing assets through fixed-income securities. Debt financing increases the expected rate of return to stockholders but, it also increases the risk under bad conditions. Debt ratios are after measuring the degree of indebtedness of a corporation and its ability to service its debt.

The first ratio in this category is the Debt Ratio, DR , which is the ratio of the firm's Total Debt to its Total Assets as

$$DR = \frac{\text{Total Debt}}{\text{Total Assets}}.$$

The ratio measures the portion of Total Assets that is financed through debt; a lower percentage means that the company is less leverage dependent and, therefore, less risky. Creditors prefer low DR . Shareholders, on the other hand, may prefer more leverage.

The second ratio in this category is **Times Interest Earned**, TIE , ratio (also known as **Interest Coverage Ratio**). This ratio, which is defined as the ratio of the firm's Operating Income to its Interest Expenses,

$$TIE = \frac{\text{EBIT (Operating Income)}}{\text{Interest Expenses}},$$

shows the number of times the firm can fulfill its interest obligations. The lower the ratio, the more burdened a company has in its debt obligations. A general rule of thumb is that *TIE* ratio should not be lower than 1.5 times. Paying interest is operationally much more important than paying back the principal of the debt. As long as the company can pay back its Interest Expenses and fixed charges, it stays as a going concern and continues to operate and generate cash flow.

Finally, the **Fixed-Payment Coverage**, *FPC*, ratio measures the firm's ability to meet all its fixed-payment obligations such as Lease Payments, Loan Interest and Principal Payments, and Preferred Stock, PS, Dividends. The ratio is defined as

$$FPC = \frac{\text{Operating Income} + \text{Lease Payments}}{\text{Interest Expenses} + \text{Lease Payments} + \left[(\text{Principal Payments} + \text{PS Dividends}) \left(\frac{1}{1-t} \right) \right]}$$

where t is the tax rate. The last term in the denominator is included to adjust the after tax Principal and PS Dividends payments back to their before tax equivalents in order to be consistent with the Interest Expenses and Lease Payments, which are incurred before taxes.

5.1.4 Profitability Ratios

Profitability Ratios are measures that enable the analyst to evaluate the firm's **profits** with respect to a given level of **Total Revenue**, **Assets**, or **Owner's Investment**. Profitability ratios that are after evaluating the firm's profit relative to a given level of Sales or Revenues are known as **Profit Margins**. The other Profitability Ratios that are after evaluating the firm's profit relative to its Total Assets or its Total Equities are Return on Asset, *ROA*, and Return on Equity, *ROE*, respectively. We will consider all the previous Profitability Ratios in this workshop. In particular, we will consider three profit margins: Gross Profit Margin, *GPM*, Operating Profit Margin, *OPM*, and Net Profit Margin, *NPM*. We will also consider three return measures: *ROA*, *ROE*, and Earning per Share, *EPS*. The previous ratios are defined in Table 5.1.

The main difference between the three Profit Margins is that they measure the profit generation process based on each major step in the Income Statement. The difference between the three margins can be used to detect the consistency in the company's earnings, which, in turn, can be used as a signal for investment quality. Overall, a high margin is indicative of a high earnings quality.

As for return ratios, *ROA* describes the profitability of a company relative to its assets. The types of assets and how they are managed vary between industries. Capital-intensive businesses like manufacturing and natural resources have high asset component in their capital structure than technology and services industries, and consequently, they exhibit lower *ROA*. The general rule of thumb among investors is that *ROA* should be above 5% for non-banks and 1.5% for banks for the latter are known to be very capital-intensive.

ROE measures how much Net Income each dollar invested in Total Equity generates. *ROE* as a profitability measure is relevant to shareholders as it measures how much they earn for each dollar they invest in the company. In general, the higher the ratio, the better it is for the firm and its shareholders. For analysts and investors, an attractive level of *ROE* would be anything between or above the range of 15 to 20 cents on the dollar, i.e., 15% to 20% or above return on investment. However, again, high *ROE* ratio does not necessarily imply high performance for it could be due to a low equity base. The point I am trying to raise here is that financial analysts should be aware whether a high ratio is due to a good performance or it is the result of a specific structure of an underlying account.

Finally, the *EPS* ratio, which was explained thoroughly in the Income Statement Modelling (see Section 4.1 in Chapter 4), is arguably the single most important measure of profitability for investors for it the only ratio that relates the profitability of the firm to its stock price.

5.1.5 Market or Valuation Ratios

Market Ratios relate the firm's **market value** to a certain book or accounting value. The market value is measured by the firm's current stock price and, thus, reflect how investors in the market place form their risk-return expectations regarding the corresponding firm. We will consider two Market Ratios: the **Price-Earning**, P/E , Ratio and the **Market-to-Book**, M/B , ratio. The former is defined as

$$P/E = \frac{\text{Market Price Per Share}}{\text{Earning Per Share}}$$

and measures the degree of investors' confidence in the firm's future performance. For instance, a P/E ratio of \$15 means that for each dollar of profit generated by the firm, investors are willing to pay \$15. The higher the P/E ratio, the more confident investors are in the ability of the firm to generate profit.

The Market-to-Book ratio relates the market value of the firm's shares, which is the number of shares outstanding times the **market price** of the share, to its book (or accounting) value, which is the total value of equity as shown in its Balance Sheet; that is,

$$M/B = \frac{\text{Market Value of Total Equity}}{\text{Book Value of Total Equity}}.$$

Same as the P/E ratio, the M/B ratio also measures the degree of investors' confidence in the future performance of the firm.

In an **efficient capital market**, where stock prices fully reflect all available information, the M/B ratio should be 1 because, in an efficient setup, the market price of the stock should be equal to its book value. However, in reality, this is almost never the case; stock prices are above or below their book values. This fluctuation in stock prices could be the result of either an **inefficient market** or **change in firms' performances**. Empirical evidence shows that markets are **not always** efficient. Irrational investors' behavior causes stock prices to fluctuate above or below their book values, and thus renders the market inefficient. This inefficiency, however, does not last for ever as investors adapt and adjust their expectations over time; the price of an undervalued (overvalued) stock is expected to gradually increase (decrease) towards its efficient level. Therefore, an undervalued stock price due to investors' irrationality and overreaction to market news implies that the stock is currently incorrectly priced at a low value and its price is expected to increase in the near future. The undervalue in this case is considered a **positive** signal. Alternatively, the market could be efficient but the stock price is at a level below or above its book value. In this case, the stock is at the **right value** and the only reason this value is below (above) the book value is the declining (improvement) in the company's performance. A right value that is below the company's book value is indicative of a declining performance. In this case, the low price signal is considered a **negative** signal.

The previous discussion suggests that the reasons behind performing Ratio Analysis are twofold. **First**, it enables the analyst to assess the performance of the company by comparing its liquidity, activity, debt, profitability, and market ratios to the industry averages or to their historical values. **Second**, Ratio Analysis, and Market Ratios in particular, help the financial analyst in determining whether the market is undervaluing or overvaluing the company. In other words, whether the firm's stock price is overvalued, undervalued, or priced just right. Assessing the intrinsic value of an individual security is at the core of **Fundamental Analysis**, which is the first step in the process of portfolio selection.¹

¹The process of portfolio selection and asset allocation in general is discussed thoroughly in Fahmy (2014).

Ratios	Notation & Description
1. Liquidity Ratios	
1.1 Current Ratio	$CR = \frac{\text{Total CA}}{\text{Total CL}}$
1.2 Quick Ratio	$QR = \frac{\text{Cash \& Cash Equivalents} + \text{Restricted Cash} + \text{A/R} + \text{Notes Receivables}}{\text{Total CL}}$
2. Activity Ratios	
2.1 Average Age of Inventory	$AAI = \frac{360}{\text{Inventory turnover}} = \frac{360}{\frac{\text{Inventory}}{\text{Cost of Goods Sold}}}$
2.2 Average Collection Period	$ACP = \frac{\text{A/R} + \text{Notes Receivables}}{\text{Average Sales Per Day}} = \frac{\text{A/R} + \text{Notes Receivables}}{\frac{\text{Sales}}{360}}$
2.3 Average Payment Period	$APP = \frac{\text{A/P}}{\text{Average Purchases Per Day}} = \frac{\text{A/P}}{\frac{\text{GOGS}}{360}}$
2.4 Total Asset Turnover	Note: The spread = $APP - ACP$ $TAT = \frac{\text{Sales}}{\text{Total Assets}}$
3. Debt Ratios	
3.1 Debt Ratio	$DR = \frac{\text{Total Debt}}{\text{Total Assets}} = \frac{\text{Current Portion of Debt} + \text{LTD} + \text{LTD (Ad)}}{\text{Total Assets}}$
3.2 Times Interest Earned	$TIE = \frac{\text{EBIT (Operating Income)}}{\text{Interest Expenses}}$
3.3 Fixed-Payment Coverage Ratio	$FPC = \frac{\text{EBIT (Operating Income)} + \text{Capital Leases}}{\text{Interest} + \text{Capital Leases}}$
4. Profitability Ratios	
4.1 Gross Profit Margin	$GPM = \frac{\text{Gross Profit}}{\text{Total Revenue}} \times 100\%$
4.2 Operating Profit Margin	$OPM = \frac{\text{Operating Income}}{\text{Total Revenue}} \times 100\%$
4.3 Net Profit Margin	$OPM = \frac{\text{Net Income}}{\text{Total Revenue}} \times 100\%$
4.4 Earning Per Share	$EPS = \frac{\text{Net Income to Shareholders}}{\text{Number of Shares Outstanding}}$
4.5 Return on Assets	$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$
4.6 Return on Equities	$ROE = \frac{\text{Net Income}}{\text{Total Equity}}$
5. Market Ratios	
5.1 Market-to-Book Ratio	$M/B = \frac{\text{Market Value of Total Equity}}{\text{Book Value of Total Equity}}$
5.2 Price-Earning Ratio	$P/E = \frac{\text{Market Price Per Share}}{\text{Earning Per Share}}$

Table 5.1: Ratio Analysis: Definitions and descriptions.

