ACCOUNTING IN ACTION: ACCOUNTING PRINCIPLES, FINANCIAL STATEMENT AND ASSETS PRICING THEORY

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Abstract
This study was conducted to get some clarity in understanding how money works in the world: how someone manages to earn or make it, how he/she invests it (turn it into more) and how that person donates it to help others. The study also investigates the measurement, processing of financial information about economic entities such as businesses and corporations or the importance of “language of business” because it communicates financial and economic facts about a business for all sorts of interested parties both internal and external. It’s important to take into the consideration the ancient history of „language of business” – accounting that covered the period between 450 and 500 BC. Some researches show that the professional skills in accounting and mathematics can lead to the disclosure some internal and external secrets of Accounting Principles, the common set of which is the generally accepted accounting principles (GAAP) divided by Bierman and Drebin into three different branches: assumptions about the world, operating conventions and quality considerations for the purposes of true income determination in the financial statements. It is observed that the financial statements published by a company at the end of every financial year serve three purposes: they inform, help control and they help plan. Reliable financial statements provides less biased performance measures and market efficiency also improved because transparent disclosure of accounting information reduced information asymmetry at lower cost which effects market performance. The purpose of this study is also to determine the asset pricing theory (CAPM). The usefulness of the research is expected to develop knowledge and solve problem using some formulas of CAPM.

Keywords Financial Literacy, Language of Business, Accounting Practice and Accounting Theory.

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INTRODUCTION

Consider the quote of one of the best known American businessman and at the same time the former chairman of ITT Corporation Harold Sydney Geneen [1984]: „In the business world, everyone is paid in two coins; cash and experience. Take the experience first; the cash will come later”. To get the success in any business is important to establish the right communication with the numbers and accordingly will be got the experience. If managers don’t know how to read financial statements, how to increase the communication deal with the numbers they can’t really know the managing process of their business. And to know the business it’s important to be “financially literate.” In respect to the International Journal of Recent Research in Commerce Economics and Management (July–September 2016) the definition of Financial literacy is shown as the ability to understand how money works in the world: how someone manages to earn or make it, how that person manages it, how he/she invests it (turn it into more) and how that person donates it to help others. More specifically, it refers to the set of skills and knowledge that allows an individual to make informed and effective decisions with all of their financial resources.

Accounting is the measurement, processing and communication of financial information about economic entities such as businesses and corporations [Needles and Powers 2013]. Diwan Jaswith gave the explanation of accounting as modern field established by the Italian mathematician Luca Pacioli in 1494. Accounting measures the results of an organization’s economic activities and conveys this information to a variety of users, including investors, creditors, management, and regulators. Maire Loughran has mentioned the accounting as a „language of business” because it communicates financial and economic facts about a business for all sorts of interested parties both internal and external [Loughran 2011]. Many owners who are new in the business, in other words, who are the initial participants of infant industry have some ideas about bookkeeping and accounting. But in reality, both conceptions are able to share two major goals: to control the income and expenses, to decrease the cost which improves chances of making a profit as much as possible, and to collect the financial information [Burns 1999, pp. 28–30].

In the Global Journal of Management and Business Research is mentioned that there is no requirement if records are kept in any particular way as long as records reflect the business’s income and expenses [Ademola et al. 2012, pp. 34–45]. The size of business always varies which is usual thing in the accounting world, that’s why depending on the size of the business and amount
of sales there are some possibilities to create own ledgers and reports, or sometimes to rely on accounting [Nickels et al. 1999].

