

Golden Ratio Accounting: the evidence in Financial Reporting

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Abstract

This work intends to investigate on the possible existence of the golden ratio in Accounting and the preparation of financial statements. The Study Group AFTER having defined what is the golden number launched. A first analysis to determine the possible existence of the golden ratio in Accounting and in the form of financial statements. The analysis was conducted using three methods and taking coming Sample Analysis 550 Financial statements of listed companies and non-listed Italian. It has been used in particular ratios and z test. The intent of the article is to demonstrate how for balance sheet items, scaling and indexes we might use the golden ratio to locate possible fraud situations.

Keywords: golden ratio; financial statements; fraud.

1. Introduction and theoretical framework

1.1 Fraud and Financial Reporting

The complexity of financial statement fraud has received considerable attention over the past few years and will continue to cause concern. Financial statement fraud can surface in many different forms although once a deceptive accounting practice, various system of manipulations will be utilized to maintain the appearance of sustainability. Common approaches to artificially improve the appearance of financials include overstating revenues by recording future expected sales, undertanding expenses through such means as capitalizing operating expenses, inflating assets by knowingly failing to apply an appropriate depreciations schedule, hiding obligations off the company's balance sheet and incorrect disclosure of related party transactions and structured finance deals (Normah et al., 2015).

Corporate reports are the primary means of communicating information regarding past performance as well as prospects of future performance to all interested parties. Corporate writers carefully craft the language of all corporate communication to maintain a company's positive image. Furthermore, management is aware that users of these annual reports view them credibly due to the fact that these are audited reports. Financial statements are a company's basic documents to reflect its financial status (Beaver, 1996). A careful reading of the financial statements can indicate whether the company is running smoothly or is crisis. If the company is in crisis, financial statements can indicate if the most critical thing faced by the company is cash or profit or something else (Ravisankar, 2011). In cases of fraud, annual reports often contain informative descriptive statements obscured by a pile of uninformative verbiage; nonfraudulent annual reports, on the other hand, are usually expressed clearly and succinctly. It is difficult for users of the annual reports to sift through all this information to understand the real motive of the management when companies are committing fraud (Goel et al., 2012). In the current economic conditions the cause of fraud is using different methods to measure assets and liabilities. Thus the improvement of financial reporting quality which is the basic source for the conduction of enterprise's financial state and results of activity analysis is continuously connected to the efficiency of assets and liabilities, their quantification and classification (Kulikova et al, 2014).

It's important to note the fact that the companies try to show the results of its business in the best light, increase the attractiveness to investors and the value of its own capitalization.

Fraud typically exhibits three characteristics: motive, opportunity and rationalization, usually referred to as the 'fraud triangle' (Cressey, 1950). These three characteristics can be thought of as preconditions for fraud. (Montgomery et al. 2002) explain these three characteristics of the fraud triangle in the context of fraudulent financial reporting as follows. For fraud to occur: first, there must be incentives or pressures to materially misstate or to omit material facts from the financial statements; second, there must be opportunities to carry out such material misstatements or omissions; and third, there must be values, beliefs and attitudes that allow one to knowingly and intentionally commit a dishonest act, and rationalize committing such a dishonest act. The fraud is construed to be consistent with how financial statement fraud or management fraud is defined in the literature.

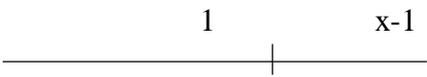
1.2 Pacioli and the golden number

The elements of the intellectual biography of Pacioli look at him as a lover of mathematics, geometry, algebra and also accounting. It was certainly not an economist, but a material prepared and used a technical language that would later become part of the economic science. He was a *abachista*, that is an expert in *computistica*, an accountant, a business technician, '*quaderniere*' as it was called time, and as a teacher explained to his students that it was possible to solve algebra problems in the economic that 'businessman or manager were facing daily and continuously. To him, in fact, it has been attributed by most historians authorship of the rules for the keeping of double-entry books, which are clearly set out in the *Tractatus undecimus (De computis et Scripturis)* of the *Summa*, the famous treaty that made immortal name of Pacioli (Hernandez-Esteve, 1994). The authorship of the double attributed to him game comes from the fact that he was the author of the *Summa* containing the detailed description of the 'Venetian way' to keep books of business, *De Divine proportion*, other work of Pacioli occupying a place of particular value, because it testifies, with its 60 Leonardo's drawings, the mutual exchange of experiences elapsed between Luca Pacioli and Leonardo, in that prolific glimpse of a century at the court of Ludovico il Moro. That is precisely the work that Pacioli reproduces the previous insights regarding the golden proportion, applying them to the topics that to him, as a man of faith, probably more interested. Central was for him the proof that God is one and three, and that this truth descends algebraically from the definition of the Divine Proportion also called golden section, indicated, as previously defined, by the relationship that within any segment is between two unequal lengths, of which the greater is the mean proportional between the lower and the sum of the two. Thus, as the divine proportion is a number inexpressible by means of a fraction, is a number "irrational," in the same way God is unknowable by means of human reason, is neither definable through verbal expression nor expressible in the form of quantity.

