# Cost Accounting under Liquidity Shortage

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## ABSTRACT

Liquidity shortage is not a phenomenon that appeared under the global crisis, which is primary a matter of the failure of the global financial markets; It appears from time to time irregularly and it is said to be unpredictable, at least using econometric modelling.

Speed of money circulation slow-down and / or reduction of the Money Supply Volume, are evidently decreasing demand and thus the sales of the enterprises.

In similar situations, the enterprises are in front of a series of restrictions and conditions of reconsidering their cost calculations, that are taking into account the considerable significance of the change of demand over cash, Break Even Point shift and the cash movement cost and benefit.

We have avoided to examine this newly appeared conditions under an eye of Macroeconomic analysis, preferring to see how the cost of offering goods and / or services is affected because of the credit and Liquidity shortage.

Our work is limited to combinations of cost accounting methodologies with the dependency on credit, based on observation in the markets of Greece and Italy.

We have been aware that cost accounting methods, mainly responsible for products and services pricing, even under the International Accounting Standards, do not include in their product / activity / service calculation, any financial cost. Financial Costs are based only on interests and calculated on a time basis, neither the volume nor the value of production or sales.

We see that under the credit restrictions, happening globally, there is a new cost coefficient, affecting direct costs and in particular raw material, in the form of differentiated prices, reflecting the buyer's solvency and his estimated ability to continue buying and paying. It is also affecting the cost of provisions, adding a theoretically non-linear cost of credit. The hypothesis of non-linear cost of credit seems to be valid, as some interviewed business persons admit, which cannot be a subject of statistical evaluation, because of non disclosure agreements. This theoretical view has already been been cited by Milton Friedman already in 1955, Peter Drucker in his activity based costing (ABC) proposals and many «lean management» researchers.

## INTRODUCTION

It is a common opinion that private enterprises are trying to maximize their profits, by the optimization of the resources available, while profits are the difference between the resources consumed and the resources received from the buyers.

The consumption of resources is generally referred to as “cost”. Assuming that the resources received are exogenous to the enterprise, because it is subject to the preferences of the buyers, who are expressing their demand as a result of complicated considerations of a multitude of parameters,

among which is the price tag, price is somehow endogenous, in terms of decision power of management.

Although maximization of profits is a very simplistic expression of what is called yield [Drucker,1995] the fact remains that the enterprises are in search of increasing their value. Since pricing is subject to the equilibrium between demand and supply, it is very difficult to increase the price, at least without diminishing the sales volume, something that might result in receiving a smaller amount of resources (from the market), it is the cost or resources consumed that are thought to be manageable.

The amount (and the value) of the resources received, are relatively easy to calculate, while their usual route is sales[1] and their amount is the corresponding incoming cash. Auditing techniques have been developed to safeguard that cash does not end in the wrong hands and that all the means to cash the total of the sales value have been exhausted.

The counterpart of yield, revenue, profits, wealth creation, whatever its name is, concerns the determination and the evolution of cost. Even in times of government imposed monopolies, where supposedly the price of the products or services are set by the monopoly, the cost is still a concern, because the prices cannot exceed the limits, out of which the buyers will substitute the product or service with other market proposals, even illegal.

From what we know, Luca Paccioli in 1494[2] has introduced the "Double entry" accounting [Adamo S. 2005] in an effort to aggregate and confront the expenses with income. The next really revolutionary period coincides with the "industrial revolution", where the direct costs, namely labour and material, have been the main concern. In the beginning of the XXth century, in USA a further development has been evident, such as standard costing and budgetary control [Boyns T., Edwards J. 1997], but in general, little evolution has been evidenced until 1950, while the research for better cost accounting is still high in the business and academic agenda.

The German cost accounting, in parallel, has developed a strict [Sharman P. et al 2004] regulation (with the acronym GPK) mixing the Financial reporting with management accounting, which is rooted in cost determination.

Evolution of the accounting and management in a reciprocal influence, after the introduction of the electronic elaboration of data, has brought in light new concepts of cost calculation, but instead of adapting the computer systems to the cost accounting concepts, there are researchers stating that (based on surveys) the enterprise functions and processes have been modified to fit in the systems! [Granlund M., Malmi T. 2002], [Hyvönen T. 2003].

