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Accounting in Economics

Influence of Accounting Methods on Economic Indicators

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Declaration of Authorship

I hereby confirm that I have written the thesis “Accounting in Economics” by myself and independently and that I have mentioned all the literature and other sources appropriately in the list of references.

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Abstract

The way the economic reality is observed is essential in order to determine decision-making of economic subjects. The picture of economic reality drawn by accounting can be said to be either the true and fair, or biased. If the latter is the case, how much does that bias translate into the quality of economic decision-making? In summary, the paper analyzes whether accounting should provide the fair and true view, whether it does, and how it affects the economic behavior when it does not on both micro-economic and macro-economic level. The arguments are built up on a logical structure rather taking a broader multidisciplinary approach to answer the previously stated questions.

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Introduction

In the 20th century, the world has changed, probably more rapidly than ever before, especially for common people in developed countries. It could be characterized by the following quote:

„The world has changed. I see it in the water. I feel it in the Earth. I smell it in the air.“
(Tolkien, 1954)

Developed countries entered the 20th century in the middle of the industrial era, experienced wars and the enormous increase in standard of living. However, in the end of the 20th century, developed countries found themselves in a different age – an age where information is more important than ever as it often means the difference between life and death, or fortune and poverty – the information age, thus, leaving the industrial period behind. The rise in importance of information led to massive innovation mainly in information and communication technologies (ICT) facilitating the usage and sharing of information so accelerating itself the significance of information. Such a boom in ICT was even visible on stock markets when stock prices of ICT companies were rising rapidly for a period of time.

As globalization is facilitated by inventions in ICT, suppliers and demanders do not meet on regional, or national markets anymore but rather on the global one. Therefore, the market extended leading to higher standards of living in countries joining the global market, as predicted by Adam Smith (Smith, 1776), having more products and services being offered as culturally different customers emerged on the market. Thus, more and more information is smearable in the air paraphrasing Tolkien - more information about different customers, competitors, suppliers, products and services, and many more. More information does not just mean that there is more information to be collected, or measured, but that also more extensive decision making has to be performed within human minds. However, in order to make a decision, it is necessary to obtain subjectively enough of relevant information for such a decision making.

If accounting is defined as follows:

“...the art of recording, classifying, and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character, and interpreting the results thereof.” (American Institute for Certified Public Accountants, Committee on Terminology, 1953)

And economics is defined as such:

“...the science which studies human behavior as a relationship between ends and scarce means which have alternative uses.” (Robbins, 1945, p. 16)

Then, accounting and economics are just two different pieces of one puzzle, as economics describes the process of decision making which have to be preceded by recording, classifying, and summarizing information necessary for a decision to be taken. Without decision making, there is no purpose of existence for accounting. Without accounting, there is no possibility of making a decision as people are indifferent between „zero and zero“. Therefore, accounting can be portayed as a sense through which we discover, experience, or analyze reality. Even though such an idea is widely profound and occurs in textbooks of accounting (Arnold, Hope, & Southworth, 1985, p. 26), it is arguable whether there is a real interest of economics in acccounting and visa versa. Authors such as Salerno (Salerno, 1995), who discusses the correctness of accounting regulation and codification as a sense through which the economic reality is observed stands outside of the economic mainstream.

Thus, this paper aims to establish and strenghten the connection between accounting and economics in order to increase the understanding of importance of the connection. Even if economics describes correctly the decision making in a given reality, its success is dependent on quality of information provided. Therefore, it is necessary to study the connection, identify whether and if so how misstatements in accounting can alter decision making.

In order to follow the goals established, the paper focuses on defining accounting by etymology, history, practioners and academics while indicating connection to decision making. Further, the current codification is discussed in order to determine whether

accounting follows its definition, and so provides quality information for decision making. Subsequently, the effects of misstatement on microeconomic as well as on macroeconomic level are discussed leading to a theory of business cycle accelerator. In the end, supportive reasoning is searched for in order to explain why the economic reality is altered in the way suggested by this paper.

1. What is Accounting?

As mentioned within the introductory paragraphs, there are several approaches that can be applied to identifying or defining what accounting is. However, it is necessary to determine what defining accounting means at first.

It is suggested that as nature of a matter is determined by the purpose of existence of the certain matter, then it is not enough to find out what accounting is but for what purpose accounting exists as it determines the nature of accounting, i.e. what accounting is.

Therefore, it is necessary not to just look to how accounting is defined by associations of practitioners and academics, but also to what the word of accounting means, and where the origins of accounting lie.

1.1.Origins of Accounting

As the first civilizations were founded in Mesopotamia, the traces of accounting began there. However, the accounting methods developed in Mesopotamia were rather primitive and served for recording the growth of herds and crops (Friedlob, Thomas, & Plewa, 1996, p. 1). Such a system with different improvements was used throughout most of the human history until the 14th century. It mainly served the owner, who also very often ran the business, to have a certain control of his business. Therefore, the first accounting was used within the first business entities itself to measure, control and communicate the processes and results achieved in the business entity. Even in the beginning of human civilization, it is visible that accounting developed for better economic decision making of the owner and manager in one person.

The fact that it was used mainly for internal purposes is based on mainly sole financing by the owner of the business. As extent of business increased with increasing markets, which leads to increasing division of labor and specialization (Smith, 1776), the amount of necessary initial capital for some business operations enlarged leading to increased financing requirements. Thus, more often partnership, and later what is today known as joint stock companies started to occur as the financing burden had to be shared.

However, the initial accounting methods were developed for providing information to the sole owner. Therefore, double-entry bookkeeping was developed in the 14th century (according to some sources in the 13th century), and firstly described by Luca Pacioli in his

“Review of Arithmetic, Geometry, Ratio and Proportion” (1494). The double-entry bookkeeping system introduced that every transaction or event impacts at least two accounts, i.e. the system of debit and credit, wherein serving as an error detection mechanism as overall the sum of debit and the sum of credit are to equal. The system introduced more organized approach providing more accurate information about the business performance what is important to all parties, which invested within the business. As investors did not possess the first-handed information from the business operations, they had to rely on information included within accounts. Such a development in methods of accounting led to a division between two types of accounting – managerial accounting and financial accounting. (Lauwers & Willekens, 1994, p. 302) Managerial accounting remained for informative purposes to the person running the business. On the other hand, financial accounting focused on providing quality verifiable information to investors, or other related external parties.

In contrast to managerial accounting, financial accounting required some level of standardization as investors needed for qualified decision making about their investments comparable numbers. Without standardization of financial accounting methods, the transaction costs¹ of investing within a business operation would be quite high. The higher transactions costs would represent increased costs of investments resulting in lower supply of credit on financial markets.

However, there are several types of capital markets to be mentioned, as their requirements of standardization are quite different. In general, two different financial markets exist. In case of the first type of financial market, credit is provided through banks, in which case an investor is required to trust the bank institution to manage his financial sources well. The second type of financial market represents a situation, in which investors are in “a direct contact”² with the receiver of capital funds. In today’s terminology, the second market

¹ According to Thomas and North, transaction costs consist of three categories: costs of locating information about market opportunities, negotiation costs, and enforcement costs (North & Thomas, 1973), where the costs of performance evaluation can be categorized into the costs of locating information about market opportunities.

² Direct contact if it is abstracted from the fact that an investment bank serves as a mediator of the transaction in the current environment; therefore, the directness should be rather considered in who decides about the structure of investment portfolio.

would be represented mainly by share and bond markets (note that those markets can be directly attained by the original investors as well as by banking institutions).

In case of investing through banking institution, i.e. a market of business performance evaluation, a service is provided to the customer, i.e. the investor. The service itself adds added value to the whole process of investing. If there is no standardization present, the evaluation costs are higher than if there is standardization present, as standardization provides a certain common ground for obtaining assurance. However, if no standardization prevails, then smaller level of materiality for assurance (on which basis performance measurement can be performed) prevails as well, thus increasing tremendously the costs of the evaluation process. Then, it is a question how those evaluation costs can be translated to the final price for the customer – investor. It is suggested that the price would depend highly on the market structure affecting the demand and supply side. If no standardization prevails, it is highly costly for a single investor to do the evaluation by himself as it would require a certain level of specialization / expertise what would not assumedly be profitable on a small scale. Therefore, there are only two scenarios for small and probably medium investors (not defining the precise level of small, medium, and large investor) – either the investor uses the market of business performance evaluation or he does not proceed in an investment. Thus, it is possible to say there is almost no substitute for the services provided by the market of business performance evaluation. In theory, regardless of the market structure, if evaluation prices are high, the required rate of return of investment considered by the investor is higher as well, therefore, only companies with their actual rate of return higher or the same as the required rate of return of investment are able to obtain additional funding through the scenario of investing through banking institution. If the evaluation price is very competitive, i.e. low, then the drive for cost cuts may put the quality of the evaluation process into jeopardy. As the revenues of the market of business performance evaluation is tied to volume of evaluations, or more precisely investments, the market itself is motivated to increase the number of companies being able to evaluate with low costs in order to attract more customers of theirs – investors. Thus, it is visible that the market for performance evaluation itself has a motivation for creating standardized codified procedures of how to do accounting, or more precisely financial reporting.

When the case of “direct” capital markets is considered, then investors themselves have to evaluate the business performance. It is no doubt that the larger the investor the more specialization / expertise is profitable for him due to the economies of scale, as mentioned within the previous paragraph. However, if there is no market for business performance evaluation and no standardization prevails, the small and medium investor is left with only one scenario of not investing as the risk representing costs probably exceeds the expected rate of return and therefore increasing the required rate of return above the expected one. However, if quality standardization exists being an easy tool for even small investors to trust the numbers presented as business performance indicators, the risk of investing decreases and so the required rate of return decreases probably below the expected rate of return in more cases. Such a standardization decreases the costs of obtaining credit from financial markets for business entities requiring additional capital, as it leaves out the services provided by the market of business performance evaluation (and so the added costs to the whole process of investing). Not just more businesses / projects are able to obtain cheap credit, but also it motivates possible investors to save and invest under the vision of future increased consumption. Thus, it is not just the motivation of business entities searching for credit to establish accounting standardization providing the true and fair view but also the interest of all possible investors and the government itself as investments, i.e. capital accumulation, is the path to economic growth, i.e. economic welfare (Smith, 1776).

As seen in both types of capital markets structured above, it is socially beneficial to develop a certain level of standardization to decrease transaction costs on both markets and so to facilitate investments that create economic growth as discussed by Adam Smith. The Smith’s accumulation of capital, the engine of economic growth, can be performed within two ways – by a single “accumulator of capital”, or by multiple “accumulators of capital”. As in the first case, it would be necessary for the single accumulator to accumulate the whole amount in order to proceed with an investment project. In the second one, multiple subjects can contribute to the investment project, and therefore, the project can be realized earlier, thus, in general terms, the economic growth can be accelerated.³ As

³ It can be argued to what concern economic growth is in relation to social well being or even to individual well being. However, as economics does not reflect only monetary values, as widely

mentioned, proceeding with multiple “accumulators of capital” created credit markets, where on one side there are subjects with opportunities for investments, and on the other side are economic subjects that possess the financial sources through capital accumulation, or in other economic terms willing to sacrifice their current consumption for future consumption. However, if a willing economic subject has entered such a transaction on the credit supply side, and subsequently changes its mind, it looks to a market where it would be possible to exchange its creditor’s position. Then, it is the time when stock exchanges come in place.

As stock exchanges revenues are based upon the volume of trades performed, the rise of accounting standardization was fueled by stock exchanges as they tried to maximize the volume of trades performed on their markets. Stock exchanges conditioned trading of securities by complying with their own standardization. However, as the risk of reporting using standardized accounting methods or rules but with misstatements persisted, the market for external auditors of financial statements emerged mainly in the 19th century, again leading to a partially minimization of transaction costs in regards to credit market.

The timing of the relative accounting boom in the 19th century was not of a random character. As mentioned before, financial accounting developed as a tool for de facto allowing capital accumulation from multiple accumulators. Such a process fueled the industrial revolution and so it is no wonder that the rise of stock exchanges together with accounting unification started mainly in the 19th century. Even Marx saw it as a tool of the capitalistic class as he claimed that it destroyed the right character of the social relationships generating wealth through production process. (Marx, 1966, p. 45) Fortunately for the accounting practice, the ideological overtone added by Marx has not continued even throughout communistic countries as the accounting practice in those countries partially prevailed showing its social function.

In the United States of America, the unification process of different reporting standards required by different stock exchanges began mainly after the economic boom in 1920s which ended in the stock market crash called Black Tuesday (October 29, 1929) and Great Depression following the crash. The stock market crashed as a speculative bubble was

represented by Gary Becker (Becker, 1976), economics concerns the maximum utilization of human utility, what can be translated as human happiness.

present before. According to some, the reason for the bubble as well as for the crisis is the fact that before the Great Depression there was no public regulation of financial markets. Before the Black Tuesday, accounting valuation mainly followed fair value allowing upward revaluation. Thus, more public regulative procedures were introduced during the depression and after (some as a part of the New Deal recovery program by the American president Franklin D. Roosevelt).⁴

Financial community as well as the US Federal Government decided to respond by creating unified accounting standards for listed companies. The American Institute of Certified Public Accountants (AICPA, founded in 1887) and the New York Stock Exchange jointly created preliminary guidelines in *"Audits of Corporate Accounts"* in 1934. In the same year, the Securities and Exchange Commission (SEC) was established and authorized to draft unified reporting standards. However, the SEC voted to renounce the plan to create unified standards in 1938 and charging the AICPA to regulate its accounting practice. The United States Generally Accepted Accounting Principles (US GAAP), as known today, were founded by the Financial Accounting Standards Board (FASB) established in 1973, as it replaced the Accounting Principles Board (APB) and the Committee on Accounting Procedures (CAP), both organizations within the AICPA.

The US GAAP is based on principles born out during the Great Depression such as the prudence principle⁵ and the cost principle⁶. On the same principles other accounting systems were built upon in other developed countries surviving up to this date following those principles in mainly continental European countries and their national GAAPs (in case of listed companies within the EU, the IAS/IFRS are required to be followed). Nowadays, the

⁴ The idea that the Great Depression was caused by the lack of, or more precisely no, public regulation and using fair value as a main valuation method has been challenged by many authors who have been searching for causes of the depression such as Milton Friedman and Murray Rothbard who have analyzed the causes of the depression. Even though Friedman and Rothbard are authors of different economic schools and they both described the causes differently, Friedman (Friedman & Rose, 1992) as well as Rothbard (Rothbard, 1975) blamed not the market for the failure but the government, namely the Federal Reserve System enacted by a Federal Reserve Act in 1913. Therefore, in their theories, the speculative bubble was not the cause of the Great Depression but just an effect of incorrect policies starting the Great Depression.

⁵ The prudence principle follows the idea that whenever choosing from two outcomes (valuations), the one which will lead least likely to over valuating the asset is ought to be chosen.

⁶ The cost principle refers to historic costs meaning that business entities are required to evaluate their assets by the assets acquisition costs rather than the assets fair value.

US GAAP is set up by four institutions – SEC, AICPA, Government Accounting Standards Board (GASB), and FASB being the leading creator of the codification. On the other side, there has been a worldwide call for returning to the fair value valuation, what is represented by the International Financial Reporting Standards (IFRS), as before the Great Depression, as it more completely provides the fair and true view.

A rather different incursion of “Leviathan”, as government described by Hobbes (Hobbes, 1651), can be seen in Nazi Germany in 30s of the 20th century where new organizations accompanied by new financial regulation in sense of uniform charts of accounts compulsory for all business entities were drawn in order to complete the government control over the German economy as well as the German society. And even though such a regulation was abandoned by the German government after the World War 2, it remained in use in France where it was put in practice by the German occupation force. (Arnold, Hope, & Southworth, 1985, p. 20)

Currently, there are basically mainly two types of different reporting standardization present – the Continental one, in which case the accounting methods have mainly followed the government need to regulate the flow of information for tax purposes, and the Anglo-Saxon one, where the standards are created by private sector and reflect the needs of financial standardization. (Kovanicová, 2005, pp. 7,8) However, the distinction between those two systems have been partly eliminated, especially in case of listed companies, as companies traded on stock exchanges within the European Union are required to comply with the IFRS starting at 2005, predeceased by International Accounting Standards (IAS). And on the other hand by the fact, that government influence within accounting practice has been growing since the Great Depression even in Anglo-Saxon countries. The difference also diminishes in light of the US GAAP being based on the prudence principle while the EU countries are moving towards fair valuation prescribed by the IFRS/IAS.

As well as the US GAAP, IFRS is created by a private non-profit company – International Accounting Standards Board (IASB) since 2001 (from 1973 to 2001, IAS were issued by the International Accounting Standards Committee – IASC) - representing users of accounting information and academics, although certain government involvement would be expected.

It would be assumable that the direct government influence is more significant in case of the US GAAP as the SEC actually charged FASB and AICPA in general to provide a set of standardized reporting or accounting rules that would be obligatory for companies within the United States. On the other hand, the IASB, originally International Accounting Standards Committee (IASC), was established as a mutual agreement among accountancy bodies in different countries. (Camfferman & Zeff, 2007)

However, Salerno presents accounting methods as a way to hide additional government taxation in the form of inflation, as inflation is solely caused by government action⁷.