It is in this work that Pacioli fixed proportions that must be followed to achieve the perfect beauty, exposed in the form of reflections on geometry. The illustrations in the book of Leonardo inserted Pacioli are figures that apply the principle of the golden section to the geometry. Some of these are clearly shown in *The streets of merchants* (Pacioli, 2004): the octahedron starry, starry hexahedron the twenty-seven faces, the polyhedron to seventy-sided cable, and others. The purpose of this work is to search for the golden ratio within the corporate balance sheets. There are questions on the perfect balance form and whether the proportionality and the performance values as useful tools for avoiding fraud in the company.

1.3 Definition of golden number

The golden number is the irrational number that is represented by the Greek letter phi (ϕ). This number represents a discovery of the Greeks of the classical age whose origin and first appearance can be documented in one of the most celebrated books and reprinted the story, namely the *Elements of Euclid's Geometry*, written around 300 a. C. The success of this book is indisputable; in fact his influence was decisive for the development of universal mathematics. Geometry of the *Elements* are composed of thirteen books, but it is in the IV that is mentioned for the first time the golden number. The definition of golden number indicated in the text states that "a straight line is divided into average and extreme right when the total length of the line is to that of the greater part as that of the part is greater than that of the minor (...) is the whole to the part as the part is to the remaining ". This average and extreme reason is precisely that number that later will be called the golden number, and to whom Fra Luca Pacioli will devote an entire treatise in 1509, calling it *divine proportion*. Here is a brief example of how to calculate the number ϕ :

We take a segment and  divide it into two parts. The first part of the call "1", the second "x-1" and the sum of the two parts "x". The partition that we made will be in average and extreme right, ie it will be a golden partition. when: $x / 1 = 1 / x-1$. This equality leads us to the following quadratic equation: $x * (x-1) = 1 \diamond x^2 - x = 1$ that is equal to $x^2 - x - 1 = 0$. This quadratic equation has two solutions, one positive and the other negative. The positive solution is the same:

$$X = \frac{1+\sqrt{5}}{2} = 1,618.$$

This is the golden mean precisely that we defined precisely with ϕ . Since the solution of the equation is the relationship between the lengths of the segments, this will be the same regardless of the starting segment. The golden proportion, therefore, will have the same value regardless of the length of the initial segment. The number phi, given the presence of a non-exact square root, will be an irrational number. This number is then a non recurring decimal: $\phi = 1.61803398874 \dots$. The golden section is the only number whose decimal part, or the part following the decimal point, is equal to that of its square and its inverse. Is fact that $\phi^2 = 2.61803398874 \dots$, while $1 / \phi = 0.61803398874$. As we can see, the golden number is a number with infinite decimal places devoid of repetitive sequences, a number in endless practice that has intrigued men since ancient times. The discovery that there exist numbers, that exactly as the golden number, extend indefinitely without any repetition caused a real philosophical crisis. The fact that the section or the golden number can not be expressed by a fraction, that is a rational number, it means that it is impossible to find two integers whose ratio corresponds exactly to the ratio of the lengths of the two parts of the segment shown above. When two lengths are not integer multiples of a common unit, they are said immeasurable, just as the golden number. Some of the best mathematical minds of all time, from Pythagoras and Euclid in Ancient Greece, through the Middle Ages to the mathematician Leonardo da Pisa, and the Renaissance for the astronomer Kepler, have lavished time and thought to this. simple ratio and its properties. But the golden ratio has not only fascinated mathematicians. Biologists, artists, musicians, historians, architects, psychologists, and even mystics have investigated and discussed his unexpected presence in the most diverse fields. That it may seem like an unnecessary mental contortion. In fact this relationship is found in nature in various forms. It is in fact the proportions between two quantities that sometimes make it harmonious to the eye a figure, we think of a human face, sometimes make the harmonious shades relationship between musical tones, sometimes even make possible very complex geometric figures but simply based on the golden ratio.

