

University of Waterloo  
Math-Business and Accounting Program  
Math-Business Workshop Series  
Workshop #1  
On Financial Statements Modelling & Fundamental Analysis

## 1 Workshop Description

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. Below is a list of some of the popular workshops offered in the Math-Business Workshop Series.

1. Workshop 1: On Financial Statements Modelling & Fundamental Analysis
2. Workshop 2: Asset Allocation and Portfolio Selection: How Markowitz Analysis is Performed in Practice?
3. Workshop 3: The Capital Asset Pricing Model: Theory & Practice
4. Workshop 4: On Assessing the Viability of Financial Projects
5. Workshop 5: The Alpha, Beta, and Gamma of Portfolios
6. Workshop 6: On Financial Planning
7. Workshop 7: On Risk Management in the Banking Sector

The first workshop in the series is **Financial Statements Modelling and Fundamental analysis**. The main objective of the 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.

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, 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.<sup>1</sup> 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. In this workshop, we will show how a basic fundamental analysis for an individual security is performed in practice.

Although the focus of the workshop is on the analysis and projection of financial statements, there will be an emphasize on how to use Bloomberg's platform<sup>2</sup> to extract and analyze various financial data pertaining to financial corporations whose stocks are traded on Standard and Poor Toronto Stock Exchange (SPTSX). Participants will also receive training on how to use Bloomberg's navigation tool in Excel. Functions, short cut keys, and other Excel commands will be also introduced. In order to ensure that the participants are familiar with the Bloomberg platform, a Bloomberg preparation session will be held prior to the workshop to go over the basics of Bloomberg operating system.

For the sake of illustration, one specific publicly-traded company (Tim Hortons) will be used as an actual example for demonstration. A step-by-step manual explaining how the financial data pertaining to this company are extracted, analyzed, and projected will be provided to the participants in the workshop. The manual also explains how the projected financial data can be further used in computing the intrinsic value of the firm. The manual is prepared by Fahmy (2013) and will be made available to the participants in the workshop. Finally, it is worth mentioning that this workshop is considered the foundation of the **second** workshop in the series, which is after **asset allocation and portfolio selection**.

## References

- [1] Fahmy, H. (2013). *On Financial Statements Modelling and Fundamental Analysis*, HF Consulting, ON, Canada.
- [2] Gordon, J. M. (1962). *The Investment, Financing, and Valuation of the Corporation*, Homewood, IL: R.D. Irwin

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<sup>1</sup>Actually 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."

<sup>2</sup>Bloomberg 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.

- [3] Graham B. and Dodd, D. (1934). *Security Analysis* (Edition 4), McGraw-Hill, New York.
- [4] Graham B. (1949). *The Intelligent Investor*, Collins, New York.
- [5] Williams, J. B. (1938). *The Theory of Investment Value*, Harvard University Press.