Equity fund raising and "creative" accounting practices: Indications from Athens Stock Exchange for the 1999-2000 period

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Abstract

Management sometimes exploits the quest of shareholders for higher return on equity capital, by taking advantage of accounting rules gaps or violating them. The Beneish earnings detection manipulation model, is an attempt to reveal such illegal or at least unethical practices. Evidence regarding the use of "creative" accounting practices, based on that model, during the massive equity fund raising in Athens Stock Exchange for the period 1999-2000, are examined. The results of Beneish model are further invigorated towards that aim, when it is accompanied by the Return on Equity (ROE) decomposition ratios and Altman's Z score of bankruptcy prediction. The model contributes to more efficient allocation of scarce resources.

Keywords: Athens Stock Exchange, Earnings manipulation, Beneish Model, RNOA ratio, Z score.
JEL classification: G 33.

1.   Introduction

Management sometimes, takes advantage of the quest of investors for higher return on their investments. This is reflected into greater increase of stock prices for the companies, which are in a position to fulfil this demand. Investors buy future earnings that are difficult to predict accurately. Investors and stock holders are willing to pay higher prices for greater earnings according to Penman (2002, p. 21).

Investors rely on earnings, more than to any other measure of business performance of the company (Francis *et al*. 2004, p.968). Thus management

has a considerable incentive to manipulate earnings and at the same time the accounting rules allow them to do so (*Thornton 2002*).

Enterprises which exhibit high net profit margins usually use the change in revenues in order to affect earnings (Plummer and Mest 2001, p.304). On the other hand firms characterized by disproportionate high current capital, it is possible to consider that it cost them less to manipulate earnings through changes in working capital, compare to others that do not posse so much current assets and short term obligations (Burgstahler and Dichev 1997).

2. The Beneish model

The quality of earnings is a great concern today, after the incidence of Enron, Worldcom, Xerox, Lucent etc. The problem emanating from the insufficient way that earnings are measured is greater with the inception of new century. In 2001, 257 public companies with total assets of \$256 billion, filed for bankruptcy in the U.S. The total assets of the firms filing for bankruptcy next year were risen to \$378.8 billion. (Chuvakhin and Gertmenia 2003, p. 1).

As "creative" accounting practices or manipulation of economic data, we regard the actions that render the present accounting data an unsuitable – unwarranted base to predict the future ones.

In this study we used mainly the Beneish model (1997 and 1999), which is based on the calculation and evaluation of the specific relations that exist between the published economic data of a company, aiming to investigate any possible "prettification" according to the wishes of the management.

The model takes two forms, which include five

$M = -6,056 +0,823X1 +0,906X2 +0,593X3 +0,717X4 +0,107X5$

and eight variables respectively.

$M = -4,84+0,920X1+0,528X2+0,404X3+0,892X4+0,115X5+0,172X6 +4,679X7 + 0,327 X8$

These variables are presented in the table below.

Table 1. The ratios of the Beneish Model

X1=DSRI	(Days Sales in Receivables)
X2=GMI	(Gross Margin Index)
X3=AQI	(Asset Quality Inventory)
X4=SGI	(Sales Growth Index)
X5=DEPI	(Depreciation Index)
X6=SGAI	(Sales, Administrative and General Expenses Index)
X7=TATA	(Total Accruals to Total Assets)
X8=Leverage	(Leverage Index)

According to the Beneish Model the probability of earnings manipulation increases when there is:

- an unusual increase in receivable
- a worsening in gross profit margin
- a deterioration in the quality of assets
- a disproportionate increase in revenues
- an increase in working capital minus cash and depreciation
- a greater increase in general expenses
- a disproportionate increase in accruals compare to total assets and
- an increase in leverage

Al the above ratios, combine items drawn from both financial statements (balance sheet and income statement) to exploit the interrelationships, which reflect the fact that revenue increases and cost postponement or decrease, is impossible to occur without manipulating assets or liabilities.

3.   Application of Beneish model to the Athens Stock Exchange 1999-2000 equity fund raising

During the 1999-2000 period, the massive capital increases of the companies listed at Athens Stock Exchange, amounted to 12.914,5 and 8.871,8 millions EUROS respectively and represented the 64.4% of the total funds that were drawn during the period 1970-2002 and which amounted to 33,830 million EUROS. The question posed is whether these amounts may have motivated the 75 companies, that drawn those funds to "creatively adjust" their economic data, aiming to lure investors who were looking for the most profitable investment for their money

To peruse that issue we examined the published economic data of a sample of **thirty-six** (36) companies during the period 1997-2002, aiming to investigate whether these companies tried to "manipulate" their economic data, before exercising capital increase at Athens Stock Exchange. This period covers two years before and two years after the controversial period 1999-2000, during which many companies increased their capital massively, whilst on the other hand there were expressed reservations regarding the quality of the economic data, on which those increases were based. Moreover, many questioned the explanation that the companies gave for these huge increases, which in some cases were larger than their equity funds by manifold.