One of the business dictionaries (www.businessdictionary.com) defines accounting as practice of knowledge which respectively includes: methods for recording transaction, keeping financial records, performing internal audit, reporting and analyzing financial information to management, and advising on taxation matters. It is a systematic process of identifying, recording, measuring, classifying, verifying, summarizing, interpreting and communicating financial information. Cronje and Gouws [2008, pp. 108–133] say that accounting practices play the major role in generating of accounting information where corporate annual reports reflect these practices. Accountants often belonged to the same associations as solicitors, who often offered accounting services to their clients. Early modern accounting had similarities to today’s forensic accounting. According to the information from Timeline of the History of the Accountancy Profession it’s known that accounting began to transition into an organized profession in the nineteenth century, with local professional bodies in England merging to form the Institute of Chartered Accountants in England and Wales in 1880 [Perks 1993, p. 16].

The International Accounting Standards Board (IASB) was formed in 2001 as a successor to the former International Accounting Standards Committee (IASC). International Financial Reporting Standard provided several useful, complex, confusing and existing accounting frameworks. As was established previously Frameworks of Accounting are raised from Accounting Theories. Accounting theory is a material field in Accounting. Historically, accounting predates monetary economy. The development of accounting theory was to ameliorate the inherent problems encountered in barter economy, unlike monetary economy. It is pertinent to understand the meaning, scope and application of a theory in humanities and management sciences in order to appreciate the work of accounting theory.

1. THE WORLD HISTORY OF ACCOUNTING

The history of accounting or accountancy is thousands of years old and can be traced to ancient civilizations [Robson 1992, pp. 685–708]. If to pay the attention on the ancient period Oldroyd David and Dobie Alisdair [2008, pp. 96] have put that the early development of accounting dates back to ancient Mesopotamia, but Keistar has put this period between 450 and 500 BC. Generally, during this ancient period the development in accounting was closely related to developments in counting, writing and money. By the time of the Emperor Augustus, the Roman government had access to detailed financial
information. Fra Luca Bartolomeo de Pacioli was an Italian mathematician recognized as „The Father Of Accounting Bookkeeping” who published a work on double-entry bookkeeping and introduced the field in Europe [Lauwers and Willekens 1994, pp. 302]. The system of record-keeping (accounting) demonstrating accounting as socially constructed can records the complex transactions involving some individuals. Zenon also developed the system of record-keeping (accounting) in the 5th Century BC which later was modified by the Romans. Zenon’s system of accounting also was about data generation, recording and analysis, detection of errors [Glautier and Underdown 2001]. Goldberg [1949] saw the modification of Zenon in ancient Rome as the memorandum book. This system of recording in ancient Greece and Rome according to Goldberg [1949] indicates that the accounting systems were mainly concerned with recording and exposing losses due to inefficiency and corruption. It was not for decision making and assets protection. According to Fu’s decision [1971, pp. 40–51] the accounting systems were generally used by feudal and expansionist for merchants and estates in China.

2. ACCOUNTING PRINCIPLES

Important to mention that mathematics and accounting are strong parallel subjects and the skills required in both subjects match as well. These skills show the importance in business administration, business education, insurance and finance students in higher institutions [Adamu and Musa 2012]. Considering the importance of accounting and mathematics skills in business related subjects, the researchers investigate the influence of entry grades in mathematics and principles of accounting in financial accounting. It’s not a secret that the Statement of the Problem Accounting is a very important term to our modern society. Jubril also discovered that the accounting and mathematics have some similarities within the educational settings [Jubril 2011]. At the same year Sani, Musa and Adamu reported some approaches in mathematics and accounting studies [Adamu and Musa 2012].