Therefore, he implicitly suggested a significant influence of government over the accounting codification. (Salerno, 1995) He refers to the fact that if standard accounting procedures based on the prudence principle are used, inflation is not reflected within the accounting system. Such a theory points out to at least existing motivation of governments to intervene within the set up of financial reporting standardization as it is motivated to modify the fair and true view as argued by Salerno.

In the 20th century, there has been a confrontation going on in accounting practice, as one side pushes for return to fair value valuation and the other for historic costing. In general, one side is afraid to trust market participants as their interests are different and therefore many call for increased regulation, either by codification or government agencies to have in their spotlight the market participant, and the other group prefers, as what von Hayek called, the Spontaneous Order. (Hayek, *The Fatal Conceit: The Errors of Socialism*, 1988)

In the end, the question is rather more general as it is about whether it is possible to trust free market in delivering economic welfare and freedom to all people, i.e. economic subjects, on an aggregated level, or rather the government is the better solution (even though it is argued by Arrow that there is no possible aggregation of human utility, therefore, no social utility function can be drawn (Arrow, 1951)). It can be declared that the question whether to trust market participants or not was implicitly answered by the founding father of economics as follows:

⁷ The idea of inflation being caused solely by government actions was more closely elaborated theoretically as well as empirically by Friedman. (Friedman M. , 1956) (Friedman & Schwartz, 1963)

“...and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.”
(Smith, 1776, pp. Book 4, Chapter 2)

1.2. Etymological and Philosophical View of Accounting

As seen in the previous chapter, accounting was founded to fulfill the two purposes – to provide information to the person operating the business (managerial accounting), and to provide information to the person investing within the business (financial accounting). Then, actually, there is only one purpose – to provide information. Such a purpose is logical as accounting developed as a measurement system and whenever anything is measured qualitatively or quantitatively the purpose of the measurement lies in obtaining certain information. The only difference stands in who is the user of the information, as in case of internal users no need of standardization or unification is required. However, in case of external users, there is a social-economic necessity for standardization as described in the previous chapter. As this paper is primarily concerned with financial accounting, the term of accounting further refers only to financial accounting.

It is no surprise that even in the definition used by the FASB, the word measurement is found as the FASB defines accounting as follows:

“Accounting is an information system that measures, processes, and communicates financial information about an economic entity.” (Financial Accounting Standards Board, 1978)

If focused on the word of measurement, it is necessary to clear out what measurement is and what measurement clarifies. As in ancient times the accuracy and precision⁸ of weight measurement was hugely important in determining weight of precious metals, the measurement in today's financial understanding requires accuracy and precision as well.

⁸ According to the Columbia Electronic Encyclopedia 2004, measurement requires both precision and accuracy as well. Accuracy is defined as care taken by the measures and the condition of the measuring system or device. On the other hand, precision is determined by the design of the measuring system or device. (Dictionary.com, LLC)

However, the Columbia Electronic Encyclopedia 2004 actually makes a distinction between counting and measuring as follows:

“There is a basic distinction between measurement and counting. The result of counting is exact because it involves discrete entities that are not subdivided into fractions.

Measurement, on the other hand, involves entities that may be subdivided into smaller and smaller fractions and is thus always an estimate.” (Dictionary.com, LLC)

In terms of economics, measurement can be translated as counting but taking in account the costs of obtaining such information and so creating a kind of a trade-off between accuracy and precision on one side, respectively the additional benefit of more precision and accuracy, and costs of additional accuracy and precision on the other side. Such a trade-off leads to being rather partially rationally ignorant receiver of the information and having the information at certain accuracy and precision estimated, or whether less or more quality information should be obtained or not as described by Stigler. (Stigler, 1961)

As the role of financial accounting is tied to providing the fair and true view on a selected entity, it is necessary to identify in which manner such a requirement can be curbed or not, as reasons for limitation of the fair and true view might arise. In fact, in its core the distinction is tied to whether accounting is about counting or measuring a certain reality to provide the demanded information. As it is already visible, as the word of accounting incorporates the word of counting in itself, the word of accounting comes from the Latin word of “*computare*” meaning to compute, to count, thus, in the current language referring to counting rather than to measuring. (Pixley, 1900, p. 4)

However, if accounting refers to “*computare*”, then it refers to providing information in a definite way. It may be argued how it relates to the topic whether accounting provides information in a definite way or rather as an estimate. However, the connection to the topic lies in whether accounting by its name should strictly display the studied economic reality, or whether its name gives space for adjustment. An example of either reflecting the economic reality or adjusting it may be valuation of fixed assets based on historic costs and fair value. It can be said that if providing information in a definite way then the complete information is provided – in our case of fixed assets valuation with possible ups and downs in asset value. If the word definite is thus substituted with the word complete, then the

sentence may be translated into: “accounting should provide complete information”. The implicit drive for completeness can be seen in the basic equation of accounting: $\text{assets} = \text{equity} + \text{liabilities}$. The equation has to be complete, not just displaying assets, liabilities, or part of them, but in order to understand the business it is necessary to have the complete picture from the financial point of view.

As seen within the previous subchapter, accounting emerged spontaneously in order to provide information for economic decision making. As in the beginning, the system still has served for gathering information in order to make decisions. Relativism tells us that a course of things might change over time, or as needs change, what would lead us to an idea that even if the nature of accounting was to gather information in the beginning, it could have changed over time since then. However, physics defines nature as a principle that certain characteristics within an isolated system do not alter over time. (Dictionary.com, LLC) Then, what is an isolated system when talking about accounting? Either, it can be represented by the world, economic transactions, or a business entity. If the word “isolated system” is substituted by any of these substitutions mentioned or any other, it would still lead us to the statement that accounting still serves to provide a view of studied reality.

However, if accounting was found to provide a view of studied reality, why does it have to provide the true and fair view – describing the reality as truthfully and fairly as possible? It is a question whether it is wanted to be seen more or less, what is tied to who is the one supposed to see through the lenses of accounting. If referring back to the sub-chapter concerning roots of accounting, it was identified that managerial accounting was founded to provide information for the person running the business, in the beginning the owner. When the owner became someone else than the person running the business, financial accounting was founded to provide the information to the owner. As this paper is primarily concerned with financial accounting, it is seen that the owner is the user of information provided by accounting. It is assumed that the owner prefers a clear picture of his business entity rather than a blurred one. The same idea is supported by the etymological searching as “*computare*” indicates completeness of information.

1.3. Defining Accounting by Practitioners and Academics

Several definitions of accounting exist in theory, but they all bear the same similarities. As an example of an accounting definition as mentioned earlier, the version defined by the Financial Accounting Standards Board is named as follows:

“Accounting is an information system that measures, processes, and communicates financial information about an economic entity.” (Financial Accounting Standards Board, 1978)

As it is stated in the section name, it is aimed at business entities. In the same way, Needles and Powers define an economic entity as follows:

“An economic entity is a unit that exists independently, such as a business, a hospital, or a governmental body. ” (Needles & Powers, 2007, p. 4)

Another definition, expressed by the American Institute of Certified Public Accountants (AICPA) and used within the introduction, states that accounting is:

“...the art of recording, classifying, and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character, and interpreting the results thereof.” (American Institute for Certified Public Accountants, Committee on Terminology, 1953)

The interesting difference between those two definitions lies in the fact that the FASB's definition specifies a subject of accounting – an economic entity. In addition, it also mentions only financial information. The definition according to AICPA is rather more general as it does not limit the scope of accounting only on any subject and it rather describes accounting as a process with a variable use. It also signals that all information gathered through an accounting system does not necessarily have to be of a financial character. Those two points – subject of accounting, the nature of information collected and processed – are defining points in exploring what truly accounting is.

If the subject of accounting – economic entity – marked by Needles and Powers is more closely looked upon in light of economics, then economic entity could be defined in a bit wider view as it basically includes not just governmental bodies, non-profit organizations,

or business entities, but also households. In general, it could be said that economic entity or economic subject is any human or by human represented organization (legal entity).

If the second defining point – the nature of information – is more closely assessed, it provides us another option of criticism of the FASB's definition as well as another possibility to broaden what accounting really is. As information of a financial character, any data expressed in a monetary value can be considered. However, all financial statements also include financial notes without which it would not be possible to put all the other financial statements (balance sheet, income statement, statement of owners' equity and cash flow statement) in a relevant framework. Notes to financial statements consist also of non-financial (non-numerical and non-monetary) information such as methods used, useful life of long-term assets, organizational structure, or contingencies which are not expressed in the form of a created provision.

In economics, the situation in what decision making economics studies used to be similar as economists limited it by considering only monetary costs and benefits in a market situation. However, the field of economics was widened by Gary Becker, who defined economics not by the field its studies but rather by the method it uses – the cost-benefit analysis. Actually, the method subconsciously applies in every human decision making. Becker mainly distinguished between monetary and non-monetary costs and benefits and claimed that both are relevant for economic analysis. (Becker, 1976)

Through closer examinations of those definitions, the closeness of economics and accounting is expressed as in both cases they share the same subject. They also share the same problem of whether financial / monetary or non-financial / non-monetary data should be relevant, and more precisely whether they are in interest of accounting or economics. As it was mentioned, economics has already dealt with that question and rather accepted the fact that also non-monetary data are very relevant to study by economics and so economics has broaden its extent in science.

Further, it could be suggested that economics and accounting are just different steps on the same path followed, as hinted in the introductory paragraphs, meaning that accounting is a way of collecting, measuring and communicating information, and economics describes the decision making process based on information collected, measured and communicated.

If so, accounting is not just used by business entities, governmental bodies or non-profit organizations but rather by all humans subconsciously in everyday life as it serves for processing information.

What are non-financial data? The answer depends on relevance for a given subject. In case of a business entity, relevancy might mean how many units of production factors were consumed within the production process. In case of a financial investor, it might be what accounting methods a business entity applies or what contingencies might affect the company's future. In case of a mother, it might be whether her child is sick, whether it smiles or cries.

If accounting is a system for processing information on which decision-making, which economics observes and studies, is based on, then it is a relevant question whether, if the processing of information is blurred, it does not affect the decision-making process in any way and, therefore, it does not disturb the natural tendency for efficiency (market equilibrium).

As it is often stated as objectives of accounting systems used in mainly Anglo-Saxon countries, the motive of the true and fair view should be followed in order to provide accurate and precise information for decision making. Such a motive follows the origin of accounting and the nature of accounting discussed within the previous two subchapters. If accounting methods used do not provide such information, an investor might proceed with an ineffective outcome. If an effective outcome means that there is no better use of given resources for a given economic subject following the principle of subjectivity (subjectivity of value), then a non-effective outcome or less than the most effective outcome represents that resources were used for not the best use of them but for a worse one and therefore lower utility is achieved. If theoretical aggregation is followed, as a practical one is not possible, then the whole society achieves a worse utility outcome with its given resources than it could (for illustration see the production possibilities frontier – Figure 1, point C).

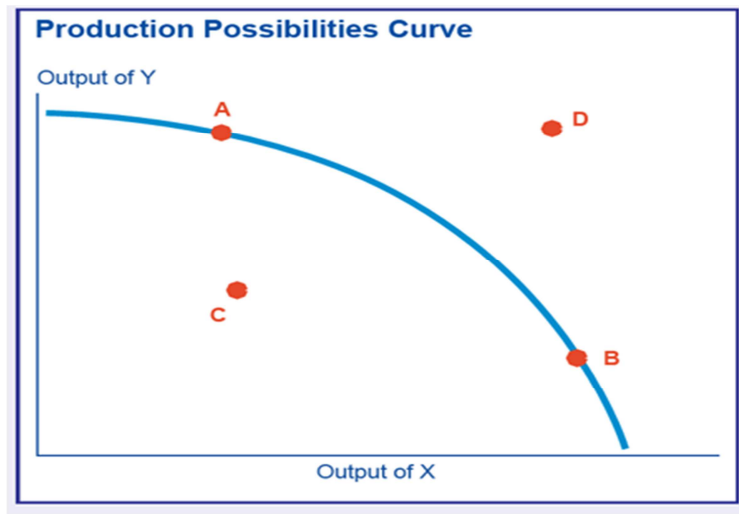


Figure 1 - Production Possibility Frontier

Assessing macroeconomic situations, which are just aggregations of microeconomic situations – business entities, households, etc, lead to a question whether measuring and understanding macroeconomic situation is correct if accounting does not provide the fair and true view.

Summarizing the previous three subchapters, it can be stated the nature of accounting lies in precise and accurate counting of the given reality in order to provide information for the users of accounting. Such a definition of accounting in light of the origins of accounts can be translated to providing the fair and true view,

2. Accounting Valuation Methods – Fixed Assets

There are several topics discussed within the literature of academics and practitioners as disputable cases where accounting reporting standards do or do not reflect economic reality but mainly those disputes relate to valuation of assets or liabilities. In order to limit the scope of this paper, only valuation of depreciated fixed assets is considered, as valuation of depreciated fixed assets is even more interesting as not just affecting the balance sheet (the financial position of a company) but also the income statement (the financial performance of a company) through depreciation⁹. It is so as depreciated fixed assets are depreciated from their value, i.e. from the value carried within the books. It is also abstracted from any specialties as the US GAAP has developed different additions to different industries but rather a general level of codification is examined in order to assess what approach two main codifications (the US GAAP and IFRS/IAS) set up in relation to depreciated fixed assets valuation.

How significant the valuation of depreciated fixed assets is in providing the fair and true view of a business entity depends on how much production is produced through depreciated fixed assets. The answer for such a question breaks down to how depreciated fixed assets intensive production is. It addresses the fact that production can be done by a certain mix of capital and labor in economic terminology (grouping production factors only to those two), wherein capital is not just represented by depreciated fixed assets but also land, or human capital. However, even if production is done more or less by depreciated fixed assets, it can be outsourced by one company to another creating a difference on a microeconomic level but should not on a global macroeconomic (aggregated) level if savings produced by outsourcing are abstracted from.

2.1.Theoretical Background to Valuation of Assets

In order to determine what depreciation policies are applied within business and economy in general, a brief list of accounting valuation methods is provided. In general, it is always the matter how assets are valued at its acquisition (recognition) and whether and how it is revalued subsequently (after recognition).

⁹ Even though depreciation refers only to tangible fixed assets and the term amortization is used in reference to intangibles, for the purpose of this paper depreciation is used for amortization as well for simplification.

In theory, several valuation methods are listed as follows:

1. historic costs,
2. current costs,
3. current market / exit value,
4. realizable / settlement value,
5. present value,
6. and fair value.

The historic costs valuation method is currently the dominant one, even though there is the opposite trend within the IFRS as shown later. Whenever used, assets are valued at the amount of cash or cash equivalents which were paid for the given asset at time of its acquisition. After the recognition, the assets is carried at its acquisition costs (not considering impairment), thus no subsequent revaluation is applied. The system of historic costs valuation is mainly supported by the US GAAP which states within its principles the cost principle representing valuation by historic costs rather than market/fair value. The system was discussed and established during and after the Great Depression in 1930s as assets were valued mainly by fair value valuation method in the pre-Depression times. It was widely believed that the crisis was caused by a speculative bubble on the financial markets due to the overvaluation using fair value valuation.

The current costs or sometimes called current replacement costs valuation method is based on valuation as if the given asset was reacquired in the same state (technological advancement or accumulated depreciation are taken into account). The method takes into account how given assets are worn out, even though the calculation is rather problematic (price changes of assets, either due to changes in technological advancement, inflation, or production preferences) as well as subjective. The method is recommended to use in hyperinflation economies (IAS 29).

The current market / exit value and the realizable / settlement value which are mentioned only in the US GAAP are in brief based on valuating the given asset at value as it would be obtained in cash or cash equivalents if the asset was sold. Therefore, in comparison to the current costs valuation, the current market or exit value represents a leaving value of an asset when the current costs method aims at valuation at an entering value of an asset.

If the present value valuation method is applied, the given asset is valued at present (discounted) value of future net cash-inflows which the given asset under standard conditions is expected to bring in future. Such a valuation is useful mainly in valuation of bonds or other securities. However, as market values of bonds change overtime, it is often preferred to value financial assets in fair value when it is allowed.

The last, the fair value method is based on evaluating the given asset at market price, i.e. price under which the given asset could be exchanged among informed and willing partners (e.g. no liquidation sale or transfer price within a group which is not at arm's-length price). As mentioned the valuation was preferred before the Great Depression in 1930s as it provides much fairer view on a company's assets as will be described in subsequent chapters.