The sample includes mainly companies, which are listed at Athens Stock Exchange and the 75% of them have achieved huge capital increases, whilst the rest did not achieve any increase or their increases were normal. In addition the sample includes six companies, which are not listed at Athens Stock Exchange. Three of them have expressed their intention to be listed in

the near future and had completed all the necessary preliminary actions, whilst the other three had no such an intention.

According to the data, in 1999 **twenty-five** of these thirty companies (83,3 %) achieved a capital increase that exceeds the 50% of their existing equity funds. These increases ranked from 61% to 1105%! During the same year, according to the result of the elaborated relevant Beneish model-indicator (and based on the data that were contained in their financial statements), **fifteen** (15) of them, according to the model of five variables **or eighteen** (18) according to the model of eight variables, "prettified" their financial statements. They were obviously aiming to make their capital increase attractive, whilst at the same time they were trying to justify the amount of the drawn funds and the prices of the shares they issued. On the other hand, the companies that did not increase their capital or the increased it to normal levels(did not exceed the 50% of their equity funds), did not try to "alter" their economic data. Actually, this practice was not necessary, given the general atmosphere of euphoria and exaggeration regarding the average range of increases, which in many cases were larger than their equity funds by manifold.

Regarding the remaining six companies of the sample, which were not listed at Athens Stock Exchanged, the three of them that were on the list for future capital increase, had "altered" their economic data for the years that were on the waiting list for the period 2000-2002. On the contrary, the three remaining companies, which had no intention to increase their capital through the stock market, did not intervene in their economic data, according to the specific model.

A more thorough examination of the way in which this intervention was achieved, shows that the assets quality and the management and general expenses indicators were used in **eleven** cases. Seven companies used the claims and seven other companies used the indicator that refers to the change in the permanent floating capital (current capital minus short-term liabilities), deducting the change in cash, deposits and depreciations. Finally, in five cases the annual change in depreciation was the main cause of altering the economic data. The above interventions were used by the management in order to accomplish the desired result, which was to "prettify" their economic data and to make the prices of their stocks look attractive in the upcoming capital increase.

When Athens Stock Exchange came into some kind of recession during the period 2001-2002, after the equity fund raising had been completed, the economic data of the companies, which according to τhe model had "altered" them, were restored to the previous normal levels. This indicates that the companies, with these interventions, were aiming to increase their capital, but in order to accomplish that they had to present themselves as healthy and

developing companies as possible through their published financial statements.

The companies of sample that belong to the sector of fiber and apparel, given its small profit margin, didn't use the increase of revenues to achieve their aim regarding the desired profit results, during the 1999-2000 period.. It pursued through the deterioration of the quality of total assets, the cutting down on general expenses to offset gross profit margin decrease so as to finally create positive net margins. These developments, led in the aftermath period to serious decreases in profits.

As concern the aquaculture sector, earnings manipulation was more severe and it was based to the revenue increase, given the high net profit margin and to deterioration of the quality of total assets. Manipulation was facilitated given the structure of the sector, which is characterized by the dominance of a few big companies that are all listed at Athens Stock Exchange and to which most of the rest companies are directly or indirectly related.

The companies, that according to the model seem to have perpetrated the most exaggerations with regard the extent and the duration of manipulation (revealed according to the Beneish model), show the greater problems in their earnings development afterwards. Grave decrease in net profit margins, asset turnover and profitability appear later in 2001-2002, when fund raising had been competed and earning manipulation had stopped.

4.   The Du Pont Ratio

An analysis of the capital turnover based on the **extended Du Pont (Curtis, P. 2003) indicator**, which calculates the return of equity as the product of the net profit margin, multiplied by assets turnover and finally the capita/equity ratio, for all the companies of the sample, shows a progressive deterioration in financial position of these companies during the period 2001-2, that is due to the worsening of all the particular components of the indicator. More specifically, there is a tumbling of the net margin profit with a significant fall in the assets turnover at the same time, which is due to their unjustified huge equity fund increase. Moreover, there is a deceleration in the increase or even a decrease in the sales (revenues). This combination, in connection with the increased equity funds, is transformed into a very low or even negative return on capital during the specific period. In other words, the average return on equity of these companies in 2002 in comparison with 1999, was –**143.5%, which means that the losses in 2002 overbalanced the profits of 1999 by approximately 1.43 times**. Among the eighteen companies, that exhibited such a reprehensible behavior, only three managed to improve their gains just marginally.