The professional skills in accounting and mathematics can lead to the disclosure some internal and important secrets of Accounting Principles. The studies (investopedia) show that Accounting principles are the rules and guidelines that companies must follow when reporting financial data. The common set of U.S. accounting principles is the generally accepted accounting principles (GAAP). To remain listed on many major stock exchanges in the United States, companies must regularly file financial statements reported according to GAAP. Weygandt Kimel Kieso team proposed the definition as developed standards that are generally unaccepted and universally practiced.
This common set of standards is called generally accepted accounting principles (GAAP). These standards indicate how to report economic events. According to Mike and Fred, the practice in accounting could not develop properly to meet the ever increasing demands of a complex society without reference to a coherent underlying theory for true income determination [Mike and Fred 1983]. The Institute of Chartered Accountants in England and Wales (GAAP) published some very important recommendations about Accounting Principles in 1942. Additionally it’s possible to mention that the American Institute of Certified Public Accountants (AICPA) put more positive approach in the establishment of a sequential set of accounting principles. The most successful work of the AICPA was establishment of the committee on Accounting Procedure (CAP) in 1938 which was replaced in 1959 by the Accounting Principles Boards (APB). Then in 1973, this was replaced by Financial Accounting Standards Board (FASB). The need for international accounting principles and increasing multi-national nature of business led to the establishment of International Accounting Standards Committee (IASC) in July, 1973. Chambers, observed that about 170 Generally Accepted Accounting principles exist and now merged to 13 and at the same time he stressed that accounting principles can also be described as concepts; conventions; postulates; standards; doctrine; tenets; assumptions; rules and regulations governing the preparation and presentation of financial statements [Chambers 1966]. Bierman and Drebin [1972] divided the accounting principles into three different branches. First is the „assumptions about the world”, second, the „operating conventions” and third is the „quality considerations” for the purposes of true income determination in the financial statements. The developed thoughts of Bierman and Drebin about Generally Accepted Accounting Principles (GAAP) were structured in the diagram related with each other. Henrikson [1992] in the „Accounting Theory” described above mentioned diagram as the following form – see: Diagram 1.

2.1. Assumptions about the world

The above mentioned branch is the first part in the blocked GAAP diagram respectively including the business entity, going concern, stable monetary unit and the last section of the branch – accounting period.

2.2. Operating conventions

One of the main parts of GAAP diagram which consists of some important sections such as: historical cost, realization, matching, duality and money measurement.
2.3. Quality considerations

The main sections of quality consideration are objectivity, prudence, consistency and materiality.

Diagram 1. Generally Accepted Accounting Principles

Source: Henrikson [1992].

3. FINANCIAL STATEMENT

„Presentation of Financial Statements” states that a financial statement is a formal record of the financial activities and position of a business, person, or other entity. Relevant financial information is presented in a structured manner and in a form easy to understand. Each company publishes the financial
Financial statements provide some important information for a large number of people such as stakeholders and include shareholders, lenders, suppliers, customers, managers, employees, prospective investors, relevant governmental departments who have an interest in the affairs of a company. Managers and employees have direct impact on firm’s performance but other stakeholders have no direct access to the detailed records maintained by the company. In respect to the basis of information which is provided in the financial statement, Shareholders can make important decision and can control the actions of directors who manage the company. Similarly yearly comparison of financial statements also enables managers and investors to recognize different business trends and possibly makes to control negative trends and improve the positive ones. Considering all purposes of using the financial statement for making decision they should be clear and understandable, reliable, have the degree of integrity and should be honest. The credibility is necessary as well because all users of financial statement rely on the audited financial statement in other to make informed decision. Therefore the basic purpose of financial statements in the view of Meigs is to assist decision makers in evaluating the financial strength, profitability and the future prospects of a business entity. Financial statements (or financial report) are the formal records of the financial activities of a business. This is a generic term for profit and loss account, balance sheets, cash flow statement, five year financial summary, value added statement, income and expenditure account, statement of accounting policy etc.

3.1. Balance sheet

Williams, Susan, Mark and Joseph state that balance sheet or statement of financial position is a summary of the financial balances of an individual or organization [Williams et al. 2008, p. 40]. Assets, liabilities and ownership equity are listed as of a specific date, such as the end of its financial year.

3.2. Income statement

An income statement or profit and loss account (also referred to as a profit and loss statement(P&L), revenue statement, statement of financial performance, earnings statement, operating statement, or statement of operations) is one of the financial statements of a company and shows the company’s revenues and expenses during a particular period [Helfert 2001].
3.3. Statement of retained earnings

Explains the changes in a company’s retained earnings over the reporting period.