In summary, different valuation methods of assets can be grouped in two categories – either the upward revaluation after the recognition is allowed or not. Therefore, there is the historic cost valuation method on one side and theoretically all other valuation methods on the other. The methods that theoretically allow upward revaluation only differ by method used for valuation calculation, i.e. what is compared to the book value. (Kovanicová, 2005, pp. 98-106)

2.2.IFRS/IAS

There are several current international standards valid for the discussion (valid in terms of concerning valuation of depreciated fixed assets, not considering codification concerning impairment of depreciated fixed assets – IAS 36 – as in case of all valuation methods impairments are required to do when necessary) as follows:

- IAS 16 – Property, Plant and Equipment
- IAS 29 – Financial Reporting in Hyperinflationary Economies
- IAS 38 – Intangible Assets

All three Standards affect how depreciated fixed assets are to be valued under the assumption of a non-inflationary environment – IAS 16 and IAS 38 – and even if the assumption is lifted – IAS 29. Although, there was another standard – IAS 15 Information Reflecting the Effects of Changing Prices – which would be applicable to our discussion how

depreciated fixed assets can be valued. However, IAS 15, which was put in force in 1981 during the end of stagflationary era, was made voluntary in 1989 and later on cancelled in 2002. The only remaining Standard focused on inflation is IAS 29 of Financial Reporting in Hyperinflationary Economies. However, the use of the Standard is quite limited as it is written in its introduction as follows:

“This Standard shall be applied to the financial statements, including the consolidated financial statements, of any entity whose functional currency is the currency of a hyperinflationary economy.” (International Accounting Standards Board, 2009, p. 1520)

Another problem arises with defining hyperinflation. In most economic textbooks, hyperinflation is defined in a similar or the same way as O’Sullivan and Sheffrin mention:

“In economics, hyperinflation is inflation that is very high or "out of control", a condition in which prices increase rapidly as a currency loses its value.” (O’Sullivan & Sheffrin, 2003, pp. 341, 404)

Even though the absolute value of hyperinflation is rather a subjective matter, the Standard does provide a determining rate but it also defines certain characteristics of an economy suffering by hyperinflation:

“The general population prefers to keep its wealth in non-monetary assets or in a relatively stable foreign currency. Amounts of local currency held are immediately invested to maintain purchasing power; the general population regards monetary amounts not in terms of the local currency but in terms of a relatively stable foreign currency. Prices may be quoted in that currency; sales and purchases on credit take place at prices that compensate for the expected loss of purchasing power during the credit period, even if the period is short; interest rates, wages and prices are linked to a price index; and the cumulative inflation rate over three years is approaching or exceeds 100%.” (International Accounting Standards Board, 2009, p. 1520)

Such a definition of a hyperinflationary economies of course excludes developed economies and therefore the standard is not satisfying in searching for possible impact of accounting methods on economic decision making on aggregated level as developing countries (besides several large economies such as People’s Republic of China, India, Brazil,

Russia or Mexico) represents only 22%¹⁰ of the world GDP (PPP) and also as global recessions start in the US (e.g. Great Depression, 2007).

Whenever an economy displays the characteristics listed above, the Standard 29 prescribes several different approaches in order to maintain the fair and true view which is stated as a goal of the IFRS. Either financial statements should be constructed using valuation based on current replacement costs or adjusted using a general price index. Anyway, it is necessary to restate previous financial results and current financial results to a comparable form so a decision making can be based on relevant information depicting reality. The Standard also prescribes to identify gains and losses connected to hyperinflation, reflect them in profit and separately disclose them (International Accounting Standards Board, 2009, pp. 1520-1523).

2.2.1. IAS 16 – Property, Plant and Equipment

Typically, tangibles at the date of recognition are valued in the amount of acquisition costs and so being in line with most of financial reporting standards worldwide. However, as one of the most progressive in fair value revaluation, the International Accounting Standards allow upward reevaluation of tangibles to fair value after recognition such as:

“After recognition as an asset, an item of property, plant and equipment whose fair value can be measured reliably shall be carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.” (International Accounting Standards Board, 2009, p. 1154)

According to the Standard, the fair value is to be based on market evidence by appraisal that is usually provided by professionally qualified valuers. In case of non-existence of market based evidence, the fair value is to be estimated using an income or depreciated replacement cost approach. Additionally, the Standard prescribes to revalue the whole

¹⁰ According to IMF data 2009, developed countries represent 53% of the world GDP (PPP), the developing countries 47% and if abstracted from the large countries named before only 22%.

class of property, plant and equipment, if one item from the class is revalued. (International Accounting Standards Board, 2009, pp. 1154, 1155)

If a property, plant or equipment is revalued, the negative or positive result of the revaluation is recorded as follows:

“If an asset’s carrying amount is increased as a result of a revaluation, the increase shall be recognized in other comprehensive income and accumulated in equity under the heading of revaluation surplus. However, the increase shall be recognized in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognized in profit or loss. If an asset’s carrying amount is decreased as a result of a revaluation, the decrease shall be recognized in profit or loss. However, the decrease shall be recognized in other comprehensive income to the extent of any credit balance existing in the revaluation surplus in respect of that asset. The decrease recognized in other comprehensive income reduces the amount accumulated in equity under the heading of revaluation surplus.” (International Accounting Standards Board, 2009, p. 1155)

The reevaluation surplus in equity related to property, plant, or equipment may be moved to retained earnings when the certain property, plant, or equipment is derecognized.

2.2.2. IAS 38 – Intangible Assets

At first, it is necessary to note that the Standard does not apply to mineral resources (non-regenerative resources) and all expenditures on their extraction, development of extraction, and so on. As in all other cases, intangibles are initially valued at costs.

After the recognition, a business entity may choose either evaluate its intangibles at their costs deducting any accumulated amortization or impairment losses, or revalue them to their fair value again deducting accumulated amortization or impairment losses. If revaluation based on fair value is applied, the fair value is determined by reference to an active market with sufficient regularity in order to avoid materially difference between the carrying value and the fair value, especially in the year-end (or the end of a reporting period). The reevaluation of intangibles is reflected in equity under a reevaluation fund. The revaluation affects the income statement only to extent to reverse previous impairment losses. (International Accounting Standards Board, 2009, pp. 1924-1936)

2.3.US GAAP

There are several chapters of the US GAAP that are concerned with long-term assets such as Intangibles (section 350) and Property, plant, and Equipment (section 360). As the US GAAP is built upon several principles – two being the prudence principle and the principle of historic costs – all depreciated fixed assets are measured at their acquisition costs at the acquisition date. What acquisition costs or historic costs of acquiring an asset are is described as follows:

“...the historical cost of acquiring an asset includes the costs necessarily incurred to bring it to the condition and location necessary for its intended use. As indicated in that paragraph, if an asset requires a period of time in which to carry out the activities necessary to bring it to that condition and location, the interest cost incurred during that period as a result of expenditures for the asset is a part of the historical cost of acquiring the asset.” (Financial Accounting Standards Board, 2010, 360-10-30-1)

Concerning the measurement after the acquisition date in case of property, land, and equipment, the section 360-10-35 of Subsequent Measurement includes downward revaluation in form of impairment of fixed asset but even though fair value is defined by the US GAAP, upward revaluation is not allowed as well as for intangibles. There are several exceptions that are allowed to be upwardly revalued such as financial investments. However, financial assets are not part of the study.

3. Effects of Valuation Methods on Real Economy

As it was mentioned in the chapter concerning the purpose of accounting, accounting is a system of gathering and sharing certain information. As there is much information around us, not all of them are valuable to all of us, as economic subjects subconsciously compare marginal benefits and marginal costs of information (Stigler, 1961). Thus, sometimes less might be more valuable than more in terms of information. As decision making and preferences are of a subjective character being stressed by economists of the Austrian School, there are different requirements and needs of information even within the users of corporate accounting systems.

As the basic division between users of corporate accounting systems, several groups of users can be identified – internal and external users – where external might be divided into two categories of financial accounting (users being market subjects such as creditors, shareholders, or suppliers) and tax accounting (user being a government authority). If internal users are considered, the situation of existing different requirements and needs of information is much more facilitated by the fact the character of managerial accounting. Cost accounting (managerial accounting) structure is totally under control of the company itself, i.e. whenever a different requirement arises the information system might be altered in order to fulfill such a requirement. However, a rather different situation exists for external users as the company is mandatorily required to comply with and follow certain standardized procedures of what information should be reported and how it should be reported (in case of financial accounting the US GAAP and the IAS/IFRS were mentioned in the previous chapter).

Since information requirements are of a subjective character, there are unidentifiable and uncollectible in their completeness as von Hayek pointed out in his paper concerning knowledge in society (Hayek, *The Use of Knowledge in Society*, 1945). Therefore, it is not the goal to elaborate what the single information requirements are but rather to follow impact on standardized financial indicators that are commonly used by external users if accounting does not reflect the studied reality fairly and truthfully. Furthermore, the interest lies in how behavior of those economic subjects (external users) might be altered and what impact such a change might have on aggregated level on the whole economy.

3.1. Microeconomic Effects

In order to identify whether there are any impacts on the macroeconomic level – namely on the business cycle – it is necessary to clarify what single effects misreporting of the economic reality bears on microeconomic level of a single company. Such an approach is logically justified by the fact that macroeconomics only works with aggregation of the studied economic reality. However, a terminology used within our further discussion has to be clarified, in order to reach a common ground. Thus, several first sub-chapters are devoted to defining basic performance indicators, the connection between value and price, and identifying and defining changes in prices. As those matters are central to the theory, only then it is possible to show how accounting does not reflect the studied economic reality fairly and truthfully and to what consequences it leads to.

3.1.1. Different Profit, Different Story

As the most basic standardized indicator, profit has to be mentioned as many of other indicators are tied to profit. However, even for such an elementary indicator there are several ways of measuring it. First of all, economic and accounting profit have to be distinguished where economic profit considers explicit as well as implicit costs and where, on the other hand, accounting profit considers only explicit costs. (Holman, *Ekonomie*, 2005, p. 59) However, such a definition holds only if accounting profit in accounting for external parties (financial accounting) is considered as in managerial accounting opportunity costs representing implicit costs are also considered. As opportunity costs are partially or completely subjective, they are not reflected in financial accounting profit, which is reported and which is used with many other financial indicators for decision making on markets. Therefore, the economic profit is excluded from further discussion.

Following the accounting profit (by accounting profit the financial accounting profit is meant), there are several theories, on which basis the accounting profit should be measured. The question lies in whether the profit should be measured on accrual or cash basis. If the accrual basis is used, then profit is computed using financial revenues and financial expenses that are not necessarily connected to an increase in cash equivalents when the revenue or the expense is recognized. On the other side, if cash basis is considered, then profit calculation is based on increases and decreases of cash equivalents, i.e. based on cash flow basis. (Kovanicová, 2005, pp. 54-57) In most of accounting systems

as well as in the two mentioned in this paper – the US GAAP and the IAS/IFRS – the profit calculation grounded on accrual basis is followed. Therefore, it will be further abstracted from profit computation based on cash basis when referring to accounting profit.

3.1.2. Valuation – through Value to Market Price

As depreciation represents an expense on accrual basis (decreasing accounting profit), it is essential whether a certain asset was valued correctly or not and continues to be valued correctly as depreciation is based on valuation of the certain asset. As the valuation at the recognition date is based on actual acquisition costs, there is no much space for dispute, thus, the subsequent valuation is at attention. As mentioned in the chapter concerning standardized accounting procedures, there are two approaches in general – not to allow upward revaluation and to allow upward revaluation. The reasoning for any revaluation (subsequent valuation) lays in the fact that accounting as an information system from its nature should provide the fair and true view, i.e. unbiased information. Therefore, if a value of a certain long-term asset changes, the value in the accounting system should change as well, as assets are defined as:

"An asset is a resource controlled by the enterprise as a result of past events and from which future economic benefits are expected to flow to the enterprise." (Kovanicová, 2005, p. 48)¹¹

In the definition, future economic benefits are mentioned. Therefore, if future economic benefits decrease, the valuation of the certain asset should decrease as well in order to comply with the definition of assets provided by the IASB. However, what if selling the asset for cash equivalents is the future benefit? Then, if market price that represents equal monetary value of the given asset decreases, the valuation of the asset should decrease as well as it is visible in another definition of asset stated as such:

"...assets represent ownership of value that can be converted into cash..." (O'Sullivan & Sheffrin, 2003, p. 272)

Thus, the connection between how assets are defined and market price valuation is observable. However, if we considered only the definition provided by the IASB, then it

¹¹ The definition of assets used by Kovanicová is sourced to Framework by IASB (International Accounting Standards Board, 2001, paragraphs 53-59)

would have to be concluded that future benefits might be in different forms as the Framework lists exchange for another asset, use to settle a liability, or distribution to the owners of the entity (International Accounting Standards Board, 2001, paragraph 55) as other options. On the other hand, if revaluation is considered, a revaluation base and methodology has to be established, but the most reliable and most complete source of valuation is price as price represents value¹² (if a market price for a given asset exists).

Even though the value of asset was shown to be at least logically connected to market price, the upward revaluation is often a problematic topic in many national accounting systems as well as in the US GAAP due to the fear of revaluation that happened in 1929 before the stock market crashed. On the other hand, downward revaluation is even urged by those guidelines and tests for impairment losses are required to be performed within business entities (e.g. IAS 36).

3.1.3. Systematic versus Non-systematic Price Changes

If market price and valuation are connected, then it is essential to distinguish two different price changes, as price changes alter the value of assets. In general, two different changes in prices might occur – changes in relative value or changes only in absolute value. In the first case, a price of a single asset might change, holding average price level constant, and so reflecting the changes in scarcity and demand (supply and demand) of a given asset. Then, the relative value of the asset to other assets is changed. In the second case, all (or almost all) prices change in a similar way what then is called an increase in general price level when relative values of assets stay almost or totally the same.¹³ Note that in the second case of increase in general price level, no changes in scarcity or demand occur.

¹² Identity of price and value was established by marginalists in the 3rd quarter of the 19th century such William Jevons, Alfred Marshall, and other as a result of objective value theory dismissal and establishment of subjective value theory. (Holman, 2005, pp. 152-170, 177-179, 213-215, 242-245). Further, the informative function of price system, i.e. prices, was mainly pointed out by Friedrich von Hayek. (Hayek, 1945)

¹³ The theorem of money neutrality supported by quantitative theory of money was rejected by Austrian economists after the von Mises' analysis of money theory and business cycle. Von Mises claims that changes in prices that are evoked by the government through affecting money supply do not spread with the same pace in the whole economy (different prices change differently in different parts and territories of economy). Due to this distortion, income distribution is affected as well. Therefore it is possible to talk about inflation redistribution. Such redistribution also changes the quantities demanded as subjective preferences differ together with changes in income distribution affecting the previous set of goods demanded by society on aggregated level. (Mises, 1953)

Thus, It would be possible to categorize those two different changes as non-systematic in case of a change based on altered scarcity or demand for the given asset, and systematic as increase in general price level, as shown to be of exogenous character by Milton Friedman (Friedman M. , 1956) but moving with the whole system. The non-systematic changes are not considered in this paper as they very often occur in both direction, i.e. positive or negative (increase or decrease in prices). The non-systematic changes also occur differently for each asset what would cause an obstacle, probably impossible to overcome, in analyzing those changes of prices in light of valuation methods.¹⁴ Therefore, only systematic changes, i.e. changes in general price level are considered in evaluating how those changes are reflected in valuation methods and whether and if how they affect decision making of economic subjects.

3.1.4. General Price Level - Cross National & Cross Annual Average

If non-systematic changes were considered, prices of assets would vary both up and down. Of course, each company is affected differently according to which assets rise or fall in price. Thus, it could be arguable that all the changes might neutralize each other on aggregated level. In such a situation, if upward revaluation was allowed, it could happen that if accounting of all companies within the global economy was summed up, the overall change would amount close to zero. Theoretically, the outcome would be the same if no revaluation – upward and downward as well – was allowed. If only downward revaluation is allowed, only one-sided changes in accounting valuation of assets occur and so by the one-sidedness not providing the truthful view of the studied reality even on the aggregated level. However, the outcome would be quite different in case of systematic changes.

Let us assume that:

1. General price level rises,
2. Upward reevaluation of depreciated fixed assets is not used.

Then, the gap between the historic costs and the fair value of assets is increasing within the whole economy over period of time. If all the changes within the value of assets were aggregated, the result would definitely not be zero by the standard definition of inflation

¹⁴ The complexity of production and coordination of production factors being incorporated in prices through scarcity and demand changes (supply and demand) is well described by Leonard Read in his essay I, Pencil when a production of a pencil is described. (Read, 1958)

(rise in general price level – more or less all prices rise keeping the relative prices at the same level). Thus, no neutralizing effect occurs on the aggregated level. It is visible the view of an economy, not just of a single company – microeconomic level – but also on the aggregated level, is blurred by the level of inflation. Then, the question should be what the level of inflation has occurred during some period time relevant for our discussion in a relevant territory.