1.4 Financial ratios used for reading the financial statement and the identification of probable fraud

Financial ratios are a valuable and easy way to interpret the numbers found in financial statements. They can help to answer critical questions such as whether the business is carrying excess debt or inventory, whether customers are paying according to terms, whether the operating expenses are too high, and whether the company assets are being used properly to generate income.

• Liquidity

Liquidity measures a company's capacity to pay its liabilities in short term. There are two ratios for evaluating liquidity. They are:

- 1) Current ratio=Total current assets/ Total current liabilities
- 2) Quick ratio=(Cash+Accounts receivable+Any other quick assets) /Current liabilities

The higher the ratios the stronger is the company's ability to pay its liabilities as they become due, and the lower is the risk of default.

• Safety

Safety indicates a company's vulnerability to risk of debt. There are three ratios for evaluating liquidity. They are:

- 1) Debt to equity=Total liabilities /Net worth
- 2) EBIT/Interest=Earnings before interest and taxes/ Interest charges
- 3) Cash flow to current maturity of long-term debt=(Net profit+ Non-cash expenses)/Current portion of long-term debt

• Profitability

Profitability ratios measure the company's ability to generate a return on its resources. There are four ratios to evaluate a company's profitability. They include:

- 1) Gross profit margin= $\text{Gross profit} / \text{Total sales}$
- 2) Net profit margin= $\text{Net profit} / \text{Total sales}$
- 3) Return on assets= $\text{Net profit before taxes} / \text{Total assets}$
- 4) Return on equity= $\text{Net profit before taxes} / \text{Net worth}$

• Efficiency

Efficiency evaluates how well the company manages its assets. There are four ratios to evaluate the efficiency of asset management:

- 1) Accounts receivable turnover= $\text{Total net sales} / \text{Accounts receivable}$
- 2) Accounts payable turnover= $\text{Cost of goods sold} / \text{Accounts payable}$
- 3) Inventory turnover= $\text{Cost of goods sold} / \text{Inventory}$
- 4) Sales to total assets= $\text{Total sales} / \text{Total assets}$

Financial statement fraud may be perpetrated to increase stock prices or to get loans from banks. It may be done to distribute lesser dividends to shareholders. Another probable reason may be to avoid payment of taxes. Nowadays an increasing number of companies are making use of fraudulent financial statements in order to cover up their true financial status and make selfish gains at the expense of stockholders. The fraud triangle is also known as Cressey's Triangle, or Cressey's Fraud Triangle. The fraud triangle seeks to explain what must be present for fraud to occur. The fraud triangle describes the probability of financial reporting fraud which depends on three factors: incentives/pressures, opportunities, and attitudes/rationalization of financial statement fraud (Beaver 1996, Ramamoorti et al. 1999). The survey audit partners that have had experience with financial fraud (Loebbecke et al. 1989) and find that dominated decisions by management and weak internal controls are the primary conditions that increase the opportunity for fraud (Smith et al. 2000) examine a model where the strength of internal controls is inversely related to the propensity of a manager to commit fraud. In their model, the auditor's assessment of the control system affects their allocation of effort between control testing and substantive testing, but the likelihood of detecting the fraud does not increase when the auditor exerts effort to assess controls. In summary, academic research has documented that firms with a weak corporate governance structure are more likely to report fraudulent financial information. Current professional standards and authoritative guidance require auditors to provide reasonable assurance that financial statements are free from material misstatements, whether caused by errors or fraud. What constitutes "reasonable assurance" has been extensively and inconclusively debated in the literature and within the accounting profession (PCOA 2005; Rezaee 2004)