5.2 Cross Section Ratio Analysis

In this section, we perform a **cross section** comparison between Tim Hortons' financial ratios and their corresponding industry averages. The challenging part of this analysis is defining the industry in which the company operates. In the following section, we show how this industry is defined and how the average financial ratios pertaining to it are calculated. After describing the methodology, we discuss the results of the cross section comparison and make recommendations.

5.2.1 The Methodology

First, we use the projected financial statements that we developed in the previous chapter to compute Tim Hortons' financial ratios in 2013. The ratios are defined in Table 5.1 and their projected values in 2013 are shown in Table 5.2.

Second, we specify the industry in which Tim Hortons operate. There are many ways to define any industry and there is no standard criterion to eliminate or include corporations in an industry. However, reasonable assumptions should be made to ensure that the universe includes financial and operational structure similar to the firm under consideration. In our case, the following assumptions are entertained:

1. **The universe consists of public companies with primary operations in North America.** Any company on an exchange is publicly traded and, therefore, is required to report financial numbers that we can use to compute the necessary ratios for our analysis. Companies traded in US exchanges are included in the universe for the following reasons:
 - (a) Tim Hortons has restaurants in the United States.
 - (b) Tim Hortons is listed on the New York Stock Exchange (NYSE).
 - (c) Canada and the United States have similar internal financial reporting systems and external competitive forces.
2. **The Universe consists of companies classified as Fast-Food Restaurants and Cafeterias according to the Global Industry Classifications Standard (GICS).**² According to the GICS, Tim Hortons is classified primarily under Fast-Food Restaurants. However, we will expand the classification to include Cafeterias as well because Tim Hortons also has Cafeteria-styled food services in or near corporate offices.
3. Following the previous two assumptions, the universe consists of publicly traded Fast-Food Restaurants and Cafeterias in all major Canadian and US exchanges. In particular, New York Stock Exchanges, Nasdaq Stock Market, Standard & Poor and Toronto Stock Exchange, and the Toronto Venture Exchange are considered as the sources of constructing the universe.

5.2.2 The Analysis

The previous criteria give a universe of 27 companies, which will be defined as our “**Public Fast-food Restaurants and Cafeterias in North America**” universe. This universe ranges from small-cap companies, i.e., companies with small market capitalizations, to large-cap companies that are internationally recognized, e.g., McDonald's Corp. and Burger King.

Once the universe is defined, the next step is to compute the financial ratios defined in Table 5.1 for each company in the universe. For simplicity, the financial ratios pertaining to the 27

²GICS is a trademarked industry taxonomy developed by Morgan Stanley Capital International (MSCI) and Standard & Poor. It is used as a basis for financial market indexes in which each company is assigned to a specific classification, e.g., industry group or sector, according to the definition of its principal business activity.

Financial Ratios	Industry Average	Tim Hortons	Better/Worse
1. Liquidity Ratios			
1.1 Current Ratio	11.31	2.25	Worse
1.2 Quick Ratio	3.85	1.85	Worse
2. Activity Ratios			
2.1 Average Age of Inventory	31.97	14.22	Better
2.2 Average Collection Period	82.00	20.57	Better
2.3 Average Payment Period	99.47	33.77	Better
2.4 Total Asset Turnover	1.56	1.18	Worse
3. Debt Ratios			
3.1 Debt Ratio	0.44	14.22	Worse
3.2 Times Interest Earned	14.89	8.20	Worse
3.3 Fixed-Payment Coverage Ratio	14.70	34.37	Better
4. Profitability Ratios			
4.1 Gross Profit Margin	0.49	0.37	Worse
4.2 Operating Profit Margin	0.16	0.20	Better
4.3 Net Profit Margin	0.10	0.13	Better
4.4 Earning Per Share	1.30	2.90	Better
4.5 Return on Assets	0.10	0.15	Better
4.6 Return on Equities	0.36	0.48	Better
5. Market Ratios			
5.1 Market-to-Book Ratio	30.07	17.93	Undervalued
5.2 Price-Earning Ratio	31.21	16.86	Undervalued

Table 5.2: Cross Section Ratio Analysis of Tim Hortons Inc.

companies in the universe are calculated according to the financial numbers reported at the end of 2012 rather than their projected values.

In theory, the next step is to compute the industry average by taking the average value of the 27 companies for each ratio. In practice, however, some ratios pertaining to certain companies in the universe may appear to be unreasonable or unrealistic. For example, Domino's Pizza, a public Fast-Food Restaurant included in our universe, has an inventory turnover of 12193 times, which translates to an Average Age of Inventory of 42 minutes! Anomalies like this are common because companies may classify their items quite differently across the industry. These outliers should be dropped from the computations of industry averages. In our universe, a range of 3 to 6 companies were excluded from the calculations of some average ratios because they gave illogical or unreasonable results. The financial averages pertaining to the industry are reported in Table 5.2 side-by-side with Tim Hortons' projected ratios for 2013.

5.2.3 Conclusion & Recommendations

A quick look at Table 5.2, one can notice that Tim Hortons is performing relatively well in terms of **activity** and **profitability**. Tim Hortons has been known to do well in these areas due to their strong sales and franchise growth. The franchise is a major player in the coffee market in Canada and is expanding moderately well in the United States market. A slightly lower-than-average Total Asset Turnover ratio shows that the company is not as quick in converting its sales to capital as opposed to its peers in the industry. However, the ratio is still within an acceptable interval. Gross profit margin is lower than the industry average, which may imply that Tim Hortons' utilization of resources is less efficient than the industry average. This may be due to the company's increased

focus on expansion instead on operational efficiency.

Tim Hortons is doing poorly in **liquidity** and **debt coverage**, mainly due to their higher than normal debt profile in 2013 and over the next few years. The company has issued and acquired a number of debt offerings and revolving credit facilities in the past few years, which has increased its short-term and long-term debt components in its capital structure. This increase in debt also contributed to an increase in the company's Interest Expenses. The increase in Interest Expenses was related primarily to additional interest on an increased number of Capital Leases outstanding as well as the new borrowings under the revolving credit facilities used to fund their newly implemented Expanded Menu Board Program. The increase in Capital Leases is also the reason why Tim Hortons has a higher than average Fixed Payment Coverage ratio.

The biggest concern is debt. Tim Hortons' current expansion is overly dependent on its debt financing and capital leases, which is not sustainable. The company should shift some of its focus away from expansion and put more focus on cost effectiveness, which could help improve its liquidity and debt ratios.

The firm's Market-to-Book ratio and Price-Earning ratio are lower than the industry average. This undervaluation could be due to **either market inefficiency or to an actual decline in the company's activities**. The former possibility is more likely since the company's Profitability and Activity ratios show that it is more than capable of generating income and growth. Therefore, compared to how the market views its peers, Tim Hortons shares are actually quite undervalued and we expect that their price will increase in the near future. Consequently, from a pure investment point of view, holding Tim Hortons' share is recommended. The previous statement is at the core of Fundamental Analysis, which we now briefly turn to.

5.3 Fundamental Analysis: A Brief Overview

Fundamental analysis has its roots in the **firm-foundation theory** which asserts that any asset (a common stock, a real estate, or even an investment project) has a foundation value or **intrinsic** value. Due to market conditions, the actual price of the asset fluctuates continuously around this intrinsic value; it could fall below or rise above this value. This fluctuation implies that the actual market price of the asset will eventually reach its intrinsic value but will rarely remain at it. This, in turn, creates buying and selling opportunities when the asset is undervalued or overvalued respectively.

Since many people during the early 1930s contributed to the idea of comparing the actual value of an asset to its true underlying value (founded or intrinsic value), the firm-foundation theory was not accredited to one individual. The first formal version of the theory was due to the economist John Burr Williams, who proposed in 1938 a theory of **investment value**, which postulates that the intrinsic value of an asset can be determined by discounting all its expected future cash flows. In particular, Williams pioneered the **dividend valuation** of stocks by proposing the **rule of present worth**, which states that the intrinsic worth of a common stock is the present value of all its future expected **dividend payments** (cash flows). Later in 1956, Myron J. Gordon formulated Williams' theory into a valuation equation known as the **Gordon growth model**. Today, Gordon model is considered the standard model for stock valuation among practitioners in the finance industry.

Surprisingly, when Williams published his work in 1938, it did not get much attention at that time. It did not really become popular until Ben Graham and David Dodd developed their **value investing** approach and published their book **Security Analysis** in 1934. Their idea of value investing is to perform some sort of fundamental analysis that reveals whether or not the asset under consideration is undervalued or overvalued. Their recommendation is to buy the undervalued asset and sell the overvalued one. In this book, Graham suggested to perform fundamental analysis for each individual security by analyzing all the micro variables affecting the firm itself and the

industry in which it is operating. Later, in 1949, Graham published a second book titled **The Intelligent Investor**, where he refined his own old views and advised to focus more on trying to buy groups of stocks that meet some simple criterion for being undervalued regardless of the industry and with very little attention to the individual company.³ Graham's value investing view, which has the idea of buying stocks that are traded at less than their intrinsic value at its core, was celebrated by many successful financial practitioners in the industry including Warren Buffett, the chairman of Berkshire Hathaway.

There are many ways of performing Fundamental Analysis for individual securities. In this workshop, we showed the simplest form of Fundamental Analysis, where the Price-Earning ratio is projected from the analysis of financial statements. In practice, however, the process of computing the intrinsic value of a corporation is more complicated than that. For more details on Fundamental Analysis and the process of asset allocation in general, the reader is encouraged to consult Fahmy (2014).

³Actually this statement was Graham's own words. It was recorded in an interview in March 1976 in Graham's home in California. The interviewer, Mr. Hartman L. Butler, sat for an hour with Graham talking, among many things, about his new book. The interview is known as "An Hour with Mr. Graham."