First of all, it is necessary to discuss, what the relevant territory represents. It could be assumed that the most relevant sample would be the whole population – all economies around the world. However, several problems arise not just connected to obtaining data. As probably the biggest obstacle, the differences in accounting standardization should be mentioned. There are different national GAAPs for different countries. If the impact of inflation on reporting the economic reality was studied in all world economies, all these national GAAPs would have to be considered. If we realize that in 2009 the developed world itself produced 53% of the world GDP (*data source: IMF, 2009*), it would be of small added value to consider developing economies other than the large ones such as Brazil, Russia, Mexico, People's Republic of China, and India. If those five economies are abstracted from the % of GDP the developing world produces, the remaining countries produce only 22% (*data source: IMF, 2009*) of the world GDP. Thus, it is abstracted from developing economies except the five large ones mentioned. However, the large developing economies listed have experienced higher levels of inflation than the developed economies. It is assumed the level of inflation in those countries have had breached the level of ignoring inflation in financial reporting and so the countries have established different national procedures to filter the impact of inflation on their financial reporting during the studied period of time. Thus, the debate whether inflation impacts the financial reporting in those countries have been going on for a while and several different procedures have been developed. Also, a problem with obtaining reliable time series in case of those large developing countries would be problematic. Therefore, those five large economies are also omitted within the inflation level sample as inflation accounting has been more or less applied within those economies over time limiting impact of inflation on depreciation charges. The reasoning for omission of those economies may also reside in the fact that global recessions have started within the developed countries and spread to the rest of the world and not the other way around (e.g. the Great Depression, the

recession starting in the 3rd quarter of 2007 in the USA). Regarding the relevant time frame for obtaining an average inflation level, the limitation only lies in accessibility of data.

If the level of inflation is examined in several developed countries such as Australia, France, Germany, Italy, Japan, United Kingdom, and the United States in between 1956 and 2009, it is observable that the inflation rate was all the time above zero except for few cases such as Japan in several years, i.e. the general price level was increasing, for more details see the Figure 2 below. The average inflation rate across years of 1956 to 2009 and across the seven selected countries amounts to 7%, i.e. 7% rise in general price level per year in all selected countries in average. However, the Figure 2 also exhibits a sharp rise in general price level across selected countries in 70s and 80s as stagflation¹⁵ occurred. If it is abstracted from the period between the years of 1974 and 1984, when the average annual inflation rate of the selected countries amounted to 10% or more, the cross-annual and cross-country average equals to 3%.

¹⁵ “Stagflation is an economic condition in which inflation and economic stagnation are occurring simultaneously and have remained unchecked for a significant period of time.” (Blanchard, 2000, p. G8)

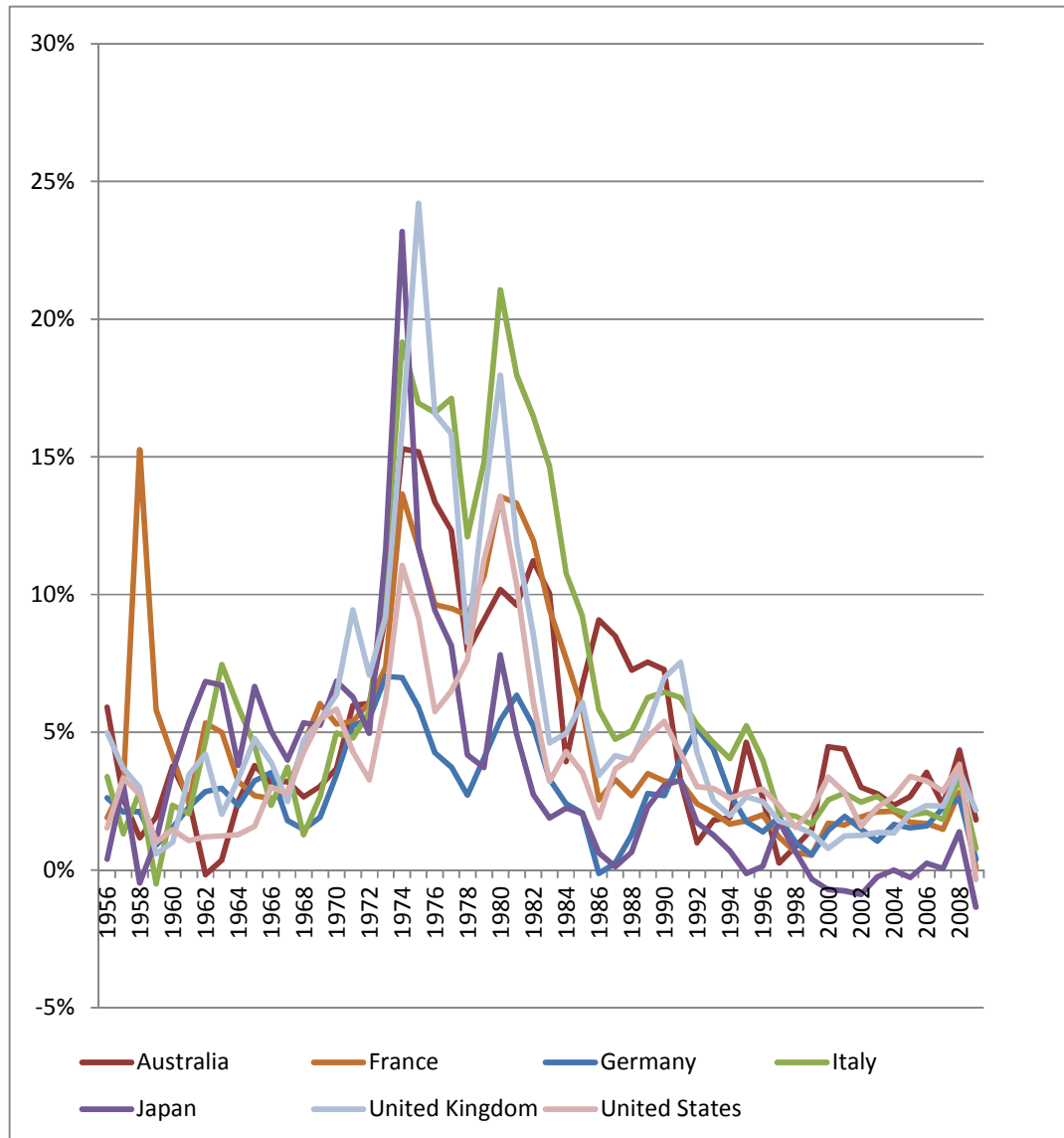


Figure 2 - Inflation Rate; Source: OECD

As useful life of assets might vary within the range of 2 and 50 years (or theoretically more), there would always be present an increase in value of assets if subsequent valuation was to be bound to price as mentioned previously. Therefore, the difference between value at recognition and subsequent valuation rise as inflation continues to affect an economy throughout the time, in the selected countries 7% on average in last 53 years, respectively 3% if the period of stagflation is abstracted from.

The reason why it should be at least partially abstracted from the period of stagflation lies in the fact that the inflation rate in those time rose relatively so high to standards of

developed countries that economic subjects (note that government is an economic subject as well) realized insufficiency of information provided by accounting system based on valuation at historic costs in inflationary environment. In 70s and 80s several regulatory bodies such as FASB, SEC, or the Royal Commission in the UK came up with requirements of adjusting reporting to increased general price level either through current replacement costing, or price indexation, lasting only temporarily. However, the inflation accounting was put in practice with delay and differently in different countries. Therefore, using 3% average instead of 7% would not be totally methodologically correct either, besides the fact that those countries are not a representative sample of the whole population of developed countries.

In order to draw a more representative sample of the developed countries, the OECD member states are selected. As an institution of developed countries, the OECD currently includes 30 countries although 3 of them are marked as upper-middle income economies by the IMF while the rest of countries is nominated as high income economies. The IMF creates its own list, nowadays of 34 countries with differences, as the OECD lists four states that are not included in the IMF consideration such as Turkey, Hungary, Poland, and Mexico. On the other hand, the IMF lists eight different countries than the OECD such as Cyprus, Hong Kong, Israel, Malta, San Marino, Singapore, Slovenia, and Taiwan. Besides the less developed countries of Poland, Mexico, Taiwan, Turkey, and Hungary, the other are rather small states and so their economies not as globally important. Additionally, Taiwan is not partially independent (its independence not fully recognized), and the Hong Kong governance has been asserted by the authority of the People's Republic of China.

If only the OECD member states are considered without Turkey, Mexico, and former Eastern Bloc countries (due to small time series being available), the cross country and cross annual average amounts to 5.64%, i.e. lower than the previously selected countries. However, if the period of stagflation from 1974 to 1984 is abstracted from, as previously, the average inflation rate drops only to 3.90%, i.e. higher than for the previously selected countries.

Before even the full theory suggested is revealed, a question how all this - that accounting valuation methods not allowing upward revaluation or not urging and so not coping with inflation - is important on global scale can be asked. In order to address the question, not

just the average inflation rate would have to be obtained but also information about how much of GDP is produced using depreciated fixed assets under different accounting codification supplemented with information what the structure of those used is, i.e. what their useful life is and what depreciation scheme is used. According to both the US GAAP and the IFRS / IAS, business entities are allowed to set up useful life at their will as well as the depreciation scheme, as they possess the information about how those assets can be used within their business and how much of each asset's value should be matched to each piece of product / service provided by the business entity. The subjectivity of useful life consideration is observable from how it is defined by the IASB as it includes expectation.¹⁶ Unfortunately, those data were unavailable for analyzing, thus this paper stays on more a theoretical level providing only illustrative examples. On the other hand, Christensen analyzed how many UK and German companies in a sample of 1 539 use upward revaluation of fixed assets and what their characteristics are. (Christensen & Nikolaev, 2009) The Christensen's findings will be addressed within the concerning chapters.

3.1.5. Example #1 – Difference in Depreciation Expenses

However, if the annual average cross country inflation rate of 3.90% is considered, an example can be constructed expressing what difference erupts if \$1 of fixed assets is to be depreciated over 2, 3, 5, 10, and 20 years using the following formula of compounding (Cipra, 2005, str. 35):

$$FV = PV \times (1 + \pi)^n$$

Figure 3 - Compounding Interest

Where π stands for inflation rate, PV representing present value, in our case the initial value of asset – value at recognition / historic cost, and FV represents future value, in our case value after recognition / fair value considering only the inflation rate used within the example (other factors holding constant).

¹⁶ Useful life is the period over which an asset is expected to be available for use by an entity, or the number of production or similar units expected to be obtained from the asset by an entity. (International Accounting Standards Board, 2009, p. 1149)

Useful Life	2 Years	3 Years	5 Years	10 Years	20 Years
\$1 Depreciated	1.079521	1.121622	1.210815	1.466073	2.149369
Difference in \$	0.079521	0.121622	0.210815	0.466073	1.149369
Difference in %	7.9621%	12.1622%	21.0815%	46.6073%	114.9369%

Figure 4 - Example - Differences in Valuation

The Figure 4 above shows that even in 2 and 3 years useful life, the difference amounts to almost 8% and 12% what is exactly the same amount by which depreciation expenses as in total are affected from assets not upwardly revalued with useful life of 2 or 3 years. Much more significant differences arises in case of construction asset (buildings) as their useful life is not estimated to several years but rather tens of years. In such a case, the differences are much more alarming as if, for example, an asset's useful life is estimated to be 20 years, the difference between today's value, i.e. the value at recognition, and in the end of its useful life rises up to almost 115%. However, it is important to realize that even though there is several depreciation techniques, assets are more or less regularly depreciated over time, i.e. over their useful life. Therefore, how affected the income statement, i.e. profit in the final sense, is also dependent on what depreciation technique is used. Therefore, Figure 5 below depicts how in each year of an asset with 8 years useful life depreciation expenses differ between using historic costs valuation and fair value valuation depreciating the asset using the straight line depreciation method¹⁷ in both cases.

Years	1	2	3	4	5	6	7	8
Value of Asset - Historic Cost (\$)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Annual Depreciation - Straight Line Method (\$)	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Accumulated Depreciation (\$)	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000
Net Book Value (\$)	0.875	0.750	0.625	0.500	0.375	0.250	0.125	0.000
Value of Asset - Inflation 3.90% - Fair Value (\$)	1.039	1.080	1.122	1.165	1.211	1.258	1.307	1.358
Annual Depreciation - Straight Line Method (\$)	0.130	0.158	0.139	0.148	0.159	0.175	0.199	0.250
Accumulated Depreciation (\$)	0.130	0.288	0.427	0.575	0.734	0.909	1.108	1.358
Net Book Value (\$)	0.909	0.791	0.695	0.591	0.477	0.350	0.199	0.000

¹⁷ Straight line depreciation method is defined as:

$$\text{annual depreciation expense} = \frac{\text{cost of fixed asset} - \text{residual value}}{\text{useful life of asset in years}}.$$

Diff in Depreciation in Particular Year (\$)	-0.005	-0.033	-0.014	-0.023	-0.034	-0.050	-0.074	-0.125
Diff in Depreciation in Particular Year (%)	-3.90%	-	-	-	-	-	-	-
		26.62%	11.13%	18.13%	27.22%	39.81%	59.44%	100.22%
Cumulative Diff in Depreciation (\$)	-0.005	-0.038	-0.052	-0.075	-0.109	-0.159	-0.233	-0.358
Cumulative Diff in Depreciation (%)	-3.90%	-	-	-	-	-	-	-
		15.26%	13.88%	14.94%	17.40%	21.13%	26.61%	35.81%

Figure 5 - Difference in Depreciation Expenses between Historic Cost and Inflation affecting Fair Value

In Figure 5, it is visible that the difference in depreciation expenses in each year rise sharply over time as in the end the difference equals to more than 100% of the unadjusted one. Of course, in the end, the cumulative difference in depreciation expenses amounts to almost 36% exactly what the difference between the revalued asset and the historic cost of asset as accumulated depreciation has to equal to acquisition value, in our case revalued, if zero remaining value is selected.

3.1.6. Lower Depreciation, Higher Profit – What else?

As shown in the previous illustrative example, if assets are not revalued in case of inflation, differences in depreciation expenses arise, meaning depreciation expenses are lower than they should be when reflecting the fair and true view and the matching principle¹⁸. Such an argumentation was also identified by Graham while mainly considering that products (company's own production) are valued using mostly current costs of using production factors besides depreciation costs and so in inflationary environment production costs absorbed are lowered than if depreciated assets revalued. (Graham, 1940, p. 149) As depreciation expenses occur more or less in probably all business, and therefore in all income statements, profits reported internally and externally to related parties, creditors, trade partners, and government authorities (e.g. for tax purposes) are more or less higher as expenses in total are more or less lower. Thus, the profit recorded is not reflecting the economic reality and so it is possible to talk about profit being blurred.

Whether income statements are more or less affected by lower depreciation expenses depends on capital intensiveness of production and, on the microeconomic level (on

¹⁸ The matching principle, on which current accounting practice is based, relates to revenues and expenses recognition as to current revenues related costs has to be incurred as expenses, i.e. cause-and-effect basis. If the definition of O'Sullivan & Sheffrin (2005) is followed, assets are transferable to cash, what relates us to market price, as mentioned earlier in the paper, and if related costs consist of usage of an asset, i.e. depreciation, the costs of revalued assets shall be incorporated in order to reflect the conversion to cash in prices rising (inflationary) environment.

contrary to the macroeconomic level)¹⁹, whether the capital intensiveness is done through depreciation expenses or service expenses (depreciation expenses are outsourced). It is not of random selection that developed countries are considered within this paper. First of all, they suffer of relatively low inflation rates in comparison to the rest of the world. Therefore, the argument of existing standardization dealing with hyperinflationary or steep inflationary environment cannot be used. Second of all, production in those countries has been assumedly shifting to more and more capital intensive production (mainly due to relatively price of labor in comparison to the rest of the world). Therefore, more capital in terms of tangible and intangible assets has been assumedly depreciated over the 20th century.²⁰

As profit is one of the leading microeconomic indicators, it influences widely many other decision making not just within a company but also it concerns the external parties. Therefore, the following subchapters are devoted to analyzing different impacts on decision making on microeconomic level.

3.1.6.1. *Replacement of Fixed Assets*

It is visible that there are two different levels of influence – internal or let say managerial, and external. In case of the internal point of view, it is necessary to realize that even though depreciation's goal is to match expenses to revenues, it also creates a non-existing cash reserve as it prevents the profit from being higher, possibly leading to increased cash disbursements, as will be referred in a moment. Such a non-existing reserve serves for maintaining a source of financing for fixed assets replacement. In accounting practice, the valuation method of current replacement costs exists providing an entity with information for what price the fixed asset could be currently replaced. However, the question arises whether managers, even though they are not required to and not allowed to for external reporting use the current replacement valuation method.

If the current replacement valuation method was not used by managers within business entities, it would mean that even in 3.90% inflationary environment (the average previously

¹⁹ In this case, the macroeconomic view represents the global economy view as depreciation charges can be outsourced out of the national economy but not out of the global economy.

²⁰ As mentioned before, not all capital in economic terms is depreciated such as land, human capital, know-how (unless goodwill through purchase of a company is recorded, etc.).

calculated) in case of an asset having 8 years estimated useful life there would not be enough internal financing sources coming from depreciation expenses - missing almost 36%, what is more than a third of replacement price. Thus, the business entity would have to either use other internal financing resources such as retained earnings or to reach out to external sources of financing.