2. Methodology and Data

The discovery of the golden number, or as defined by Leonardo, the number of God, has caught the attention of the greatest minds of all ages. As we have got to find out from the previous chapters, you can get and find the presence of this number in various fields, such as art, geometry, music, even in nature, why has contributed to the 'halo of interest and mystery against phi. The purpose of this work is to search for the golden ratio within the corporate balance sheets. To achieve this, it is taken as a reference sample of financial reports amounting to about 550, using both listed companies in non-listed companies. The figures for the financial reports were extrapolated by AIDA, the official website where you get all the information on the companies' financial statements. The search for the golden number was made following two search modes. The first was conducted taking into account only in listed companies and using all the indicators and indices that can be calculated in relation to a financial report. The indicators used were as follows: Of Liquidity Index, Current Contents, Index Of Debt A Quick, Index Of Debt Long, Index Cover Assets (Balance), Degree Of Depreciation, Report Of Debt, Cover Assets (Cash Index) , payables V / Banks On Revenue, Cost Of A Loan Money, Grade cover Of Interest expense, financial charges On Turnover Of financial Independence Index, Degree Of Independence From Terzi, Net Debt, Debt / Equity Ratio, Debt / EBITDA ratio, rotation Invested Capital (Times), rotation gross Working Capital (Times), operating working Incidence, average stock Of Stocks (Gg), days cover Stocks (Gg), Average Duration Of Loans At gross Iva, Average Duration Of Debts Iva Al gross, Sales cycle duration (Gg), EBITDA, EBITDA / Sales, Profitability Of Total Assets (ROA), Profitability Around The Invested Capital (ROI), Profitability Of Sales (ROS), Profitability Net equity (ROE).

Incidence income / Extra management (%) Revenues Pro-understand, value Added Pro-understand, cost-Pro understand Labor, Employee Efficiency, Net Working Capital, Margin On Charges, Margin Of Treasury, Margin Of Structure Of Management Cash Flow. In addition to these indicators it has been used also to the main balance sheet items such as intangible assets, tangible fixed assets, financial fixed assets, Total Assets, Total Inventories, Total Loans, Total Financial Assets, Total Liquid Funds, Total Current Assets, Total Assets, Equity net, Total Funds and risks, treatment End Report, Debts Short Term liabilities Long Term, Total liabilities, Total liabilities, Della Production value, Including Revenues Sales And Performance, Of Production costs, profit On exercise.

However, the second search mode of the golden number has been set taking into account the evolution and growth of a company over time. The balance sheet items used were as follows: Intangible assets, property and equipment, Financial Fixed Assets 26 Total the first is given by the following extremes from 1.59 to 1.62. Taking into account the phi properties, properties which consist in the fact that the decimal part remains unchanged both in the case of the square is in the inverse case, also, have been taken into account two other intervals, ie from 0.59 to 0.62 and 2.59 to 2.62. The research was done by creating a double entry matrix and the ratio between them all indicators and related financial statements on a sample of 200 financial reports. Each indicator was related to all other indicators and the main items of the same companies, obtaining for each 3969 values. Consider, by way of example, a portion of the ratios obtained for the company Salvatore Ferragamo. Each cell represents the ratio of the index indicated in the column in the numerator, and the denominator is instead given by the index indicated in the rows. In the first column the index of liquidity value is related to the value of all the other indices, and so 56 for all other columns. The same matrix was created for all the companies in the sample. The analysis was performed by comparing a financial line, for the last available financial statements, with the same financial item related to previous years.

The reason for this choice is based precisely on the definition of the golden section, and that is that everything is at the higher like most is to that child. So identifying the "whole" with the value this last financial report, it has compared this figure to the same previous years representing what the definition 58 is the remainder. It was taken a planned time frame of 6 years, and a sample of 500, of which 235 financial statements of listed companies and 300 financial statements of unlisted companies. So proceedings were obtained 240 reports for each company. The reports Obtained the reports obtained they have been established by ranges of values for the presence of the golden ratio. The first is given by the following extremes from 1.59 to 1.62. Taking into account the phi properties, properties which consist in the fact that the decimal part remains unchanged both in the case of the square is in the inverse case, also, have been taken into account two other intervals, ie from 0.59 to 0.62 and 2.59 to 2.62. Applying the statistical test Z in search of the golden mean, the goal is to prove if the average of the ratios calculated for each company, is equal to a predetermined value which, in our case, is the golden number. So we fix $\mu_0 = 1.6180$. For each company the Z test was applied taking into account the main items, taking into account a time horizon of six years and calculating the mean and standard deviation of the obtained ratios, calculated by dividing a line item only to the value the same of the previous year. The rejection region of α was set at 5%, ie 2.5% for each queue, and the critical values below and above which the Z test is not verified are +/- 1.96.