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Appendix A

Projection Tables

Table A.1: Tim Hortons Income Statement

In Thousands of Canadian Dollars	Historical					Projected
	2008	2009	2010	2011	2012	2013
Sales	\$1,348,015	\$1,494,196	\$1,755,244	\$2,012,170	\$2,225,659	2,452,899
Franchise Revenues						
Rents and Royalties	601,870	657,909	687,039	733,217	780,992	846,462
Franchise Fees	93,808	90,033	94,212	107,579	113,853	114,840
Total Revenues	2,043,693	2,242,138	2,536,495	2,852,966	3,120,504	3,414,201
Cost of Sales (COGS)	1,180,998	1,318,576	1,527,405	1,774,107	1,959,416	2,143,833
Gross Profit	862,695	923,562	1,009,090	1,078,859	1,161,088	1,270,368
Costs and Expenses						
Operating Expenses	216,605	238,791	246,335	259,098	287,652	310,692
Franchise Fee Cost	87,486	86,903	91,743	104,884	116,644	126,325
General Admin	130,846	141,739	147,300	161,444	158,476	170,710
Equity Income	(37,282)	(35,963)	(14,649)	(14,354)	(14,693)	(17,071)
Corporate Reorganization					18,874	
Asset Impairment	21,266		28,298	372	(372)	
Other Income (Net)	(2,564)	(3,319)	(1,100)	(2,060)	(18)	
Total Costs and Expenses	416,357	428,151	497,927	509,384	566,563	590,657
Gains on Sale of Maidstone			361,075			
Operating Income	446,338	495,411	872,238	569,475	594,525	679,711
Interest Expense	(24,558)	(21,220)	(26,642)	(30,000)	(33,709)	(82,880.00)
Interest Income	4,926	1,950	2,462	4,127	3,296	3,414.2
Earnings Before Tax	426,706	476,141	848,058	543,602	564,112	600,245
Income Tax Expense	139,812	178,263	200,940	157,854	156,346	168,069
Net income	286,894	297,878	647,118	385,748	407,766	432,177
Minority Interests	2,216	1,511	23,159	2,936	4,881	4,881
Net income to Shareholders	284,678	296,367	623,959	382,812	402,885	427,296
Basic EPS	\$1.55	\$1.64	\$3.59	\$2.36	\$2.60	\$2.90
Basic Weighted Shares (000s)	183,298	180,477	174,035	162,145	155,160	147,549
Diluted EPS	\$1.55	\$1.64	\$3.58	\$2.35	\$2.59	\$2.89
Diluted Weighted Shares (000s)	183,492	180,609	174,215	162,597	155,676	148,049

Table A.2: Tim Hortons Balance Sheet

In Thousands of Canadian Dollars	Historical					Projected
	2008	2009	2010	2011	2012	2013
Assets						
Current Assets						
Cash and Cash Equivalents	\$101,636	\$121,653	\$574,354	\$126,497	\$120,139	\$504,856
Restricted Cash	62,329	80,815	105,080	130,613	150,574	164,746
Accounts Receivable (Net)	159,505	179,942	182,005	173,667	171,605	187,593
Note Receivable	22,615	20,823	12,543	10,144	7,531	7,531
Deferred Income Taxes	19,760	3,475	7,025	5,281	7,142	7,142
Inventories and Other Net	71,505	80,490	100,712	136,999	107,000	134,832
Advertising Fund Restricted Assets	27,684	26,681	27,402	37,765	45,337	45,337
Total Current Assets	465,034	513,879	1,009,121	620,966	609,328	1,052,037
Property, Plant, Equipment (PP&E)	1,332,852	1,494,032	1,373,670	1,463,765	1,553,308	1,712,224
Intangible Assets (Net)	2,606	8,405	5,270	4,544	3,674	2,774
Notes Receivables (Net)	17,645	3,475	3,811	3,157	1,246	1,246
Deferred Income Taxes	29,285	8,919	13,730	12,197	10,559	10,559
Equity Investments	132,364	45,875	44,767	43,014	41,268	41,268
Other Assets	12,841	19,706	31,147	56,307	64,796	64,796
Total Assets	1,992,627	2,094,291	2,481,516	2,203,950	2,284,179	2,884,905
Liabilities and Equity						
Current Liabilities						
Accounts Payable	157,210	135,248	142,444	177,918	169,762	201,080
Accrued Liabilities						
Salaries and Wages	18,492	23,268	20,567	23,531	21,477	21,467
Taxes	25,605	27,586	65,654	26,465	8,391	8,391
Others	110,518	111,401	209,663	179,315	197,871	161,754
Deferred Income Taxes		376	2,205		197	197
Advertising Fund Liabilities	47,544	43,944	41,026	59,420	44,893	44,893
Current Portion of Debt	6,691	7,821	9,937	10,001	20,781	29,593
Total Current Liabilities	366,060	349,644	491,496	476,650	463,372	467,375
Long-term obligations						
Long-term Debt	332,506	336,302	344,726	352,426	359,471	1,248,530
Revolver Bank Debt						0
Long-term Debt (Ad)	6,929	415	468		46,849	46,849
Capital Leases	59,052	67,156	82,217	94,863	104,383	105,731
Deferred Income Taxes	13,604	10,159	8,237	4,608	10,399	10,399
Other Long-Term Liabilities	72,467	74,929	111,930	120,970	109,614	109,614
Total long-Term Obligations	484,558	488,961	547,578	572,867	630,716	1,521,123
Equity						
Common Share	530,077	502,872	484,050	447,558	435,033	401,820
Common Share Held in Trust	(12,287)	(9,437)	(9,542)	(10,136)	(13,356)	(13,356)
Contributed Surplus				6,375	10,970	23,551

Table A.3: Tim Hortons Statement of Cash Flows

In Thousands of Canadian Dollars	Historical					Projected
	2008	2009	2010	2011	2012	2013
Cash Flow from Operations						
Net Income	\$286,894	\$297,878	\$647,118	\$385,748	\$407,766	\$432,177
Adjustment for Non-Cash Items						
Depreciation and Amortization	91,278	101,447	118,385	115,869	132,167	115,845
Asset Impairment	21,266		18,352	1,850		
Stock-Based Compensation	9,630	8,869	14,263	17,323	11,862	12,581
Deferred Income Taxes	(13,714)	25,342	1,285	(5,433)	5,065	
Changes in Working Capital						
Restricted Cash	(23,820)	789	(6,920)	(63,264)	(20,182)	(14,172)
Accounts Receivable	(51,235)	(13,692)	(10,923)	2,099	(1,346)	(15,988)
Inventories	(3,708)	1,012	(29,275)	(32,057)	33,415	(27,832)
Accounts Payable and Accrued Liabilities	22,723	(19,726)	104,829	349	6,692	(4,809)
Taxes			40,715	(39,197)	(18,065)	
Gain on Sale of Maidstone			(361,075)			
Other	16,701	13,732	(11,210)	8,180	1,913	(4,881)
Net Cash Provided by Operating Activities	356,015	415,651	525,544	391,467	559,287	492,919
Cash Flow from Investing Activities						
Capital Expenditures	(174,247)	(157,971)	(132,912)	(176,890)	(186,777)	(273,861)
Capital Expenditures- Ad fund				(4,377)	(49,031)	
Purchase of restricted Investments	(11,881)	(20,136)	(37,832)			
Proceeds from sale of Investments	12,000		20,240	38,000		
Proceeds of Sale of Interest of Maidstone			475,000			
Cash and Cash from Maidstone Divested			(30,411)			
Other Investing	(9,479)	(19,719)	1,934	(9,460)	(6,400)	
Net Cash Provided by Investing Activities	(183,607)	(197,826)	296,019	(152,727)	(242,208)	(273,861)
Cash Flow from Financing Activities						
Repurchase of Common Shares	(169,326)	(131,292)	(242,595)	(572,452)	(225,200)	(600,000)
Dividend Payments	(66,086)	(72,506)	(90,304)	(110,187)	(130,509)	(133,560)
Distribution, net to non-controlling interest			(22,524)	(6,692)	(3,913)	0
Net Proceeds From Long term Obligations	3,796	3,507	300,823	3,699	51,850	920,000
Principal Payment on Long-term Obligations	(7,376)	(6,582)	(307,023)	(8,586)	(7,710)	(20,781)
Other Financing/Revolver			(4,005)	6,398.0	(6,885)	0
Net Cash Used in Financing Activities	(238,992)	(206,873)	(365,628)	(687,820)	(322,367)	165,659
Effect of FX rate on cash	10,618	(9,321)	(3,234)	1,223	(1,070)	0
(Decrease) Increase in Cash	(55,966)	1,631	452,701	(447,857)	(6,358)	384,717
Cash at Beginning of Year	157,602	101,636	103,267	555,968	126,497	120,139
Cash at End of Year	101,636	103,267	555,968	108,111	120,139	504,856

By management guidance, required minimum cash balance

5.00%

Appendix B

Relevant Pages from the Annual Report

TIM HORTONS INC.

FORM 10-K (Annual Report)

Filed 02/21/13 for the Period Ending 12/30/12

Telephone	(905) 845-6511
CIK	0001345111
Symbol	THI
SIC Code	5812 - Eating Places
Industry	Restaurants
Sector	Services
Fiscal Year	01/03

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 30, 2012

TRANSITIONAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 001-32843

TIM HORTONS INC.

(Exact name of Registrant as specified in its charter)

Canada
(State or other jurisdiction of
incorporation or organization)

98-0641955
(I.R.S. Employer
Identification Number)

874 Sinclair Road, Oakville, ON, Canada
(Address of principal executive offices)

L6K 2Y1
(Zip Code)

Registrant's telephone number, including area code 905-845-6511

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Shares, without par value	New York Stock Exchange
Associated Share Purchase Rights	Toronto Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES NO

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. YES NO

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. YES NO

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the Registrant was required to submit and post such files). YES NO

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES NO

The aggregate market value of the common shares held by non-affiliates of the Registrant computed by reference to the price at which such shares were last sold, as of June 29, 2012, was Cdn.\$8,309,068,696 (US\$8,149,606,413).

EXPLANATORY NOTE

Tim Hortons Inc., a corporation incorporated under the *Canada Business Corporations Act* (the “Company”), qualifies as a foreign private issuer in the U.S. for purposes of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Although as a foreign private issuer the Company is no longer required to do so, the Company currently continues to file annual reports on Form 10-K, quarterly reports on Form 10-Q, and current reports on Form 8-K with the Securities and Exchange Commission (“SEC”) instead of filing the reporting forms available to foreign private issuers.