However, if the company uses other internal financing sources such as retained earnings it is necessary to realize that retained earnings are just accumulated undistributed profits over period of time. It means that at least the company was obliged to pay corporate income tax and probably it also had to pay its shareholders part of the profit during the 8 years of the asset useful life. If at least, let us assume, a 20% corporate income tax rate is applied, subsequently only 28.8% instead of 36% can be found within retained earnings if no profit was distributed to the shareholders during the time. Such a premise is quite unlikely in eight years in row if profit (no loss) was reported throughout the whole period. It can be noted that corporate income tax is considered within income statement as an expense as well. On the other hand, it is necessary to realize that depreciation expenses do not represent cash outlay and a payment of corporate income taxes does (abstracting from deferred tax). As often mentioned during the world economic downturn starting in the 3rd quarter of 2007, liquidity or cash in closer meaning means the difference between surviving or not in business.

If the business entity reaches out to external sources of financing, there is an additional expense – interest expenses, i.e. payments for usage of external capital. Therefore, if those missing 36% is borrowed elsewhere (issuance of bonds, bank loan, etc.), an interest rate has to be considered. If 10% effective interest rate is used as an example, then those 36% becomes almost 40%. Even though, such a situation seems much better than in the case of using internal sources of financing considering the 20% corporate income tax rate, it still represents more than 36% if the asset was revalued and so depreciation expenses increased. However, both calculations depend on effective interest rate²¹ and corporate income tax rate selected.

²¹ Note that interest rate that would be applicable to external sources of financing depends on the amount borrowed, the time length of repayment the amount, and the overall condition of the

Even though a vast survey would have to be done in order to determine whether companies perform supplementary valuation of fixed assets using the current replacement method, it is probably unlikely that companies miss in their planning and business strategy thoughts the necessity of considering different prices over period of time, at least in case of inflation. However, if so it only leads to the fact that there are planned either internal or external sources of financing for replacement of fixed assets as it is not possible to revalue assets upwardly in case of the US GAAP and so depreciate higher amounts. Even though, the possibility to upwardly revalue assets exists in IFRS/IAS, it is important to realize two facts. First of all, as mentioned before, regular revaluation of fixed assets is costly and therefore it can be assumed that companies try to avoid it as managers are not paid according to whether they report about the company's performance fairly and truthfully but rather by the amount of profit or by increases in share prices. Second of all, if upward revaluation used within inflationary environment, higher depreciation and so lower profits are recognized. It is just expectable that it would lead to lower bonuses being paid to managers, thus decreasing the incentive for managers to upwardly revalue their fixed assets for financial reporting purposes.²² Therefore, the costs of replacement increase.

Such an assumed reality that upward revaluation of depreciated fixed assets is not used even when allowed by the IFRS/IAS has been confirmed by the Christensen study, in which 1,539 UK and German companies have been analyzed whether those companies apply upward revaluation of fixed assets (property, plant, and equipment and intangibles). In case of intangibles, the findings show that 0% of companies use upward revaluation, and in case of property, plant, and equipment (PPE), the results climb to only 3% (the company has to use the upward revaluation to at least one class of PPE). (Christensen & Nikolaev, 2009, p. 3)

borrower within the relevant economic framework (how the whole market is performing) + the supply of the credit (either determined by time preference or by dictated by the central bank).

²² It is necessary to realize the difference between upward revaluation of depreciated fixed assets and financial investments (either short or long-term). In case of financial investments, if upward revaluation to the income statement is allowed, the overall profit increases as well. However, in case of fixed assets, even if revaluation to income statement was allowed, as it is not even by IFRS/IAS that allows upward revaluation of depreciated fixed assets, the increase in profit by upwardly revaluation would be partially (individual year) and then completely (over useful life) cancelled out by increased depreciated expenses.

The additional question also falls within the fact that especially in developed countries corporate income tax rate tend to be higher than interest rates achievable on credit markets, depending on solvability of a company. If in average such a statement is true and upward revaluation of depreciated fixed assets is not used for calculating profit, and so for determining corporate income taxes, companies are motivated to use external sources of financing in order to replace their fixed assets. This incentive of using external sources of financing and its impact on the whole economy will be discussed further within the chapter concerning macroeconomic effects.

3.1.6.2. Over-positivism – Higher Profit, Higher Distribution

As mentioned previously, whenever depreciation expenses are lower than should as if depreciated fixed assets were revalued according to inflation, profit reported rises up. Christens also identifies that companies applying historic costs tend to have higher return on assets (ROA), return on equity (ROE), and return on investment (ROI), as in case of companies not using upward revaluation assets are higher on average by 31%, equity by 88%²³, but also the profit (net income) is lower. In case of ROA, Christensen identifies that the difference between the ROA of companies using historic costs valuation and the ROA of companies using upward revaluation amounts on average to 42% (median amount 44.22%). (Christensen & Nikolaev, 2009, pp. 3, 17, 24, 38) Then, if ROA is on average higher by 42% and 31% is on average caused by higher assets, the remaining part is caused by increased returns (profit / net income), which more precisely has to be by calculation on average by 86% higher.²⁴ However, it is necessary to note that as Christensen identified, only a small number of companies uses the revaluation of fixed assets so the reasoning for

²³ Note that equity is affected as upward revaluation of PPE and intangibles is allowed in IFRS/IAS only through equity, not through P&L.

²⁴ Let say that unbiased profit is 1 and unbiased assets are 4, then biased assets has to be:

$$4 \times (1 + 0.31) = 5.24$$

Then, if ROA is defined as profit (net income) divided by assets (total assets), in unbiased case the ROA would be:

$$1/4 = 0.25$$

If the biased ROA is higher by 42% than the unbiased one, then the biased ROA in our case would be:

$$0.25 \times (1 + 0.42) = 0.355$$

Subsequently, it is only necessary to recalculate the biased profit and determine the difference to the unbiased one. The biased profit is represented by the variable of Y as follows:

$$Y/(4 \times 1.31) = 0.25 \times 1.42$$

Then the Y equals to 1.8602 what can be translated in comparison to the unbiased profit of 1 as an 86.02% higher.

such a difference in profit calculated might have other causes arising from the small number of companies using the upward revaluation so not being the representative sample and facing other problems such as higher indebtedness as also pointed out by Christensen. Anyway, profit (net income / operational income), ROA, ROE, ROI and several other indicators signal how well the business is doing. Such increased profit ratios²⁵ and especially if the differences are not of a temporary character but rather stable over time create an illusion, or rather let say biased view, of a well performing, or more precisely of a better performing, company.

First of all, reporting a higher profit leads very often to higher management bonuses tied to profit level as mentioned earlier. If the upward revaluation was required, then, those bonuses would be lower in even low inflationary environment such as developed countries. Therefore, a visible motivation for managers not to press for current replacement cost, fair value, or any other assets valuation method tied to market prices (in case of PPE assets).²⁶ It is also important to note that higher management bonuses lead to higher cash disbursement, therefore a decrease in liquidity.

In general, higher profit reported leads to higher demands of profit distribution by shareholders, investments, as a CEO would have to defend his plan for distributing little of profit by a beneficial investment for the business entity, or both. In both cases – investment and profit distribution – cash is sourced out of the company and so again (after the higher corporate income tax) decreasing the company's liquidity indicators.

On the sample of 1,539 UK and German companies, Christensen tested using regression analysis whether upward revaluation of fixed assets is connected to profit distribution. The

²⁵ Profit ratios or profitability ratios is a common name for group of financial ratios, in which profit in a certain stage (operational income, EBIT, EBITDA, net income, etc) is used as one of the factors.

²⁶ Note that it is also important to distinguish between upward revaluation to income statement and to equity. If upward revaluation is allowed only to equity, fixed assets are debited and an equity account tied to revaluation is credited. Thus, the only impact to profit would be through depreciation of upwardly revalued depreciated fixed assets. However, in case of upward revaluation to income statement, instead of equity revenues are credited, thus affecting the overall profit. Then, the profit is not just affected by the increased depreciation but also by the revaluation itself compensating the increased depreciation expenses (exceeding their burden in profit at least within the first year). Thus, it is visible that the motivation to upwardly revalue would be higher if upward revaluation to income statement would be allowed. It explains why even though upward revaluation of depreciated fixed assets is allowed in the IFRS/IAS but not chosen by many business entities, as it is not in the managers' best interest.

results showed that in case of investment property (not being depreciated) companies tend to stronger profit distribution. However, in the case of other fixed assets, the results showed that the connection is statistically insignificant. (Christensen & Nikolaev, 2009, p. 20) Christensen also identified that high growth companies do not use upward revaluation of fixed assets on average (Christensen & Nikolaev, 2009, p. 21). Such a finding suggests that as using upward revaluation of depreciated fixed assets would assumedly decrease achieved profits, managers are not keen to apply the methods as the growth of companies might be slowed down on paper if the upward revaluation applied. Such a finding then represents the case that the earnings retained are rather invested then distributed more than usual in case of companies not applying revaluation of PPE.

As observable in the last paragraphs, there is a sense of optimism, probably over-optimism, as actual expenses do not match real expenses. As profit signals that business is going well, tendencies for expanding the business might arise. However, expansion represents investments and often investments in new fixed assets what might lead to over-investment in fixed assets, as Christensen empirically noted (Christensen & Nikolaev, 2009, p. 24). Such an over-optimism will show its negative side when it is necessary to replace the currently used or obtained depreciated fixed assets as, if only inflation is considered and other factors are held constant, it increases the cash outlays and endangers the company's solvability, or it increases external financing, and therefore expenses connected to external financing such as interest expenses as discussed earlier.

The problem with reaching out to external sources of financing, which have become so popular in the last 50 years, does not just lie in the fact that costs of external funds (interest expenses) might exceed in form of the interest rate the required rate of return by shareholders (costs of equity), and so make the business less profitable, but it also might lead to endangering the business in general. The endangerment lies in that profit distribution can be postponed, and profit cannot be distributed when company makes loss rather than profit.²⁷ However, in case of external funds, the business entity is obliged to pay

²⁷ Further many corporate loans are tied by the loan contract set up financial covenants. Financial covenants in general tie the interest charges and also whether the bank has the right to demand the whole loaned amount at once to several financial indicators what limits the company's management action to be taken and in case of a sudden drop in demand that would result in breaching the financial covenants to immediate return of the loaned amount what would very often meant a

regardless in what condition it is creating a pressure on availability of cheap external funding.

It is very often mentioned today that current economies around the world cannot survive without the currently regulated and interest rate manipulated credit markets. Of course they can, even though an economy would have to experience a recession as it would not be possible to sustain some investments, which would be regarded as bad investments, as the whole system of reliance on cheap credit is assumedly overgrown.

Up to the pre-last paragraph, we have assumed that additional investments under the higher profit are good investments meaning profitable. However, such a premise does not have to be necessarily correct as the rate of return of a particular project requiring depreciated fixed assets, either tangible or intangible, is blurred by depreciation as well. Therefore, the actual rate of return based on standard depreciation might differ from the real rate of return considering that depreciation expenses would rise with inflation (again other factors held constant). As every investment very often carries some cost that will become sunk over time, i.e. not retrievable, if an investment turns out not to be profitable, i.e. the real rate of return is lower than the required rate of return by investors (either external or internal meaning shareholders), the investment would create a loss even though if it was canceled due to the amount of sunk costs. As bad investments are found out after a while, as for example von Mises mentioned (Mises, 1978, pp. 130,131), possibly leading to creating a speculative bubble and overheating the economy as a whole as referred later.

3.1.6.3. Share prices – Rise and Rise Again

Higher profit reported also affects share prices. Share price as any other price incorporates the demand and supply for a given item – in our case a share or a stock. Assuming that supply of shares is limited, i.e. no issuance is planned in a static situation, there is only

bankruptcy unless a different loan or addition capital through bond or stock issuance was raised. Thus, the external borrowings in form of bank loans represent additional risks to the company if tied to financial covenants.

demand varying the share price.²⁸ Basically, there are four possible benefits of purchasing shares:

1. Dividend,
2. Capital gains,
3. Self-employment,
4. Synergies from acquisition (or merger).

If the last two reasons are omitted, the first two are dependent on profit the purchased company makes and is expected to achieve in future. Both dividends and capital gains motives can be of a short-term or a long-term character. In both cases, the profit achieved (in one year as well as an expectation of profit achievement more in a long-run) is the determinant of dividends, as dividends cannot be distributed without profit being generated, and capital gains, as stock prices theoretically reflect the expected value the company will generate (in other simplified terms sum of future discounted profits). Even though other factors such as liquidity or solvability can be mentioned as business performance determinants, the goal of a company for a shareholder is to generate income, either through dividends or capital gains (being also dependent on profit reported). If liquidity, solvability, or any other aspect of business performance is of concern, it would be translated by the market participants within the expected value of future profit creation.

In our case of higher profit reported over a period of time due to lower depreciation expenses of depreciated fixed assets, share prices go up as the demand side expects higher dividends in the current but also in the future years as the profit indicators signal that the business is going well. Additionally, it can be assumed by share market participants that the future value of stock will probably increase as well. Thus, an additional pressure for rise in share prices is created. It can be argued that the theory sketched here shows in the end

²⁸ Even though, it can be considered that suppliers of shares are those who already own them and are willing to sell them off, it is quite not correct as in case of any other supplier, supplier can alter the amount supplied. One can argue that a person willing to sell shares is able to sell all of them, or only some of them. However, the problem arises whenever the person willing to sell shares wants to sell more than owns, as there is no other way for expanding his supply besides entering the market again but on the side of demand what is impossible on active stock exchange markets, as the market price is one for all participants in a given time. Therefore, it is not reasonable to talk about a person willing to sell shares as a supplier but rather consider it as a part of the demand side where the willingness in selling shares represents a decrease in demand for a given share by one investor, i.e. decreasing the demand amount.

problems with liquidity, or more precisely worsened liquidity indicators, what also affects share prices. However, liquidity problems will occur when it is necessary to replace currently used depreciated fixed assets. Therefore, depending on structure of fixed assets, it will probably occur in more medium or long term future and not at once, creating something more like a “creeping threat” slowly arising with time. The problems with liquidity are closely connected what was described before as an overgrown access to cheap credit within developed economies. The liquidity ratios start to worsen when the access of cheap credit, provided or guaranteed by government, is stemmed, as will be more closely elaborated within the chapter concerning macroeconomic effects.

In the chapter concerning microeconomic effects of misreporting the economic reality by not allowing upward revaluation of depreciated assets in inflationary environment, several main impacts have been identified as follows:

1. Higher profits achieved by business entities.
2. Higher disbursement of cash through profit distribution or investment.
3. More expensive replacement of depreciated fixed assets as corporate income taxation and required rate of return by shareholders, or interest rate achieved on the credit market have to be considered.
4. Pressure for increasing share prices.

However, all these impacts as elaborated within this chapter also affect the whole economy, as not just one business is affected but rather more or less all businesses, and also other economic subjects such as government, due to the nature of inflation – rise in general price level keeping the relative prices almost the same. Thus, the next chapter tries to aggregate the impact identified and broaden how the whole economy gets impacted.

3.2.Macroeconomic Effects

All the aspects mentioned in the previous chapter can be summed up and showed on the aggregated level as lower depreciation expenses due to non-zero inflationary environment affect all industries while the scale depends on capital intensiveness (capital in terms of depreciated fixed assets). The effects can be divided into several groups such as how it affects public finances, aggregated investments, capital markets, and how much credit an economy uses in general.

3.2.1. Public Finances – Instability in Revenues

If the objective of corporate income tax is to tax real profit (by real profit understand profit reflecting real costs of using production factors)²⁹, then the information provided to tax authority about the status of economy is blurred as well due to the real profit being blurred. It does not just affect the corporate income tax revenue, but it also affects the decision making of policy makers, as the state of economy is seen as more positive than it would be if depreciated assets were upwardly revalued even in low-inflationary environment. Such an impression of policy makers comes from higher tax revenues as taxed profits are higher and the increased levels of personal income and employment due to over-positivism.

As over period of time, profit is recognized as higher than it would be if reflecting completely costs of using depreciated fixed assets, then also corporate income taxes paid are higher. As mentioned within the previous paragraph, the economic outlook is seen as better. As it was shown that the distortion is not of a short term character but rather a long term one, the government assumedly becomes used to higher revenues coming from corporate income taxation (and other taxation as well) adjusting its expenditure policies as well. Such an adjustment arises from the fact that policy makers' interests lay in re-election. It is also assumed that electorate tend to desire more publicly provided goods and services but with the least taxation (and inflation as well) possible. Thus, if it is possible to increase the scale of publicly provided goods and services without increasing taxation, then it is assumed that such an opportunity is used while keeping the inflation on relatively unnoticeable (insignificant) level for the public.

Moreover, not only corporate income taxation can be considered but probably all kinds of tax revenues as if the higher profit reported leads to investment over-optimism, new jobs are created. It can be argued that such an expansion is not possible unless the monetary supply enlarges while the potential output remains the same.³⁰ However, the problem

²⁹ Such a premise is highly speculative as well as the determination of tax base for corporate tax calculation very often differs from what would be the tax base from the financial accounting point of view. On the other hand, the institute of deferred tax serves as a reconciling element within the tax accounting and the financial accounting. Thus, tax effective depreciation can be reconciled to financial accounting depreciation.