3. Discussion e empirical Results

The first type of analysis has seen the construction of a double-entry matrix, constructed by comparing the indices for each company and the main items among themselves. The result obtained, in relation to the sample, is not significant and cannot be considered a result that confirms the presence of the golden number in the financial reporting (Figure 1, Figure 2). In fact, considering that out of 200 companies, each of which were calculated 3969 reports, the only relationships that are close to the golden number involve only 5% of the sample. All other results are minors. The second type of analysis, however, saw the confrontation of an entry for the most recent financial statements with reports entry same as in previous years, for a time horizon of six years. Carrying out a count of the reports that fall within the ranges established, even here the result cannot be considered significant if we consider that out of 56,635 total reports, only 966, (1.7%), fall within those ranges while for companies not listed on 72720 reports only 520, or 0.7%, fall within the stated ranges. Considering the results of the analysis carried out on the entire sample of companies, the number of reports that do not reject the null hypothesis, then, whose average can be considered equal to the gold value, is as follows: 68 The Total Assets ratio to 49 companies of 235 does not reject the null hypothesis and then, with a significance level of 5%, the average can be considered equal to phi. The Current assets ratio for 49 companies out of 235 does not reject the null hypothesis and then, with a significance level of 5%, the average can be considered equal to phi.

The equity ratio for companies 46 235 does not reject the null hypothesis and then, with a significance level of 5%, the average can be considered equal to phi. The report Total liabilities for 45 companies out of 235 do not reject the null hypothesis and then, with a significance level of 5%, the average can be considered equal to phi. The report Total assets / liabilities held for 33 companies on 235 does not reject the null hypothesis and then, with a significance level of 5%, the average can be considered equal to phi. The report Della Production Value to 49 of 235 does not reject the null hypothesis and then, with a significance level of 5%, the average can be considered equal to phi. Gross operating profit ratio for 132 companies out of 235 does not reject the null hypothesis and then, with a significance level of 5%, the average can be considered equal to phi.

The Profit / Loss On the exercise ratio for 155 companies of 235 or 66% of the sample, does not reject the null hypothesis and therefore with a significance level of 5%, the average can be considered equal to phi. With regard to non-listed companies, the result is as follows: The report Total Assets for 30 companies on 302 does not reject the null hypothesis and then the average can be considered equal to phi. The Current assets ratio for 17 companies on 302 does not reject the null hypothesis and then the average can be considered equal to phi. The equity ratio for companies 27 302 does not reject the null hypothesis and then the average can be considered equal to phi. 69 The report Total liabilities for 14 companies out of 302 do not reject the null hypothesis and then the average can be considered equal to phi. The report Total assets / liabilities held for 36 companies on 302 does not reject the null hypothesis and then the average can be considered equal to phi.

The report Della Production Value to 42 of 302 does not reject the null hypothesis and then the average can be considered equal to phi. The report gross operating result for 92 companies on 302 does not reject the null hypothesis and then the average can be considered equal to phi. The Profit / Loss On the exercise ratio of 302 to 157 companies, and 52% of the sample, does not reject the null hypothesis and then the average can be considered equal to phi. The most satisfying result has had with the application of statistical test Z. By calculating the average of the ratios obtained by dividing the related to the most recent balance sheet item with the previous year same heading, for example, in 2014 the total assets of total assets in 2013, total fixed assets 2013 total assets of 2012 and so on, the null hypothesis, ie the hypothesis that the average of the ratios can be considered equal to 1.618, that is, phi, with a significance level of 5%, for the account Profit D ' exercise was not refused for 155 companies listed on 235, ie 66%, while for unlisted companies the null hypothesis in relation to the same financial report item, has not been refused for 157 companies of 302, that is, for the 52%. This represents the most consistent result.

4. Conclusions

Based on the analysis carried out and the results obtained can not be considered fully satisfactory to be able to state with certainty the presence of the golden ratio also in the financial statements. The work began deserves further study and further analysis. For example, the future of this work could consist in analyzing those companies that present within the financial reports of the relationships which tend to the golden number, reporting on its balance sheet, economic and financial, and to compare these results with the companies that operate in the same market or in the same business, so you can check if there are markets or business in which the presence of the golden ratio is higher than others. Any sectors or business with a prevalence of golden numbers can be useful in identifying possible cases of fraud and increase the level of internal and external controls performed as already highlighted by the triangle of the fraud. As is evident from the research is that analysis can only for some items (ex. Operating Profit). We need to identify an ideal model in which you take on the assumptions concerning the main budget indicators, making sure that these tend to the golden number and identify the financial position, financial performance related to the value attributed to such indexes. By creating such a model and verifying the correlation in a reference sample, so as to establish the validity of the model, it would be possible to provide companies a valuable tool to be used to taking managerial decisions. Research supports further exploration into the use of additional fraud detection tools such as regression analysis, the use of nonfinancial information, digital analysis, and neural network models. Such research would need to consider the Necessary resources, such as expertise, That would be required to effectively and efficiently incorporated blackberries sophisticated tools into the continuous audit (Hogal et all, 2008). So the golden number could be used to verify the validity of financial statements and as a useful tool for effectual audit on the budget and on the financial statements.

