Economic Analysis of the Accounting Practices

Gianmarco Corradini

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Chapter 1

Introduction

It is believed that the earliest examples of accounting practices can be traced back as far as the period of the Egyptians. Certainly, accounting took its modern form in Italy in the 15th century, thanks to mathematician and Franciscan Luca Pacioli. Since then, accounting practices have evolved and differed from country to country. What has remained, are the guiding principles of accounting, that need to implement a set of standardized actions for recording economic facts, such that they are represented as truthfully and impartially as possible.

The purpose of the following discussion is to analyze accounting practice from an economic perspective. Thus, an attempt will be made to answer the following question:

Q 1.1 *Does the accounting record diverge from the economic*

value?

The method used will be analytical; a general introduction of accounting practice will be followed by formalization through economic models. Through them an attempt will be made to answer the following question:

Q 1.2 *Is it possible to quantify the divergence between book value and economic value?*

As will be seen below, this question can be affirmatively answered using models proper to microeconomic theory.

Part I

Accounting Practice and Economic Principles

This first part will introduce accounting principles, both from a legislative and economic perspective. Initially, a model will be presented that paints the preferences of both the saver and the company. Next, some general principles of accounting systems will be introduced.

Chapter 2

Accounting Principles

2.1 The Principle of Double-Entry Accounting

Accounting is based on balancing each record. Each economic event recorded in the ledgers must have its counterpart of equal and opposite sign. In accounting practice, however, the entries do not originally have a sign, but they are associated with a name, debit or credit[1]. These terms have no particular meaning; an entry in debit does not mean that it is a debt to the company, and the same is true for credit. However, the iron rule is that in each accounting entry, the sum of the amounts in debit balances

[1] In many computer accounting systems, the balance in credit is conventionally represented with a minus sign

those in credit. The result is that while an individual account may have a debit or credit balance, the balance of all accounts on the balance sheet is necessarily zero. From the above, the founding principle of accounting, double-entry bookkeeping, is born.

The accounting data, composed of the individual records, is the building material used to prepare the two basic accounting documents: the balance sheet and the income statement. The former encapsulates the balance of all accounts relating to the company's wealth, while the latter those relating to its income. The balance sheet records stock variables, while the income statement records flow variables[2].

The balance sheet is divided into two sections, assets and liabilities. The first represents the monetary value of all the company's wealth, and an entry in debit (credit) increases (decreases) its balance. Liabilities enclose all obligations to creditors and shareholders; each entry in credit (debit) increases (decreases) its balance.

The income statement also consists of two sections: expenses and revenues. An entry in debit (credit) increases (decreases) expenses (income) and vice versa.

From the above, the principle of double-entry can be represented by the following formula:

$$\sum_{x_i \in BS} x_i + \sum_{x_i \in PL} x_i = 0 \tag{2.1}$$

[2]Among various accounting systems there are often differences as to when an economic event can be considered a cost (and thus a wealth flow) and when an asset.

Where x represents the economic fact and is represented by a minus sign if in credit. BS and PL, on the other hand, are the Balance Sheet and Income statement sets that contain all recorded events, respectively.

From what has been seen above, two points are worth noting. The first concerns what we might call the measurement aspect of accounting. Each accounting record represents an economic fact by means of a scalar. This clearly differentiates accounting practice from economic science, which represents economic events as functions. Whereas the accounting fact is an independent, immutable event, economic measurement depends on a constantly changing set of variables. Thus, while at the time of recording, accounting and economic measurement are similar, as time goes on their value diverges more and more.

The second point, on the other hand, is more broad in nature and is represented by the following question:

Q 2.1 *What economic events fall into the category of accounting records?*

Accounting strives to describe an economic situation as truthfully as possible. However, it is a practice that has made prudence one of its guiding principles, and this leaves out of the field of records many events that have economic significance. As a result, the result of accounting is a description in quantitative terms of the company, which, however, is highly biased.

2.2 The Informational Purpose and the Saver

Accounting has a purely informational purpose. It allows the company to have a standardized and accurate method of recording information, which will then be used for different purposes, such as creating inferential statistics or external disclosure of information.

Companies must raise capital from savers/investors[3] in order to function. These benefit more the more information is provided by the company about its profitability status. On the other hand, the company does not benefit from disclosing too much information, as this leads to disadvantages against competitors and in raising capital. In particular, by providing partial information, the company seeks to raise capital at a lower cost.

From the above, it is clear that the interests of the company and savers are initially competing. However, the financial market has evolved over time by prescribing precise rules regarding disclosure and minimum contents of accounting documents.

To describe the above, assume that firm i has an expected return equal to r and with risk (variance) σ. The return is the return on capital: savers lend cash to the firm and in return receive interest equal to r. The higher the interest, or return on capital, the more attractive the firm is to savers. However, r is a random variable and associated with it is risk σ. The higher the risk, the lower the attractiveness of the firm to savers.

[3]Hereafter the term savers and investors will be used interchangeably

The above can be expressed by the function $u(r, \sigma)$, which expresses the utility of the saver and such that:

$$\frac{\delta u}{\delta r} > 0 \tag{2.2}$$

$$\frac{\delta u}{\delta \sigma} < 0 \tag{2.3}$$

The saver, in turn, tries to maximize expected utility by choosing, given a certain amount of capital, the best combination of (r, σ) drawing on all financial assets available in the marketplace.

If we denote the book value of assets by A' and that of liabilities by L', we can generalize by saying that all things being equal, the greater the assets (liabilities), the lower (greater) is the perceived risk to the saver. If we then denote risk as the function $\sigma(A', L')$, we can rewrite the condition in (2.3) as:

$$\frac{\delta u}{\delta \sigma} \frac{\delta \sigma}{\delta A'} < 0 \tag{2.4}$$

And:

$$\frac{\delta u}{\delta \sigma} \frac{\delta \sigma}{\delta L'} > 0 \tag{2.5}$$

Since demand for a particular company's stocks/bonds depends on utility, we can conclude:

P 2.1 *All things being equal, the higher the book value of assets relative to liabilities, the lower the cost to the firm of obtaining capital, and vice versa.*

In turn, if we denote TR' and TC respectively the firm's revenues and costs on the income statement, we can generalize by saying that all things being equal, the greater the revenues (costs) perceived by the saver, the greater the expected return. If we then denote the return as the function $r(TR', TC')$, we can rewrite the condition in (2.2) as:

$$\frac{\delta u}{\delta r}\frac{\delta r}{\delta TR'} > 0 \tag{2.6}$$

And:

$$\frac{\delta u}{\delta r}\frac{\delta r}{\delta TC'} < 0 \tag{2.7}$$

In analogy to what we saw for the balance sheet, we can therefore conclude:

P 2.2 *All things being equal, the greater the book revenues relative to costs, the lower the cost to the firm of raising capital in financial markets, and vice versa.*

The companies that make up the set of all financial asset in the market, in turn, must provide an appropriate risk-reward combination in order to be attractive. To emphasize, however, the individual asset can also have utility for diversification purposes. In other words, it can have a lower return and higher riskiness than another asset, but have a negative correlation with a set of other assets, and this ensures lower portfolio riskiness.