³⁰ It is necessary to distinguish between investment and investment in over-optimism. Investments are necessary for future economic growth as described even by Adam Smith more than 200 years

arises as the central bank manipulates interest rates, i.e. regulates interest rate through adjusting monetary supply. If the whole economy is expanding due to the investment over-optimism allowed by the increased monetary supply and new jobs are created, more personal income tax is collected as well. VAT or sales tax, excise taxes, or property tax revenues would presumably rise as well as with higher income consumption partially grows as well, especially when such an increase in income is not seen of a temporary character.

As mentioned by von Hayek (1929) and von Mises (1953), the investment over-optimism is after time recognized and bad investments are identified causing losses to the economy - jobs are lost, and profits are falling. The addition of the government to higher tax revenues might have fixed some of the revenues to less flexible, mandatory, government expenditures. Therefore, a sudden gap emerges in public budgets when tax revenue falls as the government struggles to overcome the mandatory expenditures. Thus, government is left only with two choices if inflexible government expenditures exist – either to increase taxation what is quite politically unpopular move and also hurting the economy as well more directly, or to raise additional funds through external financing (if politically unwilling to decrease public spending). However, the entrance of government to the credit market causes the crowding out effect leaving less external sources to private sector being already motivated by the government to satisfy its financing needs from the credit market as referred to in the chapter Replacement of Fixed Assets.

In any case, as the sudden drop in tax revenue occurs, government finances become destabilized. Either option used to raise government revenues will leave a negative impact on the whole economy what will further negatively impact tax revenues. Therefore, it can be talked about the public finances being on a spiral as whenever government tries to solve its funding deficits through either loans or raising taxes, less and less taxes are proportionally collected. However, there is a third option to be discussed – raising inflation – as inflation de facto represents a hidden tax (elimination of debts – public debt) as

ago. However, investments can turn out to be profitable, i.e. efficient or in another words socially worthy, or inefficient (socially unworthy). The reason why investments should be seen as socially worthy when profitable comes from the theory of the production possibility frontier. The recognition of “worthy” investments is dependent on many factors. However, if the investment calculation is not based on real costs of using production factors, the whole investment calculation is blurred. Thus, it is assumable that it is then less likely to recognize whether a certain investment is “socially” worthy or not.

government is the cause of inflation as argued by Friedman. Of course steeper inflation creates instability in society and significantly damages the economy even on the first sight. However, if a small level of inflation let us say of 3.90% (the average rate of inflation computed previously) is used, it creates additional space for government funding fueling the economy further and further trying to escape any possibility of getting to the point, in which the investment over-optimism would fade away and bad investments would be recognized. Therefore, there is a motivation for government to conceal effects of inflation as Salerno mentioned (Salerno, 1995) and so increase its funding possibilities.

3.2.2. Investments, Credit Market & Shares

As higher profits (due to depreciation expenses not matching the real usage costs of depreciated fixed assets) cause more positive results of current business, a tendency for expansion of business – investments – might occur. Investors compare their required rates of return to the more positively blurred rate of return of ongoing operations and additional investments. As profits are recognized³¹, the biased rate of return of ongoing operations exceeds the required rate of return motivating to expansion of current business operations. A certain amount of new investments, in which case the difference between the required rate of return and rate of return of a given investment is relatively smaller, the space for what later can be labeled as bad investments emerges.

In our case, bad investments represent investments that if the rate of return was not blurred by lower depreciation expenses the investment would not be preferred as the required rate of return would be higher than the expected one. However, such a definition of bad investments implies that if unbiased the investor would choose a different project, or a different course of action would be taken with the given resources. Therefore, the opportunity costs would be higher than in the case when the information is blurred. Then, it is necessary to note again that resources are limited – the theory of possibility production frontier applies. It means that not just an individually more beneficial option is not applied,

³¹ Note that economic profits has to be recognized in order to motivate businesses to business expansion not just accounting profit as accounting profit as it is defined under the premise of historic cost valuation does not reflect opportunity costs, and implicit costs in general. (Holman, 2005, pp. 53-59) However, accounting profit as information may well affect how estimated economic profit is by businesses, and therefore might alter their decision making.

but also a socially one. Therefore, not just the individual but also the whole society does not reach its maximum production but also, it is possible to say, its maximum utility.

If such an investment over-optimism is fueled by increased monetary supply – through adjustment of basic interest rates (determining other interest rates within the economy) – it creates a situation, as mentioned before, where it is more beneficial, or profitable, for business entities, but also for households, to invest and consume not through its internal funding sources but rather from external sources of financing (also depending on income taxes present within the economy). Thus, the whole economy gets shifted towards increased indebtedness (in open economy – external savings are used to finance the internal demand for credit). Besides the motivation for companies to use external sources of financing, Christensen himself also indirectly opened up a space for discussion that using historic costs valuation for fixed assets leads to higher corporate debts.³²

³² As Christensen analyzed how much upward revaluation of fixed assets is applied in practice and which companies are on each side, it is notable that he identified that companies with higher leverage tend to use fair value in order to decrease it. According to Christensen, using the upward revaluation shows the company's commitment to information disclosure as it is in demand of creditors. (Christensen & Nikolaev, 2009, pp. 4-5) Further, Easton identified within his survey among chief financial officers that 40% of respondents explicitly marked using revaluation of fixed assets as aiming to decreasing company's leverage. (Easton, Eddey, & Harris, 1993, pp. 9-11) One of the motives for decreasing the financial leverage might be an easier access to additional external funding, which might be limited by too high financial leverage (besides of decreasing the costs of external sources of financing). Such a motive was also supported also by Cotter and Zimmer who argued that using upward revaluation of fixed assets increases borrowing capacity of a company. (Cotter & Zimmer, 1995) Christensen further analyzed using the regression methods how $\frac{\text{total debt}}{\text{operating income}}$, interest coverage and current ratios relate to fair value. The findings confirmed his suggestion in the beginning of his paper that upward revaluation if used is aimed at decreasing leverage. Additionally, the regression analyses also indicated a relationship between debt issuance and fair value confirming an interest of creditors in revalued amounts. (Christensen & Nikolaev, 2009, pp. 20, 23) Even though, it mainly suggests that management might use upward revaluation of fixed assets in order to manipulate its leverage, i.e. its reporting, so the expenses of external financing sources stay the same, decrease, or additional external financing sources are available, it also indicates increased indebtedness as follows. If financial leverage is defined as follows $\frac{\text{assets}}{\text{equity}}$ (Marek, 2006, p. 289), historic costs valuation is applied, and financial leverage should increase, the only possible way to increase assets on debt. If so, the overall indebtedness of a company increases and in general of the whole corporate sector on average as upward revaluation of fixed assets is almost not used at all. On the other hand, Christensen studied the causality in static level of financial leverage and using upward revaluation of fixed assets. Thus, his study only confirms that companies with higher leverage switched to revaluation (as Christensen studied which companies switched to revaluation when IFRS/IAS adopted in EU). Based on his finding, it might be assumed using a logical approach that historic costs valuation brings the reported reality closer to higher leverage with better results what would

As interest rates are pushed down by the central bank, savings are discouraged for many supply side credit market participants as the interest rate does not match their willingness of substituting their current consumption for future consumption.³³ The end of investment over-optimism comes when external sources of financing for pushed down credit prices – interest rates – dries out as happened in case of Greece starting in 2009. Then, bad investments are recognized and economy suffers a sudden shock (in Greece leading to social unrests).

As the trust of credit market and the saving habits of economic subjects are destroyed and as both can be considered as rather of an institutional character, i.e. long term character, the post shock prices of credit will probably remain higher than before if previously unadjusted. The even lower availability of credit leads to that even more investments are recognized as bad investments as the required rate of return further drops (i.e. some investment that would previously be classified as profitable if interest rates were unadjusted are now seen as bad investments). More recognized bad investments decreases national product, i.e. jobs are lost, personal and company incomes decrease and so possible savings and consumption. Keynes saw such a situation as a spiral one almost without an end as some incomes are dependent on domestic consumption that decreases as well. (Keynes, 1936) However, his theory was made with the assumption of close economies, which can be regarded as incorrect within the today's economic framework. Therefore, there is also the foreign part of consumption and savings available to the economy that would create the bottom of the spiral within his theory.

As mentioned within the subchapter concerning share prices, it is assumed that due to not reflecting the real usage costs of depreciated fixed assets, share prices of especially capital intensive businesses (where depreciation creates a major or a significant part of expenses)

assumedly be seen as desired performance results and it might encourage to even increasing more the financial leverage, especially in low interest rate environment, but further study would have to be done in order to empirically test the dynamics of indebtedness and upward revaluation of fixed assets.

³³ Note that in free market economy, interest rate as a price is determined by both supply side and demand side where the supply side reflects how much more valuable is today's consumption in comparison to future consumption – time preference – and the demand side represents the opportunities for investment. (Holman, 2005, pp. 322-328) However, in economies with active monetary policy, interest rates are adjusted by the central bank and therefore not reflecting, at least partially, the supply side – willingness to substitute present consumption for future consumption. As the creditors time preference is hampered by the government set up basic interest rate.

are higher than would be. Higher profits, mainly in depreciated fixed assets intensive industries, create more pressure for profit distribution, new investment, increased remunerations of current labor contracts. The increased income of owners, employees and the companies itself within the depreciated fixed assets intensive industries spreads to other industries through increased demand both for consumer and capital goods. Thus, the whole aggregate demand is increased (if allowed by the increased monetary expansion). Under the theory of permanent income, it might be argued that no increase in aggregate consumption occurs as the rise would have to be seen as permanent. However, it is argued that the whole process of increased profits due to the actual depreciation expenses not matching the real usage costs of capital is rather of a long-term character in developed countries as inflation is not as steep and the gap between the actual and the real depreciation expenses increases over time. However, through the increased consumption the problem of the economy being operating on not reflecting real usage costs of depreciated assets is magnified and subsequently affects the whole economy and creates the speculative bubble within the whole economy.

Anyway, the increase in what is seen as permanent income does not just result in the increased consumption, but it also leads to higher supply of credit through increased savings. The increased supply of credit itself pushes for lower interest rates on capital markets reversing in a certain proportion the increased demand for credit as described earlier. Thus, the whole process of getting closer to the brink of recession is getting slower. The economy presents itself as capable to partially generate domestic savings and so improving the economy's outlook for foreign investors (creditors). However, the whole process is only allowed by the government providing monetary expansion. Such an expansion is mainly done through provided low basic interest rates. The demand of the bank sector for those cheap loans provided by the central bank then has to be satisfied by printing additional money and through the loans from the central bank to other banks pumping it to the economy.

In general, what has been talked about within the previous chapters relates to economics of business cycles as the whole economy gets affected – the whole economy grows while not respecting the real usage costs of production factors, and so a bubble within the economy emerges bringing the whole economy to the brink of recession. Even though the

theory presented cannot be presented as a separate business cycle theory, as the whole process is dependent on monetary supply expansion, it can aspire to be presented as an accelerator of the monetary theory of business cycle.

3.2.3. Accounting Accelerator of Business Cycle

The monetary theory of business cycle provided by the Austrian school, namely by Ludwig von Mises (1953) and Friedrich A. von Hayek (1933), refers to expanding monetary supply by a central bank evoking a credit expansion through banking system. The credit provided from the central bank to the banking system pushes the market interest rate below time preference of individual supply side participants. The blurred interest rate motivates economic subjects to increase their investments and consumption. However, the lowered interest rate below the time preference discourages economic subjects from saving and even motivates to carry with consumption on credit.

Overall, the economy is expanding, creating more jobs leading to an expansion of consumption. The increased consumption further increases production and so on until the economy reaches the production possibility frontier (which can be compared for our purposes to potential product). Then, the production factors have to be transferred from sectors aiming at production of consumption goods to sectors focused on production of investment goods. If so, prices of consumer products are increasing creating predispositions for inflation pulled by demand. Such a predisposition is accommodated by the monetary supply side expansion, which started the whole process, thus inflation occurs. According to the theory of the Austrian school, the expansion ends as wages and other prices rise as well after a while as employees demand higher remuneration as prices of consumption goods increased, so increasing staff expenses and decreasing profit of businesses. Then, bad investments are recognized and are halted or dismantled. However, a part of investments represents sunk costs that cannot be retrieved and so the whole economy suffers from decreased output. Moreover, there are some time gaps between new businesses replace the not profitable ones what is also connected to re-employment of employees made redundant when the bad investments were recognized.

The business cycle theory considers the supply side of credit market as the source of business cycle, while the demand side of credit market is left partially behind. However, in light of how accounting valuation methods of depreciation fixed assets affect the fair and

true view provided by accounting systems and so it alters decision making of economic subjects, it is suggested that the demand side of credit market accelerates the whole process of economic boom as well.

Summarizing the theory provided up to now concerning public and private income, higher profits lead to:

1. Higher profit reported → higher labor remuneration demanded → if met increased income → increased savings and consumption depending on individual preference → higher tax revenues (both direct and indirect taxation);
2. Higher profit reported → Increased investments financed assumedly more through external funding → creating new jobs → higher income on aggregate level → higher savings and consumption → higher tax revenue (both direct and indirect taxation);
3. Higher profit reported → Increased profit distribution → less cash available within companies + increased savings and consumption of shareholders → higher tax revenue (both direct and indirect taxation).

In all cases, it is visible that it leads to overall optimism within the economy as incomes of both public and private sector increase. As there are almost no governments of developed countries around the world that would not use deficit financing of their public budgets, the whole increase in public income is put into consumption or directly into investments not entering the credit market.³⁴

Both private and public investments and consumption generates further savings and consumption according to the theory of multipliers (Holman, 2004, pp. 243-248). In the end, the expansion of consumption and investments would be closely limited by monetary supply. However, that is the time when the monetary business cycle theory comes in.

³⁴ It is highly disputable that the public sector is better in allocation of scarce resources in our cases represented by credit. Friedrich von Hayek argued using his theory of dispersed knowledge that the government does not possess the knowledge for the best allocation of resources (Hayek, 1945). Thus, not the most socially efficient and beneficial option is selected decreasing the overall output of the society (under the methodology of subjectivity and recognizing also non-monetary benefits and costs can be regarded as total utility or happiness of society).

The central bank through increasing monetary supply accommodates the expansion leading to an increased inflation. Further, as inflation rises, the valuation methods based on historic costs less and less reflect reality and the gap between the real usage costs of fixed assets and the actual depreciation expenses even enlarges providing an even more positive outlook of the ongoing business and the whole economy as well. Therefore, it can be said that the biased information provided by the accounting system accelerates the expansion of the economy, the speculative bubble on stock and bond markets, and even the rise of inflation levels in the end.

3.2.4. Economy is Collapsing

Problems start to occur when the credit market does not bear the debt burden anymore – withdrawal of foreign investors or the evoked inflation exceeds bearable levels and starts to more significantly and visibly damaging the economy. Overall, the debt to equity ratio not just in case of businesses but also in case of households and public finances (in sense of equity representing financing through tax revenues) worsens as the whole economy more and more relies on cheap credit being provided.

One of the reasons for triggering the collapse might be when depreciated fixed assets are to be replaced. It could be argued that as depreciation has a replacement effect there should be enough cash withheld within the company in order to satisfy the replacement needs³⁵. However, as subsequent valuation of fixed assets is based on historic costs, then the depreciation applied does not match the replacement requirements and companies have to search for other sources of financing. Depending on tax system in a particular country, the company is motivated to finance the replacement through external financing due to tax system and cheap credit on average (adjusted by the central bank). Thus, depreciated fixed assets intensive businesses bear increased interest expenses and so their profits are being decreased. If accumulated, the long-term positive outlook of companies might rapidly darken as debt to equity, liquidity and solvability worsen. If so, it might add to

³⁵ Note that it is assumed that as profit is recognized as lower due to depreciation expenses and therefore cash outlays connected to profit recognition are also lower cash is withheld within the company for replacement in time. However, in reality such a statement is often not true as the cash is not just “sitting” on a bank account waiting for the useful life of an asset to end, but rather it is used for other purposes such as investment in financial instruments in order to manage liquidity within the terms of profitability, used for replacement of another asset, etc. (Arnold, Hope, & Southworth, 1985, p. 149)

other factors bringing the meltdown of the speculative bubble on stock markets and other capital markets.

It is a question when such a fictional boom is recognized as the replacement of fixed assets assumedly does not come in shock waves if the Schumpeter's theory of investment waves is not applied (Holman, 2005, pp. 272-276). The Hayek's theory of monetary business cycle considers that shifting production factors from consumer goods oriented industries towards investment goods oriented industries raises relative prices of consumer goods and so their purchases are declining. Inflation growth of consumer goods prices finances unwilling savings that finance increased investments. The unwilling savings starts to disappear when increased prices are matched by increased wages. Then, the interest rate returns to the original level and bad investments are recognized. (Holman, 2005, pp. 264-265)

However, inflation improves financial results of especially depreciated capital intensive companies, thus, fueling the whole situation again. Furthermore, in the end both consumption and investments are expanding if accommodated by increased monetary supply while inflation increases.³⁶ Therefore, the production factors are not transferred from investment goods production to consumption goods production as much as rather from abroad as today's developed countries are rather open and not closed economic systems. Then, the country has to attract foreign capital from abroad in order to satisfy its credit needs. Additionally, if more foreign capital flows into the affected economy, the inflow is balanced by inflow of foreign goods, in our case of consumption goods keeping the price of consumption goods on a stable level and as increasing as von Hayek noted (such a premise is correct if foreign capital is actually drawn to the affected economy as referred in the next paragraph).