The Company prepares and files a management proxy circular and related material under Canadian requirements. As the Company’s management proxy circular is not filed pursuant to Regulation 14A, the Company may not incorporate by reference information required by Part III of this Form 10-K from its management proxy circular. Accordingly, in reliance upon and as permitted by Instruction G(3) to Form 10-K, the Company will be filing an amendment to this Form 10-K containing the Part III information no later than 120 days after the end of the fiscal year covered by this Form 10-K.

All references to our websites contained herein do not constitute incorporation by reference of information contained on such websites and such information should not be considered part of this document.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain information contained in this Form 10-K, including information regarding future financial performance and plans, expectations, and objectives of management, constitute forward-looking information within the meaning of Canadian securities laws and forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. We refer to all of these as forward-looking statements. A forward-looking statement is not a guarantee of the occurrence of future events or circumstances, and such future events or circumstances may not occur. Forward-looking statements can be identified by the fact that they do not relate strictly to historical or current facts. They often include words such as “believes,” “expects,” “anticipates,” “estimates,” “intends,” “plans,” “seeks,” “outlook,” “forecast” or words of similar meaning, or future or conditional verbs, such as “will,” “should,” “could” or “may.” Examples of forward-looking statements that may be contained in our public disclosure from time to time include, but are not limited to, statements concerning management’s expectations relating to possible or assumed future results, our strategic goals and our priorities, and the economic and business outlook for us, for each of our business segments, and for the economy generally. The forward-looking statements contained in this Form 10-K are based on currently available information and are subject to various risks and uncertainties, including, but not limited to, the risks and uncertainties discussed in Item 1A. Risk Factors as well as in Item 1. Business and Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations of this Form 10-K, that could materially and adversely impact our business, financial condition and results of operations (*i.e.* , the “risk factors”). Additional risks and uncertainties not currently known to us or that we currently believe to be immaterial may also materially adversely affect our business, financial condition, and/or operating results. Forward-looking information and statements are based on a number of assumptions which may prove to be incorrect, including, but not limited to, assumptions about: the absence of an adverse event or condition that damages our strong brand position and reputation; the absence of a material increase in competition or in the volume or type of competitive activities within the quick service restaurant segment of the food service industry; general worldwide economic conditions; cost and availability of commodities; the ability to retain our senior management team or the inability to attract and retain new qualified personnel; continuing positive working relationships with the majority of the Company’s restaurant owners; the absence of any material adverse effects arising as a result of litigation; and there being no significant change in the Company’s ability to comply with current or future regulatory requirements. We are presenting this information for the purpose of informing you of management’s current expectations regarding these matters, and this information may not be appropriate for any other purpose.

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Many of the factors that could determine our future performance are beyond our ability to control or predict. Investors should carefully consider our risk factors and the other information set forth in this Form 10-K and are further cautioned not to place undue reliance on the forward-looking statements contained in this Form 10-K, which speak only as of the date of this Form 10-K. The events and uncertainties outlined in the risk factors, as well as other events and uncertainties not set forth below, could cause our actual results to differ materially from the expectation(s) included in the forward-looking statement, and if significant, could materially affect the Company's business, revenue, stock price, financial condition, and/or future results, including, but not limited to, causing the Company to: (i) close restaurants, (ii) fail to realize our same-store sales growth targets, which are critical to achieving our financial targets, (iii) fail to meet the expectations of securities analysts or investors, or otherwise fail to perform as expected, (iv) experience a decline and/or increased volatility in the market price of its stock, (v) have insufficient cash to engage in or fund expansion activities, dividends, or share repurchase programs, or (vi) increase costs, corporately or at restaurant level, which may result in increased restaurant-level pricing, which, in turn, may result in decreased guest demand for our products resulting in lower systemwide sales, revenue, and earnings. We assume no obligation to update or alter any forward-looking statements after they are made, whether as a result of new information, future events, or otherwise, except as required by applicable law.

Throughout this Form 10-K, the words "include," "including" or words of similar effect mean "include, without limitation" or "including, without limitation," as applicable.

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**TIM HORTONS INC.
2012 FORM 10-K ANNUAL REPORT
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The noon buying rates in New York City for cable transfers in foreign currencies as certified for customs purposes by the Federal Reserve Bank of New York, were:

<u>(US\$)</u>	<u>At End of Fiscal Year</u>	<u>Year Average</u>	<u>High</u>	<u>Low</u>
December 28, 2008	0.8192	0.9399	1.0291	0.7710
January 3, 2010	0.9559	0.8834	0.9719	0.7695
January 2, 2011	0.9991	0.9663	1.0040	0.9280
January 1, 2012	0.9835	1.0151	1.0584	0.9480
December 30, 2012	1.0049	1.0008	1.0299	0.9600

On February 15, 2013, the noon buying rate in New York City for cable transfers in foreign currencies as certified for customs purposes by the Federal Reserve Bank of New York was US\$ 0.9931 for Cdn.\$1.00.

Franchise and Other Arrangements

Restaurant owners . Our objective is to have restaurant owners own or operate substantially all Tim Hortons restaurants and to maintain a small number of Company-operated restaurants primarily for restaurant owner training. As at December 30, 2012, restaurant owners owned or operated 99.5% of both our Canadian restaurants and U.S. restaurants.

Our restaurant owners operate under several types of license agreements, with a typical term for a standard restaurant of 10 years plus aggregate renewal period(s) of approximately 10 years. For new arrangements and renewals, restaurant owners who lease land and/or buildings from the Company typically pay a royalty of 3.0% to 4.5% of weekly gross sales of the restaurant, as defined in the license agreement. Under a separate lease or sublease, restaurant owners typically pay monthly rent based on a percentage (usually 8.5% to 10.0%) of monthly gross sales, as defined in the license agreement. Where the restaurant owner either owns the premises or leases it from a third party, the royalty is typically increased. Under the license agreement, each restaurant owner is required to make contributions to an advertising fund based on a percentage of restaurant gross sales, further described under “Advertising and Promotions,” below.

To keep system restaurants up-to-date, both aesthetically and operationally, our license agreements require a full-scale renovation of each restaurant by the restaurant owner, including our non-standard restaurants, which occurs approximately every 10 years. We typically, but are not required to, contribute up to 50% of the funding required for certain front-of-restaurant construction costs incurred in connection with renovations on properties that we own or lease.

In Canada, and generally to-date in the U.S., we have not granted exclusive or protected areas or territories to restaurant owners. The license is a “location” license only, and we reserve the right to grant additional licenses for Tim Hortons restaurants at any other location. In addition, the royalty rates under license agreements entered into in connection with non-standard restaurants, including self-serve kiosks and strategic alliances with third parties, may vary from those described above for standard restaurants and are negotiated on a case-by-case basis.

We reserve the right to terminate the license agreement for a variety of reasons described in the underlying agreement, and generally, retain the right to reacquire a restaurant owner’s interest in a restaurant under certain circumstances.

Other arrangements . For new restaurant owners, we will typically enter into operator agreements, in which the operator acquires the right to operate a Tim Hortons restaurant, but we continue to be the owner of the equipment, signage and trade fixtures. These are not typical franchise relationships. Such arrangements usually require the operator to pay approximately 20% of the restaurant’s weekly gross sales, as described in the operator agreement, to the Company. Additionally, the operator will be responsible for paying all trade debts, wages and salary expenses, maintenance and repair costs, taxes, and any other expenses incurred in connection with the operation of the restaurant. These operators also make the required contributions to our advertising funds, described below. In any such arrangement, the Company and the operator each have the option of terminating the agreement upon 30 days’ notice in Canada and 30 business days’ notice in the U.S. Although we do not consider our operators to be typical restaurant owners, for purposes of this Form 10-K, references to restaurant owners include these operators, and references herein to license agreements include these operator agreements, unless otherwise indicated.

Historically, we offered a franchise incentive program (“FIP”) for certain of our U.S. restaurant owners, which provides interest-free financing (“FIP Note”) for the purchase of certain restaurant equipment, furniture, trade fixtures, and signage (the “equipment package”), with payment deferred for a period of 104 weeks from the date of opening (the “prescribed period”). Commencing in fiscal 2011, we have generally transitioned from offering this arrangement to using our operating agreement model (as described above) with new restaurant

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	Fiscal Years ⁽¹⁾⁽²⁾				
	2012	2011	2010	2009	2008
	(in thousands, except per share data, number of restaurants, and otherwise where noted)				
Other Financial Data					
EBITDA attributable to Tim Hortons Inc. ⁽⁷⁾	\$714,485	\$678,997	\$956,532	\$599,939	\$541,168
Capital expenditures (including Canadian Advertising Fund)	\$235,808	\$181,267	\$132,912	\$160,458	\$184,538
Operating margin ⁽⁸⁾ (%)	19.1%	20.0%	34.4%	21.6%	21.5%
Other Operating Data					
Total systemwide sales growth ⁽⁹⁾⁽¹⁰⁾	6.9%	7.4%	6.2%	7.9%	8.3%
Systemwide restaurant unit growth ⁽¹⁰⁾	6.3%	7.1%	4.8%	4.1%	6.7%
Canada average same-store sales growth ⁽¹⁰⁾	2.8%	4.0%	4.9%	2.9%	4.4%
U.S. average same-store sales growth ⁽¹⁰⁾	4.6%	6.3%	3.9%	3.2%	0.8%
Total system restaurants franchised (%)	99.5%	99.6%	99.5%	99.5%	99.0%
Restaurants open at end of year – Canada					
Standard ⁽¹¹⁾	2,454	2,373	2,279	2,193	2,116
Non-standard ⁽¹²⁾	858	803	757	724	702
Self-serve kiosk ⁽¹²⁾	124	119	112	98	99
Total Canada	3,436	3,295	3,148	3,015	2,917
Restaurants open at end of year – U.S.					
Standard ⁽¹¹⁾	478	435	405	422	398
Non-standard ⁽¹²⁾	147	115	74	54	34
Self-serve kiosk ⁽¹²⁾	179	164	123	87	88
Total U.S.	804	714	602	563	520
Total North America	4,240	4,009	3,750	3,578	3,437
Average sales per standard restaurant: ⁽¹⁰⁾⁽¹¹⁾					
Canada	\$ 2,170	\$ 2,129	\$ 2,070	\$ 2,025	\$ 1,955
U.S. (<i>U.S. dollars</i>) ⁽⁴⁾	\$ 1,095	\$ 1,069	\$ 978	\$ 957	\$ 930
U.S. (<i>Canadian dollars</i>) ⁽⁴⁾	\$ 1,096	\$ 1,059	\$ 1,012	\$ 1,097	\$ 977
Average sales per non-standard restaurant: ⁽¹⁰⁾⁽¹²⁾					
Canada	\$ 891	\$ 870	\$ 830	\$ 794	\$ 751
U.S. (<i>U.S. dollars</i>)	\$ 449	\$ 451	\$ 459	\$ 426	\$ 457
U.S. (<i>Canadian dollars</i>)	\$ 449	\$ 447	\$ 475	\$ 488	\$ 481

⁽¹⁾ Fiscal years include 52 weeks, except for fiscal 2009, which included 53 weeks.