On the contrary, six companies that did exhibit a responsible behavior, as far as their economic data is concerned, increased their profits by approximately **188.4%** during the period 2002-1999 which is under scrutiny. We also note that during the period 1999-1997 the companies, which are considered "guilty", had an average increase of **473.0%** in their gains, whilst the so-called "honest" achieved an average increase of **233.8%.** That may mean that the excessive increase in revenues by itself, poses a threat towards the quality of stated earnings. The superior return on equity capital during the period just before the great increase in their equity capital, seems to be the result of undue interventions, since this effectiveness in operation performance did not last after the raising of funds had already occurred. On the other hand, the companies that did not intervene in their economic data, at least according to the results of this model, had a smoother and milder development in their profitability, which is justified by the overall recession and their effectiveness was in harmony with the one they had exhibited during the period before 1999.

The break down of profitability ratio RNOA, into profit margin and asset turnover components, provides useful information regarding the determinants of it:

$$\text{Return on Net operating Assets (RNOA)} = \frac{\text{Net profit}}{\text{Sales}} \quad X \quad \frac{\text{Sales}}{\text{Assets}} \quad (1)$$

As a matter of fact "change in asset turnover, correlates with change in future profitability asset utilization and positively with change in profitability one year ahead"(Fairfield and Yohn 2001, p.373).

Analysis of profitability ratio RONA, shows that the vast majority of the companies that had unduly intervened in their economic data, exhibit low capital turnover and low economic performance. This fact classifies these companies in "gray zones" or shows serious problems after their capital increase. These problems may endanger the viability of these companies, two of which face the consequences of their unlawful behavior, which impairs the long-term interest of their company. The easy access through the stock market, to vast new equity funds, did not allow many companies, to make the necessary adjustments in order to accomplish an effective and efficient operation that is useful and critical for their competitiveness and their viability, in times of economic slow down as it happened the period after 2000.

5.   The Z score

The application of **Z Score multiple discriminant methodology** (which also uses five indicators that are calculated on the basis of the financial

statements), which measure risk, allows us to measure any changes in the corresponding financial ratios, in order to examine whether the companies display an increase in financial problems or not.

In the WorldCom case (2002), management improperly recorded as capital expenditures a great amount of operating expenses. This type of unduly accounting treatment, had a twofold impact on financial statements. It overstated earnings and assets and it was used in order to alleviate the pressures on the ratios, that reveal bankruptcy tendencies, as it is shown in the following table.

Table 2.   Z-score Analysis for WorldCom
(accounting data prior to restatements)

Ratio	Definition	1999	2000	2001
X_1	Working capital/total assets	(0.08)	(0.08)	(0.00)
X_2	Retained earnings/total assets	(0.01)	0.03	0.04
X_3	Earnings before interest and taxes/total assets	0.08	0.08	0.02
X_4	Market value of equity/book value of total liabilities	3.58	1.13	0.54
X_5	Sales/total assets	0.39	0.40	0.34
Z	Z-score	2.697	1.274	0.798

Source: Chuvakhin, and Gertmenia 2003, p. 4).

In the case of the companies of our sample, after the equity fund raising period when the need for economic data prettification did not exist any more, the Z score had deteriorated considerably, revealing the true financial condition of the companies involved which necessitated the need for manipulation in the first place. The Z score would have been even lower, without the contribution of new equity capital drown at that period.

6. Conclusion

Companies sometimes take advantage of the need for more and accurate information regarding their financial condition, that the stakeholders demand to make resourceful decisions, by providing them with data that are manipulated in order prettify the situation.

This paper, try to show that there are models and tools, that the official bodies which supervise the operation of Athens Stock Exchange, can use in order to ensure smooth operation and to protect the interests of small investors from speculative games, that are mainly due to the misleading data of the companies' published financial statements.

The Beneish model represents a tool that attempts to uncover such practices. It make appropriate use of the interrelationships among the items of balance sheet and income statement, through the use of financial ratios, the value of which gets out of proportion, compare to the normal ones, when manipulation take place. At the same time the extended ratios of profitability RNOA or Du Pont and the Z score, deteriorate before and after manipulation is exercised.

These models, by providing the tools to investors, authorities and rest stakeholders, act as a mechanism of prevention and revelation of those practices, thus contributing to the protection of small investors and to more efficient capital allocation in the economy, which is distorted through earnings manipulation.

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