Besides the political stability or the institutional character of economy, the attractiveness of economy for foreign capital is determined by opportunities provided within the economy. In general, opportunities can be translated into what the expected rate of return is assumed from investments within the economy while the risks of each investment are considered. Even though expected rate of return varies with different investments tools /

³⁶ Salerno mentions that business are unable to recognize losses from inflation due to accounting methods used suitable to zero inflationary environment. (Salerno, 1995)

projects, all are affected by exchange rate used. Whenever the exchange rate of the country receiving the foreign capital is on decline, the investments made are worsened by the depreciation of the currency. The question, whether the currency of the economy affected by the depreciation expenses being lower than the real usage costs of depreciated fixed assets is depreciating or appreciating, is determined also by exports and imports of goods and services. As mentioned before, economic subjects through increased demand increase also their demand for consumer and investment products. As the production factors within an economy are limited, the economy partially turns to foreign consumer and investment products as well as to foreign credit. The more the economy consumes imported goods and services, the more the currency is led to depreciation and so being less attractive to foreign investors. Such a development is supported by already existing inflationary environment.

Inflation might seem to be quite beneficial for the government, as it hides government expenditures financed through increased monetary supply as Salerno mentioned (Salerno, 1995), increases tax revenue (increasing the gap between revenues and expenses as depreciation expenses based on historic costs are not affected by inflation), partially deletes debts (also the public debt), and might improve the economic outlook important for political support by the electorate. However, it might remain unnoticed only if inflation levels experienced are relatively quite small as steeper inflation shows its effects much more visibly. In steeper inflationary environment, monetary exchange is substituted by barter exchange, massive redistribution is going on, and in the end the society collapses. (Hazlitt, 2005, p. 147) As the effects of steeper inflation are much more rapid and more clearly visible, countries experiencing steeper levels of inflation often introduce accounting measures to improve the already strongly damaged quality of information provided through accounting system (e.g. period of stagflation in 70s and 80s, Argentine and other Latin American countries in 90s). Additionally, steeper inflation destroys the value of a currency much more rapidly, thus, worsening the balance of payment as it discourages investment within the economy.

On the other hand, if inflation within the affected economy is higher than in other countries (other countries in sense of being target of foreign investments / credit) it pushes for depreciation of the affected economy currency. As it is expected that inflow of capital

within the economy itself pushes for depreciation of the currency, it is rather assumed that the tendency for depreciation establishes. Then, the interest rates achieved by the creditors on the capital markets are lowered by the depreciating currency and so it discourages the investors. If foreign investors are discouraged, the only way to face off the immediate tendency for recession lies in steeper inflation. However as mentioned before, steeper inflation bears risks and only postpones the inevitable collapse.

It is quite important to consider whether government does realize that accounting valuation methods based on historic costs hide inflation and cover increased government expenditures as Salerno claimed (Salerno, 1995), or whether the government is ignorant of the effect. If the government was aware of the effects of such valuation methods does it realize the effects totally or partially? It is a quite essential question as the government biased decision making has been discussed as well in terms of increased mandatory or less flexible government spending. It would be assumed that a rational government would expect its final drop in tax revenues and therefore would react in advance. On the other hand, it is questionable whether the government is persuaded that the situation can be prolonged indefinitely. Perhaps, the fact that governments, represented by politicians, are elected only for a certain period of time, even if reelected, if possible, their mandate won't be of such a long time, at least in developed countries, in order to make the government feel endangered by the results if the illusion collapsed.

4. Rationale for Increasing Importance of Depreciation

Expenses

The importance of the theory presented within this paper is widely dependent on how much business operations are depreciated capital intensive. In economics, capital intensiveness in production refers to how much capital is used within production process in comparison to other production factors. From the accounting point of view, it is necessary to be a bit more specific as expenses within income statement are often classified to depreciation expenses, staff expenses, services, energies consumed, material consumed, or costs of goods sold, etc. However, the production process can be simplified into two steps – acquiring products of others (energy, material, goods purchased for resale), and adding value to the production process as visible within the Figure 6 below.³⁷ Thus, the question how production is capital intensive is tied to the step #2, in which value is being added to the product/service. In P&L statement, consumption of some capital³⁸ is probably best recognized behind the row depreciation expenses, where consumption of tangible and intangible assets besides land and fixed assets held for sale is being recorded within the particular financial year.

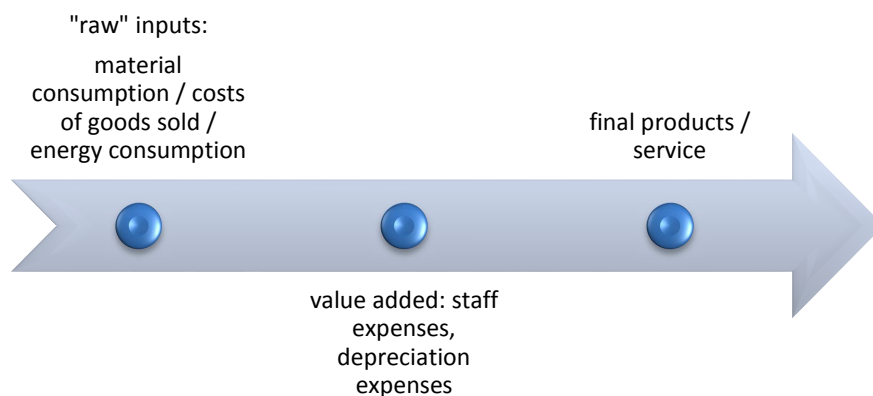


Figure 6 - Production Process

³⁷ Note that such a simplification has to be adjusted when dealing with primary industries where raw resources come in. The treatment afterwards depends on their classification and ownership within a specific country.

³⁸ Only some capital is recognized within accounting system as human capital is very often problematic to evaluate and so measure its contribution to the production process.

Based on the standard microeconomic theory, production factors are being chosen on several criteria:

1. Technology available to production,
2. Relative prices of inputs.

The point #1 determines in what ratios inputs can be used. In terms of the simplified process presented within the Figure 6 above, it sets up in which way a value added will be incurred – the ratio of capital and labor. Most of the time, several different technologies of production are available, therefore creating several options to be chosen by the producer. Thus, the second factor #2 affecting what production factors will be used depends on relative prices of production factors – whether a certain labor is more or less expensive than a certain capital (i.e. for what price it is possible to substitute it).³⁹ (Hořejší, Soukupová, Macáková, & Soukup, 2006, pp. 157-203)

It is often characteristic for developed economies that labor intensive production is outsourced to developing economies, in which much cheaper labor is available. Outsourcing moves the developed economies to specialize in capital intensive production. The possibility of specialization in capital intensive production is supported by how much savings are available within developed countries in comparison to developing ones and the access to credit. As investments within developing countries are considered as more risky (especially providing credit as pledges are not often even possible so blocking some credit transactions from occurring as de Soto mentioned (Soto, 2000)) and labor is much cheaper there, developed economies assumedly receives most of the world credit. Thus, companies in developed economies face much easier access to credit and by the often expensive labor are motivated to increase the capital intensiveness of production. Even though capital has different forms of occurrence besides depreciated fixed assets, it is assumed that some of the new inflows of capital consist of depreciated fixed assets.

In free market economy without any restrictions to price changes or movement of production factors, relative prices of production factors would solely depend on demand

³⁹ Note that both labor and capital bear additional costs of usage such as in case of capital energy consumption as machines need to be powered up by some source, and in case of labor social and health insurance, following legally mandatory safety procedures, or providing legally mandatory benefits to employees such as refreshment.

and supply of those production factors. However, in a mixed economy represented by probably all developed countries, taxes and regulations are present affecting the relative prices of production factors. Regulations and taxes might actually alter the market equilibrium on production factors markets. In the following subchapters, the impact of taxes and regulation will be briefly discussed in order to provide an argumentation for increasing importance of depreciation expenses also by exogenous influences (the government).

4.1.Taxes

There are several different types of taxation such as direct and indirect but it would be quite wasteful to try name them all as the paper is not aimed at one particular economy but rather tries to stay on general level. If focused on taxation affecting production process, it is necessary to consider at least taxes connected to labor and overall corporate income tax, if special taxation of raw materials or other by government protected sources is abstracted from.

4.1.1. Taxes on Labor Market

If the taxation levied on both labor and capital was the same, there would be no distortions in allocation of production factors. However, since the end of World War 2, welfare states have been on the rise in developed countries. As welfare states often provide free healthcare or education, generous social allowances together with universal pension scheme, it requires a certain source of public income in order to finance its needs. Those benefits of the welfare states are financed in each country in different proportion through direct taxation (case of Scandinavian countries), indirect taxation (South European countries), or taxation connected to labor. As the name itself suggests, taxes on labor are specifically connected to labor expenses as a company has to pay not just the wage the employee receives (personal tax being deducted) but also social security and health care contributions. In free market economy, labor market equilibrium is found where the willingness to substitute the free time for wage/salary (and so other goods and services bringing utility to an economic subject) equalize to opportunity of employers with the labor (in economic terms marginal revenue product of labor). However, if taxes connected to labor are considered, then it is necessary to consider two factors affecting the equilibrium wage such as:

1. Decrease in willingness to substitute free time for other goods and services through personal income tax or social and health care contribution being deducted from employees' salary and so decreasing the disposable personal income.
2. Increase in costs of using labor due to social and health care contribution (marginal costs of using labor rise in comparison to marginal revenue product of labor).

Therefore, there are two different effects of social and health care contribution and personal income tax. In case of social and health care contribution, if it is paid by the company, it increases the marginal costs of labor and so decreases the number of labor demanded. If the social and health care contribution is paid by the employee and in case of personal income tax, it decreases the net amount of wage/salary the employee receives. Thus, it affects the employee's decision making between free time and consumption of other goods/services leading to a lower amount of labor supplied holding other factors constant. If the labor provided was supposed to be the same, the gross wage would have to rise proportionally to the personal income tax and social and health care contribution proportion paid by the employee above the original equilibrium level. If opportunities to invest labor were constant, it would even decrease the amount of labor demanded by employers. In both of the cases, social and health care and personal income taxation lead to less labor demanded and supplied if the former wage equilibrium is considered.

4.1.1.1. Example#2 – Substitution of Labor for Capital and “Labor Taxes”

Let us make an illustrative example how taxes on labor market such as social and health care contributions motivate businesses to substitute labor for capital (assumedly also partially to depreciated capital). Imagine a company with the Cobb-Douglas production function⁴⁰ with a zero total factor productivity and alpha and beta representing output elasticity being each equal to one (together two – signaling increasing returns to scale) for simplicity of our example. Then the production function can be portrayed as follows – L

⁴⁰ Cobb-Douglas production function can be defined as follows: $Q = A \times K^\alpha \times L^\beta$, where A represents total factor productivity, L represents units of labor, K represents units of capital, and alpha and beta represent output elasticity. If $\alpha + \beta = 1$ the returns to scale are constant, if larger than one, the returns to scale are increasing, and if lower than one, the returns of scale are decreasing. (Hořejší, Soukupová, Macáková, & Soukup, 2006, pp. 193-194)

represents units of labor, K represents units of capital (depreciated as well as not depreciated):

$$Q = L \times K$$

The total cost function is defined as follows – P_L represents price of one unit of labor (for simplicity held constant thus marginal costs of labor are constant as well and equal to the unit price of labor), and P_K represents price of one unit of capital (same assumption as in case of P_L):

$$TC = L \times P_L + K \times P_K$$

If the price of the final product (P) is set up at \$400, unit price of labor at \$5 while no labor taxes are present, and unit price of capital at \$10, the total revenue function and the total cost function are presented as follows:

$$TR = P \times Q \rightarrow TR = \$400 \times L \times K$$

$$TC = \$5 \times L + \$10 \times K$$

Then the profit function (π) is defined as follows:

$$\pi = TR - TC$$

$$\pi = \$400 \times L \times K - \$5 \times L - \$10 \times K$$

If the assumption of profit maximization as being a goal of a company is upheld while the profit function is constrained by a production of 100 units of the final product in order to limit the changes only to substitution of production factors (labor, capital), the following function (f) including the Langrangian multiplier is constructed:

$$f(K, L, \lambda) = \$400 \times K \times L - \$5 \times L - \$10 \times K + \lambda \times (100 - K \times L)$$

If the function f is partially depreciated as according to each independent variable and then put equal to zero, three separate equations are obtained as follows:

$$\frac{\delta f(K, L, \lambda)}{\delta K} = 400 \times L - 10 - \lambda \times L = 0$$

$$\frac{\delta f(K, L, \lambda)}{\delta L} = 400 \times K - 5 - \lambda \times K = 0$$

$$\frac{\delta f(K, L, \lambda)}{\delta \lambda} = 100 - K \times L = 0$$

Those three equations can be solved with the following results:

$$L \cong 14.14 \text{ and } K \cong 7.07$$

However, whenever labor taxes are considered in for example a total of 30%, the original unit price of labor increases from \$5 to \$6.5, if such an increased unit price of labor is inputted to the above listed equations while other factors are held constant, the newly obtained results would be as follows:

$$L_{\text{with labor taxes}} \cong 12.40 \text{ and } K_{\text{with labor taxes}} \cong 8.06$$

If those two results are compared (with and without labor taxes), it is observable that a decrease in labor demanded occurred and on the other hand the capital demanded increases by around 14%, as the capital is made relatively cheaper in comparison to labor. Whether such an increase results in an increase of depreciated capital employed within the production process is dependent on the specifics of the production process itself such as technology available.⁴¹

It is visible that using labor as a production factor might get very expensive depending on social and health care contribution and personal income tax applied within each country. The higher those taxes exist, the more expensive the labor within the given economy is, but also the more companies are motivated to outsource their more labor intensive production and rather specialize or use production technology more capital intensive, i.e. substituting labor expenses for capital expenses. However, there is also another impact of taxes, namely of the corporate income tax levied on business entities.

⁴¹ Note that all constants applied within the calculation were of a random selection as well as the cost function, therefore the results of labor taxes in each business are of an individual character. The Cobb-Douglas function was selected for its profoundness as well as for the fact that it displays the necessity of both labor and capital for the production (in case of the Cobb-Douglas production function, the production cannot be done only one production factor).

4.1.2. Tax Shield

The effect of decreasing by expenses the overall tax liability and so decreasing tax as an expense in income statement is called as tax shield. In both cases of depreciation expenses and staff expenses, expenses are recognized as tax effective in a certain way (depending on national tax code), thus decreasing the total tax liability and so serving as a tax shield. However, a difference arises between depreciation expenses and staff expenses if cash outlays are considered. It is necessary to realize that payment of corporate income tax and advance payments for corporate income tax represent cash outlays. For survival of business especially in short term, liquidity is the most important thing. Therefore, the amount of cash outlays that cannot be postponed is quite essential for each company.

If tax liability can be decreased by tax shield, cash outlays connected to taxes decrease as well.⁴² However, if staff expenses are considered as tax shield, only one regular cash outlay is substituted by another, which is also even increased by labor taxes as elaborated within the previous sub-chapter. On the contrary, in case of depreciation expenses no cash outlays on regular monthly, quarterly, or annual basis occur and replacement of fixed assets can be planned, i.e. if necessary postponed or quickened. Thus, if depreciation expenses are used as tax shield not just tax liability is decreased but also cash outlays as well.

If the benefits of postponed cash outlays are considered within the decision making between production technology in form of reinvesting the cash and with additional interest revenue used later, then depreciated capital intensive production in terms of depreciation/usage of fixed assets is preferred from labor intensive production if other factors are held constant. Therefore, when marginal revenue product for labor and capital is calculated in order to determine the costs and benefits of different production technologies, the marginal revenue product for capital is increased by tax shield each unit of depreciated capital produces. Thus, the tax shield caused by depreciation motivates producers to use more depreciated capital intensive production if other factors are held constant.

Additionally, interest expenses represent another form of tax shield. So if we return to the sub-chapter 3.1.6.1. concerning replacement of fixed assets, business entities are not just

⁴² Note that deferred tax is omitted within our discussion.

motivated to fund their replacement of fixed assets because of relatively low interest rates and relatively high corporate income tax rate but also because interest expenses decrease tax liability as tax effective expenses are increased. Thus, the motivation for using external capital by business entities in an environment of relatively low interest rates and relatively high corporate income tax rate is even more increased.

4.2.Regulation of Labor Market and Labor Unions

As business operations are done in an environment of risk or even uncertainty, there is another point of view on decision making about production technology. One of the biggest uncertainties companies face is the demand for their products. The demand is affected by many factors such as competition, substitution between products broadening the market, and mainly preferences and incomes of consumers. Some of those factors are difficult to anticipate or quantify. If a producer sets up his production according to an anticipated level of sales and such a number rapidly diminishes in the next year, the producer has to decrease his production capacity to the new level of products demanded in order to remain profitable or even to stay within the business (not going to bankruptcy).^{43,44} Such maneuverability can be called as flexibility in manipulation with production factors.