⁽²⁾ Our selected historical consolidated financial data has been derived from our audited financial statements for the years ending December 30, 2012, January 1, 2012, January 2, 2011, January 3, 2010 and December 28, 2008.

⁽³⁾ Rents and royalties revenues includes advertising levies primarily associated with the Canadian Advertising Fund's program to acquire and install LCD screens, media engines, drive-thru menu boards and ancillary equipment in our restaurants ("Expanded Menu Board Program").

Franchised restaurant sales are reported to us by our restaurant owners and are not included in our Consolidated Financial Statements, other than Non-owned restaurants consolidated pursuant to applicable accounting rules. Franchised restaurant sales do, however, result in royalties and rental revenues, which are included in our franchise revenues, as well as distribution sales. The reported franchised restaurant sales for the last 5 years were:

	Fiscal Years ⁽¹⁾⁽²⁾				
	2012	2011	2010	2009	2008
	(in thousands)				
Franchised restaurant sales:					
Canada (<i>Canadian dollars</i>)	\$5,907,481	\$5,564,263	\$5,181,831	\$4,880,934	\$4,546,027
U.S. (<i>U.S. dollars</i>)	\$ 532,214	\$ 472,969	\$ 439,227	\$ 409,882	\$ 345,429

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<u>Measure</u>	<u>Target</u>	<u>Commentary</u>
EPS	\$2.87 – \$2.97	<p>We expect operating income to grow in both Canada and the U.S. in fiscal 2013 through continued same-store sales growth coupled with new restaurant development. Items not incorporated into our fiscal 2013 financial target include the approximately \$9.0 million of reorganization costs expected to be incurred in the first quarter, as well as further costs we expect to incur during fiscal 2013 related to the transition to a new CEO, the amount and timing of which are not yet determinable.</p> <p>We are increasing our share repurchase program from \$200.0 million, to up to \$250.0 million in fiscal 2013.</p>
Capital Expenditures		
• Canada and U.S.	\$250 – \$300 million	Our increased level of capital expenditures in fiscal 2013 reflects more contemporary design elements. These design elements will be applied to our continued restaurant development activity in both Canada and the U.S., and our share of investments of approximately 300 renovations in Canada. Additionally, we intend to implement drive-thru initiatives, such as order station relocations, double-orders stations, and double-lane drive-thrus, at more than 1,000 locations in Canada. We also continue to invest in both technology initiatives and in our distribution facilities to support business growth.
• Canadian Advertising Fund	Up to \$50 million	In addition, our Canadian advertising fund will be investing up to \$50 million to continue the exterior menu board program at our Canadian drive-thru locations, which is expected to continue throughout fiscal 2013.

Strategic Plan Aspirations (2010-2013)

- EPS compounded annual growth from 2011 through to the end of 2013 is expected to be between 12% to 15%;
- New restaurant development from 2010 to the end of 2013:
 - Canada: approximately 600;
 - U.S.: approximately 300;
 - Total North America: approximately 900; and
- Compounded annual growth of operating income of 8% to 10% to the end of 2013.

Notes

Our earnings aspirations of compounded annual growth of EPS and operating income noted above exclude items such as: in fiscal 2012 and fiscal 2013, the Corporate reorganization expenses; in fiscal 2011, the CEO Separation Agreement; and in fiscal 2010, the disposition of our 50% joint-venture interest in Maidstone Bakeries and the U.S. asset impairment and related closure costs.

We are nearing the end of our current “More than a Great Brand” strategic cycle, and are in the process of developing a strategic plan to guide our future growth beyond fiscal 2013.

The performance targets and aspirational goals (collectively, “the targets”) established for fiscal 2013 are based on the accounting, tax, and/or other legislative and regulatory rules in place at the time the targets are issued and on the continuation of share repurchase programs relatively consistent with historical levels. The impact of future changes in accounting, tax, and/or other legislative and regulatory rules that may or may not become effective in fiscal 2013, changes to our share repurchase activities, and accounting, tax, audit or other matters not contemplated at the time the targets were established that could affect our business, were not included in the determination of these targets. In addition, the targets are forward-looking and are based on our expectations and outlook on, and shall be effective only as of, the date the targets were originally issued.

TIM HORTONS INC. AND SUBSIDIARIES

Notes to the Consolidated Financial Statements—(Continued)
(in thousands of Canadian dollars, except share and per share data)

NOTE 10 PROPERTY AND EQUIPMENT, NET

	As at	
	December 30, 2012	January 1, 2012
Land	\$ 248,097	\$ 242,679
Buildings and leasehold improvements	1,481,454	1,374,798
Restaurant and other equipment	188,216	165,920
Capital leases ⁽¹⁾	205,543	186,757
Computer hardware and software ⁽²⁾	117,266	111,477
Advertising fund property and equipment ⁽³⁾	116,044	71,082
Manufacturing and other equipment	112,991	107,826
Construction in progress	18,957	30,788
Property and equipment, net of impairment	2,488,568	2,291,327
Accumulated depreciation and amortization	(935,260)	(827,562)
Total Property and equipment, net	<u>\$1,553,308</u>	<u>\$1,463,765</u>

⁽¹⁾ Capital leases relate primarily to leased buildings. The Company added \$26.1 million of capital leased assets in fiscal 2012 (2011: \$27.8 million).

⁽²⁾ Includes internally and externally developed software of \$71.9 million, at cost, as at December 30, 2012 (2011: \$70.1 million) with a net book value of \$26.8 million as at December 30, 2012 (2011: \$30.9 million).

⁽³⁾ Consists primarily of menu board equipment.

In fiscal 2012, the Company capitalized \$0.3 million of interest and other costs, primarily associated with the construction of new restaurants (2011: \$0.7 million; 2010: \$0.2 million).

NOTE 11 INTANGIBLE ASSETS, NET

	As at	
	December 30, 2012	January 1, 2012
Persona	\$ 6,455	\$ 6,455
Exclusivity rights and other license rights	4,524	4,428
	10,979	10,883
Accumulated amortization	(7,305)	(6,339)
Total Intangible assets, net	<u>\$ 3,674</u>	<u>\$ 4,544</u>

Total intangible amortization expense was \$1.0 million in fiscal 2012 (2011: \$1.0 million; 2010: \$1.8 million). The estimated intangible amortization expense for fiscal 2013 is approximately \$0.9 million and approximately \$0.4 million each year through fiscal 2019.

Exclusivity rights and other license rights

The Company has a master license arrangement with Kahala Franchise Corp., the franchisor of the Cold Stone Creamery[®] brand in Canada, and a separate arrangement with Kahala Franchising, L.L.C. in the U.S. The Company has the exclusive development rights in Canada, and certain non-exclusive rights to use licenses within the U.S., to operate ice cream and frozen confections in approved retail outlets. Under the Canadian agreement,

TIM HORTONS INC. AND SUBSIDIARIES
Notes to the Consolidated Financial Statements—(Continued)
(in thousands of Canadian dollars, except share and per share data)

NOTE 15 LONG-TERM DEBT

	As at	
	December 30, 2012	January 1, 2012
Senior Notes	\$ 301,544	\$301,893
Advertising fund debt	56,500	0
Other debt	60,223	52,305
	<u>\$ 418,267</u>	<u>\$354,198</u>
Less: current portion ⁽¹⁾	(11,947)	(1,772)
Total Long-term debt	<u>\$ 406,320</u>	<u>\$352,426</u>

⁽¹⁾ Excludes current portion due under capital leases of \$8.8 million as at December 30, 2012 (2011: \$8.2 million).

The Company's weighted average effective interest rate on total debt as at December 30, 2012 is 6.2% (2011: 6.0%). See note 16 for the fair value of the Company's total debt.

Future maturities for the Company's long-term debt, as at December 30, 2012 are shown below:

	Long- term debt
2013	\$ 11,947
2014	10,941
2015	10,545
2016	10,679
2017	311,026
Subsequent years	61,584
Total principal repayments	416,722
Premium—Senior Notes	1,545
Total	<u>\$418,267</u>
Current portion	(11,947)
	<u>\$406,320</u>

Senior Notes

In fiscal 2010, the Company issued \$300.0 million of Senior Unsecured Notes, 4.2% coupon, Series 1, due June 1, 2017 ("Senior Notes") in two tranches for net proceeds of \$302.3 million, which included a premium of \$2.3 million. The Company also entered into interest rate forwards (with a notional value of \$195.0 million), which acted as a cash flow hedge to limit the interest rate volatility in the period prior to the initial issuance of the Senior Notes, and resulted in a loss of \$4.9 million on settlement. The premium, the loss on the interest rate forwards, and financing fees of approximately \$1.8 million were deferred and are being amortized to Interest expense in the Consolidated Statement of Operations over 7 years. The effective yield, including all fees, premium and the interest rate forwards loss, is 4.45%.