3.4. Statement of cash flows

In financial accounting, a cash flow statement is a financial statement that shows how changes in balance sheet accounts and income affect cash and cash equivalents, and breaks the analysis down to operating, investing and financing activities [Helfert 2001].

4. ASSETS PRICING THEORY

There are a number of assets pricing theories but one of the interesting from all of them is (CAPM) capital asset pricing models developed by Sharpe and Ross developed the arbitrage pricing theory (APT) in (1976), but CAPM is most prominent and prevailing asset pricing model in the literature [Sharpe 1964, pp. 425-442]. However literature also constitutes of some multi factor asset pricing models. Markowitz’s model [1959] of portfolio choice paves the way for the basic foundations for asset pricing models. The capital asset pricing model (CAPM) of Sharpe [1964, pp. 425–442] and Lintner gives origin of asset pricing theory. In finance, the capital asset pricing model (CAPM) is a model used to determine a theoretically appropriate required rate of return of an asset, to make decisions about adding assets to a well-diversified portfolio.

According to CAPM only single factor the market premium \((R_m - R_{fr})\) affect the portfolio returns. The equation to demonstrate the relationship between expected rate and market premium is:

\[
R = R_{fr} + \beta (R_m - R_{fr})
\]

In the equation \(R = \) Expected Return, \(R_{fr} = \) Risk Free Rate, \(\beta = \) Equity Beta and \(R_m = \) Market Return. \(\beta = \text{Asset beta} \times [1 + (1 - t)(D/E)]\), where \(D – \) debt; \(E – \) equity.
Problem

Boris Duarte, CFA, covers initial public offerings for Zellweger analytics, an independent research firm specializing in global small cap equities. He has been asked to evaluate the upcoming new issue of TagOn, a US-Based business intelligence software company. The industry has grown at 26% per year for the previous three years. Large companies dominate the market, but sizable „pure play” companies such as Relevant Ltd., ABJ and Opus Software Pvt. Ltd also compete. Each of these competitors is domiciled in a different country, but they all have shares of stock these on the US. The debt ratio of the industry has risen slightly in recent years. Some detailed information about companies is given in the tab. 1.

Duarte uses, the information from the preliminary prospectus for tagOne’s initial offering. The company intends to issue 1 million new shares. In his conversation with the investment bankers for the deal, he concludes the offering price will be between $7 and $12. The current capital structure of TagOn consist of $2,4 million five year non-callable bond issue and 1 million common shares. Other information that Duarte has gathered is shown in the tab. 2.

Table 1. Companies and statistics

<table>
<thead>
<tr>
<th>Company</th>
<th>Sales in mln</th>
<th>Market value of equity</th>
<th>Market value of debt</th>
<th>Equity beta</th>
<th>Tax rate %</th>
<th>Share price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant</td>
<td>752</td>
<td>3800</td>
<td>0</td>
<td>1.702</td>
<td>23</td>
<td>42</td>
</tr>
<tr>
<td>ABJ</td>
<td>843</td>
<td>2150</td>
<td>6.5</td>
<td>2.800</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>Opus</td>
<td>211</td>
<td>972</td>
<td>13</td>
<td>3.400</td>
<td>23</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Clayman et al. [2012].

Table 2. Information about Duarte

<table>
<thead>
<tr>
<th>Currently outstanding bond</th>
<th>$2,4 million five year bonds, coupon of 12.5% with a market value of $2,156</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk free rate of interest</td>
<td>5.25%</td>
</tr>
<tr>
<td>Estimated equity risk premium</td>
<td>7%</td>
</tr>
<tr>
<td>Marginal Tax rate</td>
<td>23%</td>
</tr>
</tbody>
</table>

Source: Clayman et al. [2012].