Figure 1: (Example of classification of companies and number of gold)

		Fixed assets	- Intangible fixed assets	- Tangible fixed assets	- Other fixed assets		Current assets	- Stock	- Debtors	- Other current assets	* Cash & cash equivalent	TOTAL ASSETS
		4963415	1475661	3216673	271081		2032691	107872	930617	994202	55613	6996106
Assets												
Fixed assets	4963415	1	0,297308	0,648077	0,054616	0	0,409535	0,021733	0,187495	0,200306	0,011205	1,409535
- Intangible fixed assets	1475661	3,363519806	1	2,179818	0,183701	0	1,377478	0,073101	0,630644	0,673733	0,037687	4,740998
- Tangible fixed assets	3216673	1,543027532	0,458754	1	0,084274	0	0,631923	0,033535	0,28931	0,309078	0,017289	2,174951
- Other fixed assets	271081	18,30971186	5,443616	11,8661	1	0	7,498464	0,397933	3,432985	3,667546	0,205153	25,80818
Current assets	2032691	2,441795138	0,725964	1,58247	0,133361	0	1	0,053069	0,457825	0,489106	0,027359	3,441795
- Stock	107872	46,01207913	13,67974	29,81935	2,512988	0	18,84355	1	8,627049	9,216497	0,515546	64,85563
- Debtors	930617	5,333466936	3,456495	0,291292	0	2,18424	0,115914	1	1,068326	0,059759	7,517707	
- Other current assets	994202	4,992360707	1,484267	3,235432	0,272662	0	2,044545	0,108501	0,936044	1	0,055937	7,036906
* Cash & cash equivalent	55613	89,24918634	26,53446	57,84031	4,874418	0	36,55064	1,93969	16,7338	17,87715	1	125,7998
TOTAL ASSETS	6996106	0,709453945	0,210926	0,45978	0,038747	0	0,290546	0,015419	0,133019	0,142108	0,007949	1
Liabilities & Equity												
Shareholders funds	1989028	2,495397249	0,741901	1,617209	0,136288	0	1,021952	0,054234	0,467875	0,499843	0,02796	3,517349
- Capital	1276226	3,88913484	1,156269	2,520457	0,212408	0	1,592736	0,084524	0,729195	0,779017	0,043576	5,481871
- Other shareholders funds	712802	6,963245053	2,070226	4,512716	0,380303	0	2,851691	0,151335	1,305576	1,39478	0,07802	9,814936
Non-current liabilities	2544666	1,950517278	0,579904	1,264085	0,106529	0	0,798805	0,042391	0,365713	0,3907	0,021855	2,749322
- Long term debt	1913299	2,594165888	0,771265	1,681218	0,141683	0	1,062401	0,05638	0,486394	0,519627	0,029067	3,656567
- Other non-current liabilities	631367	7,861378564	2,337248	5,094775	0,429356	0	3,219508	0,170855	1,473972	1,574682	0,088083	11,08089
* Provisions	503671	9,854478419	2,929811	6,386457	0,53821	0	4,035752	0,214172	1,847668	1,973912	0,110415	13,89023
Current liabilities	2462412	2,015672032	0,599275	1,30631	0,110088	0	0,825488	0,043807	0,377929	0,403751	0,022585	2,84116
- Loans	982127	5,053740504	1,502515	3,275211	0,276014	0	2,069682	0,109835	0,947553	1,012295	0,056625	7,123423
- Creditors	939841	5,28112202	1,570118	3,422571	0,288433	0	2,162803	0,114777	0,990186	1,057841	0,059173	7,443925
- Other current liabilities	540444	9,183958005	2,730461	5,951908	0,501589	0	3,76115	0,199599	1,721949	1,839602	0,102902	12,94511
TOTAL SHAREH. FUNDS & LIAB.	6996106	0,709453945	0,210926	0,45978	0,038747	0	0,290546	0,015419	0,133019	0,142108	0,007949	1
Working capital	98648	50,3144007	14,95885	32,60758	2,747962	0	20,6055	1,093504	9,433714	10,07828	0,563752	70,9199
Net current assets	-429721	-11,55031986	-3,434	-7,48549	-0,63083	0	-4,73026	-0,25103	-2,16563	-2,3136	-0,12942	-16,2806
Enterprise value	4155074	1,194543186	0,355147	0,774155	0,065241	0	0,489207	0,025962	0,223971	0,239274	0,013384	1,68375
Number of employees	4584	1082,769415	321,9156	701,7175	59,13634	0	443,4317	23,53229	203,0142	216,8853	12,13198	1526,201
Operating revenue (Turnover)	3489390	1,422430568	0,422899	0,921844	0,077687	0	0,582535	0,030914	0,266699	0,284921	0,015938	2,004965
Sales	3228038	1,537594973	0,457139	0,996479	0,083977	0	0,629699	0,033417	0,288292	0,30799	0,017228	2,167294
Operating P/L [=EBIT]	337740	14,69596435	4,369222	9,52411	0,802632	0	6,018508	0,319394	2,755424	2,94369	0,164662	20,71447
Financial revenue	31202	159,0736171	47,2938	103,0919	8,687937	0	65,14618	3,457214	29,82556	31,86341	1,782354	224,2198
Financial expenses	147153	33,72962155	10,02807	21,85938	1,842171	0	13,81345	0,73306	6,324146	6,756247	0,377926	47,54307
Financial P/L	-115951	-42,80614225	-12,7266	-27,7417	-2,33789	0	-17,5306	-0,93032	-8,02595	-8,57433	-0,47963	-60,3367
P/L before tax	221789	22,37899535	6,653445	14,5033	1,222247	0	9,164977	0,486372	4,195957	4,482648	0,250747	31,54397
Taxation	116138	42,73721779	12,7061	27,69699	2,334128	0	17,50238	0,928826	8,013028	8,560523	0,478853	60,23959
P/L after tax	105651	46,9793471	13,96732	30,44621	2,565816	0	19,23968	1,021022	8,808407	9,410247	0,526384	66,21902
Extr. and other revenue	25267	196,4386354	58,4027	127,3073	10,72866	0	80,44845	4,269284	36,83132	39,34785	2,201013	276,8871
Extr. and other expenses	38963	127,3879065	37,87339	82,55712	6,957395	0	52,16978	2,768575	23,88463	25,51657	1,427328	179,5577
Extr. and other P/L	-13696	-362,3988756	-107,744	-234,862	-19,7927	0	-148,415	-7,87617	-67,9481	-72,5907	-4,06053	-510,814
P/L for period [=Net income]	91955	53,97656462	16,04764	34,98095	2,947975	0	22,10528	1,173096	10,12035	10,81183	0,604785	76,08184