The Senior Notes bear a fixed interest rate of 4.20% with interest payable in semi-annual installments, in arrears, which commenced December 1, 2010. The Senior Notes rank equally and *pari passu* with each other and with the notes of every other series (regardless of their actual time of issue) issued under the Trust Indenture,

TIM HORTONS INC. AND SUBSIDIARIES
Notes to the Consolidated Financial Statements—(Continued)
(in thousands of Canadian dollars, except share and per share data)

Derivatives designated as cash flow hedging instruments ⁽³⁾	Classification on Consolidated Statement of Operations	Year ended December 30, 2012			Year ended January 1, 2012		
		Amount of	Amount of net	Total effect	Amount of	Amount of net	Total effect
		gain (loss) recognized in OCI ⁽¹⁾	(gain) loss reclassified to earnings	on OCI ⁽¹⁾	gain (loss) recognized in OCI ⁽¹⁾	(gain) loss reclassified to earnings	on OCI ⁽¹⁾
Forward currency contracts	Cost of sales	\$ (5,009)	\$ (667)	\$ (5,676)	\$ 3,243	\$ 4,149	\$ 7,392
Interest rate forwards ⁽²⁾	Interest (expense)	0	691	691	0	691	691
Total		(5,009)	24	(4,985)	3,243	4,840	8,083
Income tax effect	Income taxes	1,455	(13)	1,442	(1,001)	(1,344)	(2,345)
Net of income taxes		<u>\$ (3,554)</u>	<u>\$ 11</u>	<u>\$ (3,543)</u>	<u>\$ 2,242</u>	<u>\$ 3,496</u>	<u>\$ 5,738</u>

⁽¹⁾ Other comprehensive income (“OCI”).

⁽²⁾ The Company entered into and settled interest rate forwards in fiscal 2010 relating to the Company’s outstanding term debt (see note 15).

⁽³⁾ Excludes amounts related to ineffectiveness, as they were not significant.

Derivatives relating to the TRS and certain foreign currency contracts not designated as hedging instruments resulted in a loss of \$2.9 million in fiscal 2012 (2011: gain of \$5.9 million; 2010: gain of \$3.7 million). The loss associated with the TRS of \$1.8 million in fiscal 2012 (2011: gain of \$5.0 million; 2010: gain of \$3.7 million), was recognized in General and administrative expenses, and the loss relating to the foreign currency contracts of \$1.1 million in fiscal 2012 (2011: gain of \$0.9 million; 2010: nil), was recognized in Cost of sales in the Consolidated Statement of Operations.

NOTE 18 LEASES

The Company occupies land and buildings and uses equipment under terms of numerous lease agreements expiring on various dates through fiscal 2052. Land and building leases generally have an initial term of 10 to 30 years, while land-only lease terms can extend longer. Many of these leases provide for future rent escalations and renewal options. Certain leases require contingent rent, determined as a percentage of sales. Most leases also obligate the Company to pay the cost of maintenance, insurance and property taxes.

Assets leased under capital leases and included in property and equipment, but excluding leasehold improvements, consisted of the following:

	As at	
	December 30, 2012	January 1, 2012
Buildings	\$ 197,438	\$177,465
Other ⁽¹⁾	9,083	9,292
Accumulated depreciation	(67,721)	(60,259)
Total	<u>\$ 138,800</u>	<u>\$126,498</u>

⁽¹⁾ Includes capital leases of the Ad Fund (see note 23).

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TIM HORTONS INC. AND SUBSIDIARIES

Notes to the Consolidated Financial Statements—(Continued)
(in thousands of Canadian dollars, except share and per share data)

No individual lease is material to the Company. Future minimum lease payments for all leases, and the present value of the net minimum lease payments for all capital leases as at December 30, 2012, were as follows:

	<u>Capital Leases</u>	<u>Operating Leases</u>
2013	\$ 19,690	\$ 92,368
2014	18,652	87,578
2015	18,315	88,416
2016	16,226	76,080
2017	13,923	65,026
Subsequent years	126,999	547,381
Total minimum lease payments	\$ 213,805	\$ 956,849
Amount representing interest	(100,588)	
Present value of net minimum lease payments	113,217	
Current portion	(8,834)	
	<u>\$ 104,383</u>	

Of the total future minimum lease obligations noted above, the Company has minimum lease receipts under non-cancelable subleases with lessees of \$140.1 million for capital leases and \$528.5 million for operating leases.

Rent expense consists of rentals for premises and equipment leases. Rent expense is included in Operating expenses in the Consolidated Statement of Operations and amounted to:

	<u>Year ended</u>		
	<u>December 30,</u>	<u>January 1,</u>	<u>January 2,</u>
	<u>2012</u>	<u>2012</u>	<u>2011</u>
Minimum rents	\$ 96,482	\$ 89,329	\$ 84,836
Contingent rents	77,842	74,549	71,492
Total rent expense	\$ 174,324	\$163,878	\$156,328

In connection with the franchising of certain restaurants, the Company has also leased or subleased land, buildings and equipment to these restaurant owners. Lease terms are generally 10 years with 1 or more 5 year renewal options. The restaurant owners bear the cost of maintenance, insurance and property taxes.

Company assets under lease or sublease included in Property and equipment, net in the Consolidated Balance Sheet, consisted of the following:

	<u>As at</u>	
	<u>December 30,</u>	<u>January 1,</u>
	<u>2012</u>	<u>2012</u>
Land	\$ 180,073	\$ 174,292
Buildings and leasehold improvements	1,318,194	1,228,026
Restaurant equipment	70,645	62,993
	1,568,912	1,465,311
Accumulated depreciation	(604,703)	(538,511)
	<u>\$ 964,209</u>	<u>\$ 926,800</u>

Appendix C

5 Years Projection Tables & A Summary of the Assumptions

Table C.1: Tim Hortons Income Statement

Historical

In Thousands of Canadian Dollars						Projected	Projected	Projected	Projected	Projected
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Sales	\$1,348,015	\$1,494,196	\$1,755,244	\$2,012,170	\$2,225,659	2,452,899	2,703,340	2,979,351	3,283,542	3,618,792
Franchise Revenues										
Rents and Royalties	601,870	657,909	687,039	733,217	780,992	846,462	904,399	972,469	1,047,052	1,124,512
Franchise Fees	93,808	90,033	94,212	107,579	113,853	114,840	118,642	122,697	126,736	130,758
Total Revenues	2,043,693	2,242,138	2,536,495	2,852,966	3,120,504	3,414,201	3,726,381	4,074,517	4,457,331	4,874,063
Cost of Sales (COGS)	1,180,998	1,318,576	1,527,405	1,774,107	1,959,416	2,143,833	2,339,856	2,558,456	2,798,832	3,060,504
Gross Profit	862,695	923,562	1,009,090	1,078,859	1,161,088	1,270,368	1,386,525	1,516,060	1,658,499	1,813,558
Costs and Expenses										
Operating Expenses	216,605	238,791	246,335	259,098	287,652	310,692	339,101	370,781	405,617	443,540
Franchise Fee Cost	87,486	86,903	91,743	104,884	116,644	126,325	137,876	150,757	164,921	180,340
General Admin	130,846	141,739	147,300	161,444	158,476	170,710	186,319	203,726	222,867	243,703
Equity Income	(37,282)	(35,963)	(14,649)	(14,354)	(14,693)	(17,071)	(18,632)	(20,373)	(22,287)	(24,370)
Corporate Reorganization					18,874					
Asset Impairment	21,266		28,298	372	(372)					
Other Income (Net)	(2,564)	(3,319)	(1,100)	(2,060)	(18)					
Total Costs and Expenses	416,357	428,151	497,927	509,384	566,563	590,657	644,664	704,891	771,118	843,213
Gains on Sale of Maidstone			361,075							
Operating Income	446,338	495,411	872,238	569,475	594,525	679,711	741,861	811,169	887,381	970,345
Interest Expense	(24,558)	(21,220)	(26,642)	(30,000)	(33,709)	(82,880.00)	(82,429.33)	(82,037.74)	(81,870.45)	(81,083.26)
Interest Income	4,926	1,950	2,462	4,127	3,296	3,414.2	3,726.4	4,074.5	4,457.3	4,874.1
Earnings Before Tax	426,706	476,141	848,058	543,602	564,112	600,245	663,158	733,206	809,968	894,136
Income Tax Expense	139,812	178,263	200,940	157,854	156,346	168,069	185,684	205,298	226,791	250,358
Net income	286,894	297,878	647,118	385,748	407,766	432,177	477,474	527,908	583,177	643,778
Minority Interests	2,216	1,511	23,159	2,936	4,881	4,881	4,881	4,881	4,881	4,881
Net income to Shareholders	284,678	296,367	623,959	382,812	402,885	427,296	472,593	523,027	578,296	638,897
Basic EPS	\$1.55	\$1.64	\$3.59	\$2.36	\$2.60	\$2.90	\$3.44	\$4.00	\$4.55	\$5.17
Basic Weighted Shares (000s)	183,298	180,477	174,035	162,145	155,160	147,549	137,281	130,875	127,079	123,645
Diluted EPS	\$1.55	\$1.64	\$3.58	\$2.35	\$2.59	\$2.89	\$3.43	\$3.98	\$4.53	\$5.15
Diluted Weighted Shares (000s)	183,492	180,609	174,215	162,597	155,676	148,049	137,781	131,375	127,579	124,145