Questions:

a) The asset betas for Relevant, ABJ, Opus respectively are?

b) The average asset beta for the pure players in this industry, Relevant, ABJ, and Opus, weighted by market value of equity is closest to?
c) Using the CAPM the cost of equity for a company in this industry with debt to equity ratio of 0.01 asset beta of 2.27, and a marginal tax rate of 23% is closest to?

**Solution**

To solve the problem it’s important to act step by step.

1st step’s using formula \( \text{Asset beta} = \frac{\beta_{\text{equity}}}{1 + (1 - t)(D/E)} \). Using some important data from tab. 1 we know can find the value of Asset beta for all 3 companies:

- Relevant: \( \frac{1.702}{[1 + (0.77)(0)]} = 1.702 \)
- ABJ: \( \frac{2.8}{[1 + (0.77)(0.003)]} = 2.7918 \)
- Opus: \( \frac{3.4}{1 + [(0.77)(0.013)]} = 3.3663 \)

2nd step is determined as calculating of the weighted average beta based on relative market values. Mark Kennan to calculate weighted average beta advised to multiply the amount invested in each stock by the stock’s asset beta. The total Market Value of Equity according to the data from the tab. 1 for all 3 companies is the following: $3,800+$2,150+$972=$6,922.

The invested amount for companies:
- Relevant: \( \frac{3,800}{6,922} = 0.5490 \)
- ABJ: \( \frac{2,150}{6,922} = 0.3106 \)
- Opus: \( \frac{972}{6,922} = 0.1404 \)

Weighted average beta \( (0.5490)(1.702) + (0.3106)(2.7918) + (0.1404)(3.3572) = 2.27. \)

3rd step is the process of determining the Cost of equity capital according to the above calculation and data from the tab. 2. We know that Asset beta = 2.27 and total debt to equity ratio is: \( \frac{D}{E} = 0/3800 + 6.5/2150 + 13/972 = 0.01. \)

Using the formula \( \beta_{\text{equity}} = \text{Asset beta} \times \frac{[1 + (1 - t)(D/E)]}{1 + [(1 - 0.23)(0.01)]} = 2.2875 \)

**CONCLUSIONS**

In this study was discussed some important things about financial literacy. Also it investigated the processing of financial information about economic entities and at the same time the importance of „language of business” that communicates financial and economic facts about a business for all sorts of interested parties both internal and external. I got very interesting facts that financial statements published by a company at the end of every financial year...
serve three purposes: they inform, they help control and they help plan. Also I solved a problem using the rules of CAPM. Finally, I can conclude that the method of research showed that the maximum value of asset beta belongs to „Opus” company, which approximately equal to 3.4. Subsequently, according to some values of asset beta from the 1st step we can draw a conclusion that the weighted average beta of companies is equal to 2.27. The final result of calculation the Cost of equity capital according to some presented data and formula \( R = R_{fr} + \beta (R_m - R_{fr}) = 0.0525 + (2.2875)(0.07) = 0.2126 \) or 21.26% 

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Przeprowadzone badanie dotyczy pomiaru, przetwarzania informacji finansowych o podmiotach gospodarczych, takich jak przedsiębiorstwa i korporacje. Zaobserwowano, że sprawozdania finansowe opublikowane przez firmę na koniec każdego roku finansowego służą trzem celom: informują, pomagają kontrolować i pomagają zaplanować. Wiarygodne sprawozdania finansowe zapewniają mniej ukierunkowane działania i poprawiają wydajność rynku, ponieważ przejrzyste ujawnianie informacji rachunkowych zmniejsza asymetrię informacji przy niższych kosztach, co wpływa na wyniki rynkowe. Celem niniejszego opracowania jest również określenie teorii wyceny aktywów (CAPM). Oczekuje się, że przydatność badań pozwoli rozwinąć wiedzę i rozwiązywać problemy przy użyciu pewnych wzorów CAPM.

Słowa kluczowe: język biznesu, rachunkowość w praktyce i teorii, wiedza finansowa.