In case of depreciated fixed assets, energy consumption tied to machinery can be halted as well as machinery and buildings can be sold out when the market demand for the final product decreases (probably with a loss depending on the market situation of the given asset). However, in case of staff expenses in environment of labor regulation⁴⁵, an increase in the reaction costs to the drop in the market demand for final product occurs. Thus, such a regulation motivates employers to shift their production technologies towards more

⁴³ Note that whether and how the producer decreases his producing capacity is also dependent on his expectation of duration of the drop in the market demand for his product. If the producer estimates the duration to be of a short-term character and setting up the production capacity to the previous level is expensive on resources (in economic terms – fixed costs), he might rather choose to sustain the temporary loss in short-term as in long-term it is more beneficial according to his expectation.

⁴⁴ Note that a situation when a single producer has to accommodate to the market demand has been described, thus, market where producers are in stronger position in sense of affecting price such as oligopoly and monopoly markets are omitted from the discussion. Small deviations from the equilibrium prices are considered as insignificant for our case.

⁴⁵ As regulation of labor market, protection of employees from being made redundant, necessity to give a leaving employee several of monthly salaries, etc can be considered.

capital intensive if other factors are held constant. In the end, such a policy of protecting employees leads to less employees being hired and so to higher unemployment.

Another problem causing inflexibility on the labor market, thus affecting the producer's decision making which production technology to use, arises from labor unions pushing for collective agreements. Labor unions with their activities often push for higher wages and oppose any plans for dismissal of employees. In some cases, strikes are used halting the production of the whole company and causing severe daily losses to the company. If possible to quantify the expectation of problems with trade unions, then such a calculation also enters the producer's decision making in what production technology is to be used as it increases the costs of using labor intensive production.

In the end, as businesses always operate while facing risk or uncertainty of future demand for their products and services, the costs connected to accommodating staff expenses to new demand for final products have to be taken in consideration. Such a consideration may widely influence the management decision making about production methods and so it might favor more depreciated capital intensive production.

Concluding Remarks

Even though the paper might pose as too extensive or too overreaching, it was a necessary step to begin with identifying what accounting is. Such a question was essential to the whole topic of how accounting affects economics – how decision making is affected – as the discussion was based on deviation from what reality is and what displayed as reality is. As reality is portrayed through accounting for economic decision making (as argued within the opening paragraphs), the question can be transformed to whether accounting reflects the reality fairly and truthfully. However, it can be argued that accounting does not have to reflect reality. If such an argumentation was accepted the further theory would be disqualified. Thus, the purpose of accounting and defining accounting had to be answered at the beginning of the paper.

The purpose of accounting was studied using several methodological approaches. First of all, what accounting is was searched within how accounting was founded and how it developed. Further, the purpose of accounting was searched by identifying what the word of accounting means. Thirdly, the definition of accounting by practitioners and academics was examined. In all cases, it was identified that accounting should provide the fair and true view, i.e. to reflect the reality truthfully and fairly.

As it would be too wide for the purpose of this paper, only depreciated fixed assets were selected from the reporting practice. The practice applied was examined by following the two most important world reporting codifications – the US GAAP and the IFRS / IAS. In the US GAAP, it was identified that upward revaluation of assets was not allowed what might cause a deviation from the economic reality if prices are rising. However, in the case of IFRS / IAS, the choice of upward revaluation of fixed assets was left to the business itself. On the other hand, as it is optional and regular upward revaluation of depreciated fixed assets is costly, it is argued that is very often not proceeded with, as also managers are not motivated by the motivation systems applied to report as fairly and truthfully as possible

Thus, the paper selected how depreciated fixed assets reported under the US GAAP and the IFRS / IAS (while a business entity does not choose to upwardly revalue its depreciated fixed assets) in price rising environment deviates from the economic reality. As it would not be possible to aggregate the whole question if non-systematic changes were considered,

only deviations in reporting of depreciated fixed assets in inflationary (systematic price changes) environment were further considered. An example of how depreciation charges are affected was provided in example #1 while targeting only developed countries, which are seen as suffering with low inflation. As the developed countries have experienced only low inflation rates since 50s of the 20th century while abstracting from the stagflation period, the reporting methods they use do not incorporate any anti-inflationary reporting measures. Thus, developed countries are selected and developing countries are abstracted from.

The effects were firstly studied at microeconomic level, while identifying how profit is affected. Through profit, share prices, investments, distribution of profit, employment contracts, financing structure and so on are reconsidered and adjusted to the reality portrayed but not reflecting the actual reality. It was shown that over-optimism arises while looking at the stock market as also other authors such as Christensen suggested and empirically tested.

However, the whole situation can only get more serious when accommodated by the monetary supply. Thus, the whole topic had to be taken one step higher and to look upon from the macroeconomic point of view. It was identified that through higher profits higher tax revenues occur. As the outlook of the whole economy is seen as better and better, the over-optimism spreads to the whole economy. However, as the system is limited by the monetary supply, the whole process requires to be accommodated. Such an accommodation is done by the central bank keeping basic interest rates at their bottoms and “pumping” new money into the economy.

In the end, the theory only connects to the monetary theory of business cycle being an accelerator of the business cycle presented by authors such as von Hayek or von Mises. The over-optimism gets gloomy when investments are recognized as bad and the flow of cheap credit is stemmed. As it is assumedly not stemmed by the government itself, the stopping factor is found within creditors as individuals and most probably through exchange rates (especially in case of small and middle economies).

As the whole theory is based upon how much depreciated fixed assets are used within companies, it is essential how much depreciated capital intensive production / business

operations are within developed countries. As I was unable to provide a quantitative answer to the question, it was further only assumed that a tendency for more depreciated capital intensive production exists. Besides the well known factors such as expensive labor force, reasoning for the tendency was provided in labor taxes, tax shield arising from depreciation, activities of labor unions, and other regulation of labor market. It was argued that all those factors motivate businesses to rather use more capital intensive production what assumedly also leads to more depreciated capital intensive production as well (depending on proportion of change in depreciated capital and in capital in general).

The presented theory might show some similarities to the current global economic downturn (starting in the 3rd quarter of 2007 in the United States) especially as the recession itself has been a motivation for writing the thesis while doing a research on inflation accounting. The policy of cheap credit has been followed for many years within probably all developed countries (in the US mainly connected to the Alan Greenspan's term) and the US GAAP and the IFRS / IAS are the main reporting codification applicable within the developed countries (within the EU mandatory for all listed companies). However, many have blamed other factors than monetary expansion and accounting methods for causing the crisis. As it is not the aim of the paper to elaborate which explanation most suitably describes the current downturn, one is worth of mentioning as it blames the current accounting practice, or more precisely the current tendency within the accounting practice regarding fair value valuation.

The reason why the current accounting methods are blamed arises from that financial assets mostly allowed to be upwardly revaluated. Then the so called critics of the fair value argue that because financial assets were upwardly overvalued it created an investment optimism improving performance of many companies / investments. Thus, the speculative bubble was created according to the supporters of this theory. Therefore, it might seem quite odd that I am stating the real opposite. First of all, it is necessary to realize that this paper does not consider financial assets but only fixed assets and only fixed assets that are subject to depreciation. Therefore if relativistic approach was adopted, such a counter argumentation is not relevant as the paper discusses upward revaluation of different assets. As by definition of relativism, then the method suitable for one type of asset might not be suitable for the other one.

However, as I tend to be philosophically an absolutist, I feel a need that it is not enough to counter the counter-argumentation on the basis of relativism. Therefore, the reasoning for rejection of the counter-argumentation has to be searched elsewhere. First of all, banking industry was built upon trust, trust between the owners and its customers (small creditors). As most developed countries have established guarantees of deposits, it destroyed the necessity of depositors to be interested in how risky their assets are being managed by the bank. Then, the actual connection between the owners and the depositors was substituted with rather a connection between the managers (bankers) and the politicians who would eventually provide the fulfillment of guarantees, or even bail-outs to the banking institutions if something goes wrong. However, then the free market mechanism, which would assumedly limit the risk behavior of banks, was substituted with an imperfect control of the government of the risk behavior. However, as Stigler pointed out the regulated entities are often in charge or ahead of the regulator. (Stigler, 1971)

On the other hand, some may argue that such a situation existed before the Great Depression. However, that is the place where the second point comes in – the monetary expansion. As well as prior to the Great Depression, the monetary supply has been increased by the central bank mainly after the Gold Standard was abolished. As the government pushes for lower interest rates within economies, it motivates entities for investments that would before fell short of profitability. This is a typical argument of the monetary theory of business cycle. Additionally, the lower the basic interest rates are, the more the bank is allowed to risk as it is allowed to cheaply borrow from the central bank. Then, it is assumed it actually motivates banks to risky behavior.

Because of those two points mentioned – monetary expansion through low basic interest rates and guarantees of deposits, the risky behavior and over-optimism cannot be blamed on the fact that current accounting codification allows upward revaluation of financial assets, as it cannot be seen as the source of over-optimism and risky behavior as it is just a consequence of the monetary expansion in the first place. The over-optimism would not be allowed without the monetary expansion and the risky behavior would not be allowed without the guarantees of deposits and other policies that have ultimately destroyed the connection between the depositors (clients) and the owners of the bank.

In the beginning, the question of how accounting affects economic decision making has been set as the central one to the paper. The paper has answered the question through establishing a common ground of what accounting is, what accounting standards prescribes in case of depreciated fixed assets, and how valuation of depreciated fixed assets and depreciation itself is affected by systematic price changes – inflation. However, the paper remained purely on theoretical level with only providing illustrative examples what can be criticized. On the other hand, the whole process of quantification is disputable due to not just the lack of data but also due to methodological obstacles. Quantification of how assets, equity, ROA, and other financial indicators are affected was provided by Christensen. The Christensen's findings support some steps within the outlined theory of this paper but not all.

Even though, if a solution was to be recommended, a valuation tied to market price would be recommended. However, many authors have spoken out against upward revaluation of fixed assets for practical issues such as high proportion of subjective judgment, small control over revaluation – problems for auditors, increased costs of disclosure, and in some cases high volatility of prices. On the other hand, this paper has not aspired on providing a solution of how to do upward revaluation in the best (i.e. the most effective) way, but it rather aimed at identifying how not using upward revaluation of depreciated assets affect the decision making of economic subjects in inflationary and monetary expansion environment and so leaving the subsequent question of effective upward revaluation of PPE to other.

Bibliography

- American Institute for Certified Public Accountants, Committee on Terminology. (1953). *Accounting Terminology Bulletin No. 1: Review and Resume*. New York: the Institute.
- Arnold, J., Hope, T., & Southworth, A. (1985). *Financial Accounting*. London: Prentice-Hall International.
- Arrow, K. (1951). *Social Choice and Individual Values*. New York: John Wiley and Sons.
- Becker, G. (1976). *The Economic Approach to Human Behavior*. Chicago: University of Chicago Press.
- Blanchard, O. (2000). *Macroeconomics (2nd edition)*. Prentice Hall.
- Camfferman, & Zeff. (2007). *Financial Reporting and Global Capital Markets. A history of the IASC 1973-2000*. Oxford: Oxford University Press.
- Cipra, T. (2005). *Praktický průvodce finanční a pojistnou matematikou*. Praha: EKOPRESS.
- Cotter, J., & Zimmer, I. (1995). Asset Revaluations and Assessment of Borrowing Capacity. *Abacus* , 136-151.
- Dictionary.com, LLC. (n.d.). *Reference.com*. Retrieved May 26, 2010, from Reference.com: <http://www.reference.com/>
- Easton, P., Eddey, P., & Harris, T. (1993). An Investigation of Revaluation of Tangible Long-Lived Asstes. *Journal of Accounting Research* , 1-38.
- Financial Accounting Standards Board. (2010). *Financial Accounting Standards Board*. Retrieved April 13, 2010, from Accounting Standards Codification: <http://asc.fasb.org/home>
- Financial Accounting Standards Board. (1978). *Statement of Financial Accounting Concepts No. 1, "Objectives of Financial Reporting by Business Enterprises"*. Norwalk.
- Fisher, I. (1911). *The Purchasing Power of Money*. New York: Macmillan.
- Friedlob, G., Thomas, F., & Plewa, J. (1996). *Understanding Balance Sheets*. New York: John Wiley & Sons.

- Friedman, M. (1956). *Studies in the Quantitative Theory of Money*. Chicago: University of Chicago Press.
- Friedman, M., & Rose, M. (1992). *Svoboda volby*. Prague: LI.
- Friedman, M., & Schwartz, A. (1963). *A Monetary History of the United States 1867 - 1960*. Princeton: Princeton University Press.
- Graham, R. F. (1940). Valuation for Profit Determination. *The Accounting Review* , 145-165.
- Harper, D. (n.d.). *Online Etymology Dictionary*. Retrieved May 27, 2010, from Online Etymology Dictionary: <http://www.etymonline.com/>
- Hayek, v. F. (1933). *Monetary Theory and The Trade Cycle*. New York: Sentry Press.
- Hayek, v. F. (1988). *The Fatal Conceit: The Errors of Socialism*. Chicago: University of Chicago Press.
- Hayek, v. F. (1945). The Use of Knowledge in Society. *The American Economic Review* .
- Hazlitt, H. (2005). *Ekonomie v jedné lekci*. Praha: Alfa Publishing.
- Hobbes, T. (1651). *Leviathan*.
- Holman, R. (2005). *Dějiny ekonomického myšlení*. Prague: C. H. Beck.
- Holman, R. (2005). *Ekonomie*. Prague: C. H. Beck.
- Holman, R. (2004). *Makroekonomie - středně pokročilý kurz*. Prague: C. H. Beck.
- Hořejší, B., Soukupová, J., Macáková, L., & Soukup, J. (2006). *Mikroekonomie*. Prague: Management Press.
- Christensen, H., & Nikolaev, V. (2009). *Who uses fair value accounting for non-financial assets after IFRS adoption?* Chicago: Chicago Booth, The University of Chicago Booth School of Business.
- International Accounting Standards Board. (2001). *Framework for the Preparation and Presentation of Financial Statements*. London: International Accounting Standards Committee Foundation.

- International Accounting Standards Board. (2009). *International Financial Reporting Standards*. London: International Accounting Standards Committee Foundation.
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. London: Macmillan.
- Kovanicová. (2005). *Finanční účetnictví: Světový koncept - IFRS/IAS*. Prague: Polygon.
- Laffer, A. B. (1978). *Economic and Investment Observations: Capital Gains Tax Reduction*. Boston: H. G. Wainwright and Co.
- Lauwers, L., & Willekens, M. (1994). *Five Hundred Years of Bookkeeping: A Potrait of Luca Pacioli*". Leuven: Catholic University of Leuven.
- Marek, P. (2006). *Studijní průvodce financemi podniku*. Prague: Ekopress.
- Marx, K. (1966). *Capital, Vol. III*. Moscow: Progressive Publishers.
- Mises, v. L. (1978). *On the Manipulation of Money and Credit*. Dobbs Ferry, NY: Free Market Books.
- Mises, v. L. (1953). *The Theory of Money and Credit*. New York: Foundation for Economic Education.
- Morse, D., & Zimmerman, J. (1997). *Managerial Accounting*. Boston: Irwin, McGraw-Hill.
- Needles, B. E., & Powers, M. (2007). *Financial Accounting*. New York: Houghton Mifflin Company.
- North, D. C., & Thomas, R. P. (1973). *The Rise of the Western World: A New Economic History*. Cambridge: Cambridge University Press.
- OECD. (n.d.). *OECD.Stat Extracts*. Retrieved 2010, from Complete databases available via SourceOECD, OECD's iLibrary: <http://stats.oecd.org/index.aspx>
- O'Sullivan, A., & Sheffrin, S. M. (2003). *Economics: Principles in Action*. Upper Saddle River: Pearson Prentice Hall.

- Pixley, F. W. (1900). *Accountancy - Constructive and Recording Accountancy*. London: Sir Isaac Pitman & Sons.
- Read, L. E. (1958, December). I, Pencil. *The Freeman* .
- Robbins, L. (1945). *An Essay on the Nature and Significance of Economic Science*. London: Macmillan and Co.
- Rothbard, M. (1975). *America's Great Depression*. Kansas City: Sheed and Ward.
- Salerno, J. (1995). War and the Money Machine: Concealing the Costs of War beneath the Veil of Inflation. *Journal des Economistes et des Etudes Humaines* 6 , 153-173.
- Schumpeter, J. (1939). *Business Cycles*. New York: McGraw-Hill.
- Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*. London.
- Soto, d. H. (2000). *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. New York: Basic Books.
- Stigler, G. (1961). The Economics of Information. *Journal of Political Economy* , 213-225.
- Stigler, G. (1971). The Theory of Economic Regulation. *The Bell Journal of Economics and Management Science* , 3-18.
- Tolkien, J. (1954). *The Lord of the Rings: The Fellowship of the Ring*. George Allen & Unwin.
- United Nations. (1993). *United Nations Statistics Division*. Retrieved 10 22, 2010, from <http://unstats.un.org/unsd/sna1993/introduction.asp>

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