Table C.2: Tim Hortons Balance Sheet
Historical

In Thousands of Canadian Dollars						Projected	Projected	Projected	Projected	Projected
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Assets										
Current Assets										
Cash and Cash Equivalents	\$101,636	\$121,653	\$574,354	\$126,497	\$120,139	\$504,856	\$242,824	\$281,018	\$373,170	\$523,806
Restricted Cash	62,329	80,815	105,080	130,613	150,574	164,746	179,809	196,608	215,080	235,189
Accounts Receivable (Net)	159,505	179,942	182,005	173,667	171,605	187,593	204,746	223,875	244,908	267,806
Note Receivable	22,615	20,823	12,543	10,144	7,531	7,531	7,531	7,531	7,531	7,531
Deferred Income Taxes	19,760	3,475	7,025	5,281	7,142	7,142	7,142	7,142	7,142	7,142
Inventories and Other Net	71,505	80,490	100,712	136,999	107,000	134,832	147,161	160,909	176,027	192,485
Advertising Fund Restricted Assets	27,684	26,681	27,402	37,765	45,337	45,337	45,337	45,337	45,337	45,337
Total Current Assets	465,034	513,879	1,009,121	620,966	609,328	1,052,037	834,551	922,419	1,069,196	1,279,295
Property, Plant, Equipment (PP&E)	1,332,852	1,494,032	1,373,670	1,463,765	1,553,308	1,712,224	1,784,517	1,851,461	1,913,450	1,970,852
Intangible Assets (Net)	2,606	8,405	5,270	4,544	3,674	2,774	2,374	1,974	1,574	1,174
Notes Receivables (Net)	17,645	3,475	3,811	3,157	1,246	1,246	1,246	1,246	1,246	1,246
Deferred Income Taxes	29,285	8,919	13,730	12,197	10,559	10,559	10,559	10,559	10,559	10,559
Equity Investments	132,364	45,875	44,767	43,014	41,268	41,268	41,268	41,268	41,268	41,268
Other Assets	12,841	19,706	31,147	56,307	64,796	64,796	64,796	64,796	64,796	64,796
Total Assets	1,992,627	2,094,291	2,481,516	2,203,950	2,284,179	2,884,905	2,739,311	2,893,723	3,102,089	3,369,190
Liabilities and Equity										
Current Liabilities										
Accounts Payable	157,210	135,248	142,444	177,918	169,762	201,080	217,795	238,167	260,551	284,904
Accrued Liabilities										
Salaries and Wages	18,492	23,268	20,567	23,531	21,477	21,467	21,467	21,467	21,467	21,467
Taxes	25,605	27,586	65,654	26,465	8,391	8,391	8,391	8,391	8,391	8,391
Others	110,518	111,401	209,663	179,315	197,871	161,754	161,754	161,754	161,754	161,754
Deferred Income Taxes		376	2,205		197	197	197	197	197	197
Advertising Fund Liabilities	47,544	43,944	41,026	59,420	44,893	44,893	44,893	44,893	44,893	44,893
Current Portion of Debt	6,691	7,821	9,937	10,001	20,781	29,593	28,860	26,905	324,949	26,901
Total Current Liabilities	366,060	349,644	491,496	476,650	463,372	467,375	483,356	501,774	822,201	548,506
Long-term obligations										
Long-term Debt	332,506	336,302	344,726	352,426	359,471	1,248,530	1,237,985	1,227,306	916,280	1,205,254
Revolver Bank Debt						0	0	0	0	0
Long-term Debt (Ad)	6,929	415	468		46,849	46,849	46,849	46,849	46,849	46,849
Capital Leases	59,052	67,156	82,217	94,863	104,383	105,731	107,416	111,190	117,267	121,392
Deferred Income Taxes	13,604	10,159	8,237	4,608	10,399	10,399	10,399	10,399	10,399	10,399
Other Long-Term Liabilities	72,467	74,929	111,930	120,970	109,614	109,614	109,614	109,614	109,614	109,614
Total long-Term Obligations	484,558	488,961	547,578	572,867	630,716	1,521,123	1,512,263	1,505,358	1,200,409	1,493,508
Equity										
Common Share	530,077	502,872	484,050	447,558	435,033	401,820	376,795	365,489	355,265	346,011
Common Share Held in Trust	(12,287)	(9,437)	(9,542)	(10,136)	(13,356)	(13,356)	(13,356)	(13,356)	(13,356)	(13,356)
Contributed Surplus				6,375	10,970	23,551	37,465	52,864	69,891	88,702

Table C.3: Tim Hortons Statement of Cash Flows

Historical

In Thousands of Canadian Dollars						Projected	Projected	Projected	Projected	Projected
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Cash Flow from Operations										
Net Income	\$286,894	\$297,878	\$647,118	\$385,748	\$407,766	\$432,177	\$477,474	\$527,908	\$583,177	\$643,778
Adjustment for Non-Cash Items										
Depreciation and Amortization	91,278	101,447	118,385	115,869	132,167	115,845	127,105	132,454	137,408	141,995
Asset Impairment	21,266		18,352	1,850						
Stock-Based Compensation	9,630	8,869	14,263	17,323	11,862	12,581	13,914	15,399	17,027	18,811
Deferred Income Taxes	(13,714)	25,342	1,285	(5,433)	5,065					
Changes in Working Capital										
Restricted Cash	(23,820)	789	(6,920)	(63,264)	(20,182)	(14,172)	(15,064)	(16,799)	(18,472)	(20,109)
Accounts Receivable	(51,235)	(13,692)	(10,923)	2,099	(1,346)	(15,988)	(17,153)	(19,128)	(21,034)	(22,897)
Inventories	(3,708)	1,012	(29,275)	(32,057)	33,415	(27,832)	(12,329)	(13,748)	(15,118)	(16,457)
Accounts Payable and Accrued Liabilities	22,723	(19,726)	104,829	349	6,692	(4,809)	16,714.8	20,372.2	22,383.8	24,353.0
Taxes			40,715	(39,197)	(18,065)					
Gain on Sale of Maidstone			(361,075)							
Other	16,701	13,732	(11,210)	8,180	1,913	(4,881)	(4,881)	(4,881)	(4,881)	(4,881)
Net Cash Provided by Operating Activities	356,015	415,651	525,544	391,467	559,287	492,919	585,782	641,578	700,491	764,593
Cash Flow from investing Activities										
Capital Expenditures	(174,247)	(157,971)	(132,912)	(176,890)	(186,777)	(273,861)	(198,997)	(198,997)	(198,997)	(198,997)
Capital Expenditures- Ad fund				(4,377)	(49,031)					
Purchase of restricted Investments	(11,881)	(20,136)	(37,832)							
Proceeds from sale of Investments	12,000		20,240	38,000						
Proceeds of Sale of Interest of Maidstone			475,000							
Cash and Cash from Maidstone Divested			(30,411)							
Other Investing	(9,479)	(19,719)	1,934	(9,460)	(6,400)					
Net Cash Provided by Investing Activities	(183,607)	(197,826)	296,019	(152,727)	(242,208)	(273,861)	(198,997)	(198,997)	(198,997)	(198,997)
Cash Flow from Financing Activities										
Repurchase of Common Shares	(169,326)	(131,292)	(242,595)	(572,452)	(225,200)	(600,000)	(500,000)	(250,000)	(250,000)	(250,000)
Dividend Payments	(66,086)	(72,506)	(90,304)	(110,187)	(130,509)	(133,560)	(139,222)	(145,527)	(152,435)	(160,011)
Distribution, net to non-controlling interest			(22,524)	(6,692)	(3,913)	0	0	0	0	0
Net Proceeds From Long term Obligations	3,796	3,507	300,823	3,699	51,850	920,000	20,000	20,000	20,000	320,000
Principal Payment on Long-term Obligations	(7,376)	(6,582)	(307,023)	(8,586)	(7,710)	(20,781)	(29,593)	(28,860)	(26,905)	(324,949)
Other Financing/Revolver			(4,005)	6,398.0	(6,885)	0	0	0	0	0
Net Cash Used in Financing Activities	(238,992)	(206,873)	(365,628)	(687,820)	(322,367)	165,659	(648,815)	(404,387)	(409,340)	(414,960)
Effect of FX rate on cash	10,618	(9,321)	(3,234)	1,223	(1,070)	0	0	0	0	0
(Decrease) Increase in Cash	(55,966)	1,631	452,701	(447,857)	(6,358)	384,717	-262,031	38,193	92,153	150,636
Cash at Beginning of Year	157,602	101,636	103,267	555,968	126,497	120,139	504,856	242,824	281,018	373,170
Cash at End of Year	101,636	103,267	555,968	108,111	120,139	504,856	242,824	281,018	373,170	523,806

By management guidance, required minimum cash balance

5.00%

4.1 Projection: Assumptions of Income Statement Modelling

4.1.2 Modelling Revenues and Cost of Goods Sold

- Distribution Sales
 - Volume growth: 7% for 2013 until 2017
 - Price growth: 3% for 2013 until 2017
- Franchise Revenues

in (\$000)	Rents and Royalties		Projected			
	2012	2013	2014	2015	2016	2017
Rents and Royalties	780,992	846,462	904,399	972,469	1,047,052	1,124,512
<i>Y/Y percentage change</i>	6.5%	8.4%	6.8%	7.5%	7.7%	7.4%
Franchise Sales						
<i>Franchise Sales Canadian</i>	5,907,481	6,309,190	6,738,215	7,196,413	7,685,769	8,208,402
<i>Y/Y Canadian Franchise Sales</i>	6.2%	6.8%	6.8%	6.8%	6.8%	6.8%
<i>Franchise Sales U.S.</i>	532,214	593,419	661,662	737,753	822,594	917,193
<i>Y/Y U.S. Franchise Sales</i>	12.5%	11.5%	11.5%	11.5%	11.5%	11.5%
<i>USD/CAD Rate (CAD per USD) (Bloomberg forecast)</i>	1.00	1.06	1.02	1.05	1.09	1.10
<i>Franchise Sales US (CAD)</i>	532,214	629,024	674,895	774,640	896,628	1,008,912
Total Franchise Sales	6,439,695	6,938,213	7,413,110	7,971,054	8,582,397	9,217,314
Rent & Royalties as % of Franchise Sales	12.1%	12.2%	12.2%	12.2%	12.2%	12.2%

- Franchise Fees

Franchise Fees	Projected					
	2012	2013	2014	2015	2016	2017
Franchise Fees in (\$000)	113,853	114,840	118,965	123,090	127,215	131,175
Store Calculations:						
Beginning of Year number of Stores	4014	4264	4513	4760	5006	5251
New Stores Openings	276	270	270	270	270	270
Store Closures	26	21	23	24	25	26
End of Year Number of Stores	4,264	4,513	4,760	5,006	5,251	5,495
Licence Renewal Calculations:						
10% of Existing Due for Renewal	401	426	451	476	501	525
New + Due for Renewal Stores	677	696	721	746	771	795
Franchise Fee per Store in (\$000)	168.173	165.000	165.000	165.000	165.000	165.000

- Cost of Goods Sold: 62.8% of Total Revenue for 2013 until 2017

4.1.3 Modelling Costs & Expenses

- OPEX: 9.1% of Total Revenue for 2013 until 2017
- Franchise Cost: 3.7% for 2013 until 2017
- General and Administrative Expenses: 5% of Total Revenue for 2013 until 2017
- Equity Income: -0.5% of Total Revenue for 2013 until 2017
- Other Income (net): Too marginal, ignored from 2013 until 2017