In the mean time, new forms of cost accounting have emerged, like Standard Costing, Full Cost, Activity Based Costing, Cost of Ownership, Open Book Cost Accounting, Fair Value, Opportunity Cost, Lean Management, Six Sigma, mark-to-market (or model), Best of Breed (BoB), Benchmark Scoreboards etc. All these methods, as they are theoretically supported and the deriving techniques, resulted in national and international regulations, like the International Accounting Standards (IAS) and the International Financial Reporting System (IFRS) [Bradbury M.,Shröder L. 2012].

These systems are following costing archetypes, that are transmitted from generation to generation of the accountants, although to our opinion this is not a psychological mindset [Guerreiro R. et al 2004]. In most of the literature that we came across, both the conceptual and the historic cost premises for the determination of cost [Penman S. 2007] are based on the cost as it has evolved over time, although there is a defused reservation, especially in understanding the particularities of each enterprise and the need for non disclosure. Logistics or Supply Chain Management [Seal W. et al

1 There are also extraordinary routes of incoming resources, like "Royalties", indemnities, etc

2 It is claimed that Benetteto Cortugli stated the double entry accounting some 36 years earlier, in 1458, but the invention and diffusion of typography created delays in publishing.

1999] is examining the cost of material provisions, from a logistics point of view, assuming that the provisions prices are somehow standard in the market. Lean supply with or without open book accounting, requires long term relations [McIvor R. 2001], which is very rare in times of a rapid implementation of innovation.

From the conceptual / philosophic point of view, right after the II world war a reconsideration of cost consideration has started by viewing the cost as directly connected with the value of the resources engaged [Friedman M. 1955] to the point to see such an engagement as deserving a "rent", as even material is a temporary asset, meant to become a good for sale, never mind the "fixed assets" that are already having an equivalent measurement; depreciation.

This consideration has been very much influenced by a pre-war statement, which is quite diffused, that [Cooper R., Kaplan R. 1988] there is only one cost; that of opportunity [Coase R. 1990] and that all of the costs are variable, or are they all fixed?

Marginal cost, which is supposedly tending to equal marginal revenue, as an optimization driver, is not widely accepted, neither in theoretical analyses nor in practice, while it remains a useful instrument for teaching economics and cost accounting [Friedman M. 1955], because it ignores the unique character of the enterprises. Total Cost Ownership [Wouters M. et al 2005] is at the same wave length with Friedman, but it is also a rare attempt to connect cost with prices.

Fair Value is still considered as a revolutionary replacement to historic cost [Fortunato S. 2007] is mainly directed to the assets evaluation of the banking system, as well as collateral of their borrowers. Cost accounting systems have been brought to Europe from Japan [Carr C.,Ng J. 1995], but they have not been adapted to the European mindset, adapting their suppliers, instead. The Fair Value and Mark to Market are also under dispute [Laux C., Leuz C. 2009].

The global economic crisis did not probably initiate after the collapse of the Lehman Brothers failure, but it has its roots much earlier, at the ENRON bankruptcy, as far back as 2001[Bradbury M.,Shröder L. 2012] to be followed by a 2006-7 liquidity restrictions.

Under these conditions of lack of trust to the financial reports of the productive enterprises and real estate, new approaches to the cost accounting and financial reporting emerged, such as the consideration and distribution of the intangibles to the total cost of operation[Biondi Y.,Rebérioux A. 2012] and from there to product or service pricing, the association of costs (especially the ABC) with the financial performance [Cagno N. et al 2003], or manufacturing performance [Ittner C. et al 2002]. It is all addressed to equity value [Nezlobin A. 2012] and the expected dividend [Heinrichs et al, 2011], or leverage adjustments [Faulkender M. et al 2012].

Believing that the ENRON case was an auditing failure and accuracy of the financial information, the questions of cost accounting or determination and performance [Seal W. et al 1999] the auditing scientific support has been gone a very long way, using different approaches that were already published [Mock T. et al 1999], or after, with the introduction of the utilization of the belief function [Srivastava R., Mock T. 2000], and on going for external auditing [Desai V. et al 2010], even with statistical probability considerations [Srivastava R. et al 2009].

It has been published [oecd,2009]that from the beginning of the global crisis transfer to Europe in 2008 and on, there is an increment of insolvencies and bankruptcies and the SMEs reaction has been concentrated in cost-cutting, even through production volume reduction, search for additional liquidity sources and postponement of any payment, starting with new investments.

HYPOTHESES

The framework of our hypotheses is not a subject of discussion, so we take the liquidity drain out as a phenomenon which is beyond the purposes of the present work to explain why and how.