4.1.4 Modelling Operating Income

- Assume no extraordinary income for 2013 until 2017

4.1.5 Modelling Interest Income & Interest Expenses

- Interest Income: 0.1% of Total Revenue for 2013 until 2017
- Interest Expenses: see Section 4.2

4.1.6 Modelling Income Tax Expenses and Minority Interests

- Tax Rate: 28% of EBT for 2013 until 2017
- Minority Interests: constant at \$4.881 million per year for 2013 until 2017

4.1.7 Modelling Earnings Per Share

- Shares repurchased: see Section 4.2

Earnings Per Share	Projected					
	2012	2013	2014	2015	2016	2017
Beginning of year shares outstanding		153,404.839	141,692.951	132,868.384	128,881.779	125,276.356
Expected number of shares repurchased		11,711.888	8,824.568	3,986.605	3,605.423	3,263.282
End of year shares outstanding	153,404,839	141,692.951	132,868.384	128,881.779	125,276.356	122,013.075
Average number of shares		147,548.895	137,280.668	130,875.081	127,079.068	123,644.715
Projected Net Income to Shareholders		\$ 427,296	\$ 472,593	\$ 523,027	\$ 578,296	\$ 638,897
Projected EPS		\$ 2.90	\$ 3.44	\$ 4.00	\$ 4.55	\$ 5.17
Average number of shares including Diluting shares		148,048.895	137,780.668	131,375.081	127,579.068	124,144.715
Projected Diluted EPS		\$ 2.89	\$ 3.43	\$ 3.98	\$ 4.53	\$ 5.15

4.2 Projection: Assumptions of Balance Sheet Modelling

4.2.2 Modelling Working Capital

- Working Capital

in (\$000)	Working Capital		Projected			
	2012	2013	2014	2015	2016	2017
Total Revenue	3,120,504	3,414,201	3,726,381	4,074,517	4,457,331	4,874,063
COGS	1,959,416	2,143,833	2,339,856	2,558,456	2,798,832	3,060,504
Beginning Inventory	136,999	107,000	134,832	147,161	160,909	176,027
Ending Inventory	107,000	134,832	147,161	160,909	176,027	192,485
Purchases	1,929,417	2,171,665	2,352,185	2,572,205	2,813,950	3,076,962
A/R	171,605	187,593	204,746	223,875	244,908	267,806
A/P	169,762	201,080	217,795	238,167	260,551	284,904
A/R turnover ratio	18.2	18.2	18.2	18.2	18.2	18.2
Inventory turnover ratio	18.3	15.9	15.9	15.9	15.9	15.9
A/P turnover ratio	11.4	10.8	10.8	10.8	10.8	10.8

- Restricted Cash: follows Total Revenue growth each year for 2013 until 2017
- Notes Receivables: constant for 2013 until 2017
- Deferred Income Taxes in CA and CL: constant for 2013 until 2017
- Advertising fund in CA and CL: constant for 2013 until 2017
- Accrued Liabilities: constant for 2013 until 2017
- Other Accrued Liabilities: weighted average of 2008 to 2012. Constant for 2013 until 2017

4.2.3 Modelling Other CA and CL Accounts

- Cash & Cash Equivalents: projected after the Cash Flow Statement

- Current Portion of Debt: Given by management

	2012	2013	2014	2015	2016	2017
Long Term Debt moved to CL in(\$000)	11,947	10,941	10,545	10,679	311,026	11,026
Capital Leases moved to CL in (\$000)	19,690	18,652	18,315	16,226	13,923	15,875

- Special case of 2017: Since no guidance is given after 2017, we assume constant LTD repayment, and average Leases repayment.
See Interest Expenses for more explanation.

4.2.4 Modelling Property Plan & Equipment

- Depreciation Expenses: 7.4% of existing PP&E for 2013 until 2017
- CAPEX: between \$250M and \$300M for 2013, between \$180M and \$220M for 2014, assume same for 2015 until 2017

4.2.5 Modelling Other Long-Term Assets

- Long-Term Notes Receivables: constant for 2013 until 2017
- Long-Term Deferred Income Taxes: constant for 2013 until 2017
- Long-Term Equity Investments: constant for 2013 until 2017
- Other Long-Term Assets: constant for 2013 until 2017
- Intangible Assets: reduced by \$0.9M in 2013, and by \$0.4M for 2014 until 2017

4.2.6 Modelling Long-Term Debt and Capital Leases

- Long-Term Debt

Long Term Debt Schedule

in (\$000)	2012	2013	2014	2015	2016	2017
Long-term Debt (Begin)	352,426	359,471	1,248,530	1,237,985	1,227,306	916,280
Add: Issuances	0	900,000	0	0	0	300,000
Less: Move to Current Liabilities	(11,947)	(10,941)	(10,545)	(10,679)	(311,026)	(11,026)
		1,248,530	1,237,985	1,227,306	916,280	1,205,254

Special case of 2017: since no guidance on the payment due in 2017, assume same as the outstanding amount from the \$300M of new issuance

- Capital Leases

Capital Leases

in (\$000)	2012	2013	2014	2015	2016	2017
Long-term Debt (Begin)		104,383	105,731	107,416	111,190	117,267
Add: New Leases		20,000	20,000	20,000	20,000	20,000
Less: Move to Current Liabilities (at Begin of year)	(19,690)	(18,652)	(18,315)	(16,226)	(13,923)	(15,875)
		105,731	107,416	111,190	117,267	121,392

Special case of 2017: Since no guidance is given for minimum payments after 2017, assume an average repayment. See Interest Expenses for more explanation.

4.2.7 Modelling Interest Expenses

- Long-Term Debt

Calculation of Interest Expenses	Projected				
	2,013	2,014	2,015	2,016	2,017
Interest on Old Debt	6.2%	5.5%	5.5%	5.5%	5.5%
Interest on New Debt	5.2%	5.2%	5.2%	5.2%	5.2%
Amount of old debt	359,471	1,248,530	1,237,985	1,227,306	916,280
Amount of new debt	900,000	0	0	0	300,000
Total	1,259,471	1,248,530	1,237,985	1,227,306	1,216,280
Weighted Average Interest Rate	5.5%	5.5%	5.5%	5.5%	5.4%
Interest Expense	69,087	68,487	67,909	67,323	65,862

- Capital Leases

Calculation of Interest Rate on leases (IRR)	2,012	2,013	2,014	2,015	2,016	2,017
Cash flow of leases	-113,217	19,690	18,652	18,315	16,226	13,923
IRR (interest rate)	11.09%	2,018	2,019	2,020	2,021	2,022
		15,875	15,875	15,875	15,875	15,875
		2,023	2,024	2,025		
		15,875	15,875	15,875		

Calculation of Total Interest Expenses	Projected				
	2013	2014	2015	2016	2017
Interest Expense (Leases)	13,793	13,942	14,129	14,548	15,222
Revolver Debt	0	0	0	0	0
Total Interest Expense in (\$000)	82,880	82,429	82,038	81,870	81,083

Special case of Revolver Debt: according to our projections, the Company would not use its Revolver Debt.

However, if needed, we would take the interest on the Revolver that was issued in year (t-1) for the expenses in year t.

4.2.8 Modelling Other Liabilities

Constant for 2013 until 2017, due to lack of guidance

4.2.9 Modelling Common Stock Account

Common Stock Account

Share Repurchase Computation Table	Projected				
	2013	2014	2015	2016	2017
<i>Calculated of Stated Value</i>					
Common share account (Year-End of t-1)	435,033	401,820	376,795	365,489	355,265
Basic Shares Outstanding (Year-End of t-1)	153,405	141,693	132,868	128,882	125,276
Stated Value Per Share	\$2.84	\$2.84	\$2.84	\$2.84	\$2.84
<i>Common Shares Account Schedule</i>					
Share Repurchase Price	\$51.23	\$56.66	\$62.71	\$69.34	\$76.61
Amount of Shares Purchased (in 000s)	11,711.888	8,824.568	3,986.605	3,605.423	3,263.282
2013 program Repurchase Amount	\$ 600,000.00	\$ 500,000.00	\$ 250,000.00	\$ 250,000.00	\$ 250,000.00

4.2.10 Modelling Retained Earnings

Payout ratio of 37.5% : constant for 2013 until 2017

Payout period of 3 years: constant for 2013 until 2017

4.2.11 Modelling Other Equity Accounts

Contributed Surplus: add Stock Based Compensation for 2013 until 2017

Accumulated Other Comprehensive Income: constant for 2013 until 2017

Shares Held in Trust: constant for 2013 until 2017

4.3 Projection: Assumptions of Cash Flow Modelling

4.3.1 Modelling Cash Flow from Operations

Depreciation and Amortization:

PP&E Amortization and Depreciation	Projected				
	2013	2014	2015	2016	2017
Intangible Amortization in (\$000)	\$900.00	\$400.00	\$400.00	\$400.00	\$400.00
%of PP&E for Depreciation	7.40%	7.40%	7.40%	7.40%	7.40%

Stock Based Compensation: grows with Net Income to Shareholders for 2013 until 2017

4.3.2 Modelling Cash Flows from Investing

Capital Expenditures: Geometric mean between \$250M and \$300M for 2013, and between \$180M and \$220M for 2014 until 2017

Investments: kept at 0 for 2013 until 2017

Advertising Expenditures: kept at 0 for 2013 until 2017

4.3.3 Modelling Cash Flow from Financing

Cash Flows

in (\$000)	Projected				
	2013	2014	2015	2016	2017
Repurchase of common shares	600,000	500,000	250,000	250,000	250,000
Dividends payment:	(133,560)	(139,222)	(145,527)	(152,435)	(160,011)
Long-Term Obligations	900,000	-	-	-	300,000
Short-Term Obligations	(20,781)	(29,593)	(28,860)	(26,905)	(324,949)

4.3.4 Adding a Revolver to Ensure Positive Cash Balance

Assume Tim hortons wants to keep 5% of cash balance each year