We assumed that there is a big difference between large enterprises, banks and SMEs, as they are differently affected by the liquidity shortages.

We, also hypothesize that the large enterprises, the banks and SMEs are interconnected in a way that cost disturbances in one of the groups, will affect the others, thinking that turbulence is contagious.

Finally, we hypothesize that the incidence on the production cost is predictable, if we study the interconnections and the surrounding phenomena of the Volume of Money fluctuations.

DISCUSSION

Quantitative examination was very risky to do, because the idea is very recent and we first have to discuss the validity of the syllogism. On the other hand, we do not accept time series as a tool for predicting the future under abnormal situations, when a disruption of equilibrium occur. Econometric models are working fine until anomalies modify the system, even if the modification is temporary.

The large enterprises are not affected by liquidity shortages, because they usually belong in wider international groups, many of them are multinationals and they represent a high solvency degree, which they are using as negotiation power, when provisions are the quest.

The large enterprises can continue acquiring material at the same or even lower prices, with the same or better payment conditions, because their dept to their suppliers seems to be secured and the payment guaranteed. Although they do not have an incidence on the provisions side, the shrinking Volume of Money in the economy that they are operating, may increase the full cost per product, if the demand for their products decreases and so they have to distribute the fixed costs to less products.

The banks, on their turn, are facing a rapid reduction of their trade item, which is money and credit, while they have the same operating costs and the costs of their raw material, which is credit and this credit, the more scarce it becomes, the more it costs and after a limit, it is even impossible to obtain.

This creates a spiral of contagious reactions, affecting the insurance industry, as a start, commerce that follows and the production sector as last, but which feeds back the system. When the banks decide to lessen their operations, say by closing agencies, they also restrict the liquidity, feeding the system with shortages in credit and money.

While cost, cost and management accounting have a retrospect function in Stock of Exchange listed companies, so that the equity and bond holders are reassured for their investments, cost determination has a different function in the SMEs. Such firms, are using the calculations of cost as their compass to pricing. If they fail to determine correctly their future costs, they may en up selling at a lower than the cost price and face losses. Costing routines for the SMEs have a budgetary character, which is trying to bridge sales maximization, with positive cash-flow and cost control. In other words, they need both profits and cash.

Most of the economic activities in the European countries are being undertaken by SMEs, while large and multinational firms represent the smaller part of the economy. When credit and volume of money shrink, so do the cash flow inputs to the SMEs. Without taking into consideration the incidence of the decreased demand on the full cost, while it does not occur to all sectors, we are aware that the cost of the product consists mainly of material provision, while SMEs do not operate large chemical establishments, to be energy cost dependent, or perform intensive Research. Direct Labor, as a fundamental cost driver, is not that important any more, except in the case of services.

Automation introduction, has released the SMEs from the semi-fixed labor cost constraints and concentrated all the cost attention in provisions of material, raw or auxiliary.

When an SME is negotiating its supply, the price is not the same if the payment is cash or credit. Credit restrictions are driving many SMEs to bankruptcy, so the selling part is asking a “premium” on the price as an insurance if the buyer fails to pay and another “premium” for the risk to fail the payment of his suppliers. It is obvious that the total of the “premiums” on the cash price equal the cost of borrowing from the banking system.

Yet, in rapid shrinking of the credit system, borrowing is not a question of interest, thus cost, as much as it is a matter of credit availability. Liquidity shortage, not only deteriorate the borrowing costs, or even terms, but restricts credit availability. Usurers apart, the only way of provisions is on credit.

The question is; can we calculate how much this price “premium” is?

We think that it may be calculated on the basis of the marginal possibility of failure, which in return follows the proportion of bad credit.

SMEs do not have the scientific and technical skills to monitor and explain the data, but their managers “feel” the evolution. Banks react with a time delay, SMEs react immediately, so SMEs anticipate the costs.

CONCLUSIONS

Liquidity Shortage or shrinking rate of credit and volume of money, are components of the budgetary cost accounting, in SMEs effort to form the cost of their products and so determine their prices.

The cost of material provisions represent the major part of the full cost. Changes of the provisions cost are passing through pricing, where they incorporate the cost changes with an addition of their own risk insurance.

We have to investigate the impact on the cost of the liquidity shortages, by impartial observations of other descriptive data, like bad credit and bankruptcy volume, in order to study a correlation, which will reflect each economy in a different way.

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