Figure 2: (Example of classification of companies and number of gold)

	Shareholders funds	- Capital	- Other shareholders funds		Non-current liabilities	- Long term debt	- Other non-current liabilities	* Provisions
	1989028	1276226	712802		2544666	1913299	631367	503671
Assets								
Fixed assets	0,400738	0,257127	0,143611	0	0,512685	0,38548	0,127204	0,101477
- Intangible fixed assets	1,34789	0,86485	0,483039	0	1,724425	1,296571	0,427854	0,341319
- Tangible fixed assets	0,618349	0,396753	0,221596	0	0,791086	0,594807	0,19628	0,156581
- Other fixed assets	7,337394	4,707914	2,62948	0	9,387106	7,058034	2,329071	1,858009
Current assets	0,97852	0,62785	0,350669	0	1,251871	0,941264	0,310606	0,247785
- Stock	18,43878	11,83093	6,60785	0	23,58968	17,73675	5,852928	4,669154
- Debtors	2,137322	1,371376	0,765946	0	2,734386	2,055947	0,678439	0,541223
- Other current assets	2,000628	1,283669	0,716959	0	2,559506	1,924457	0,635049	0,506608
* Cash & cash equivalent	35,76552	22,94834	12,81718	0	45,75668	34,40381	11,35287	9,056713
TOTAL ASSETS	0,284305	0,182419	0,101886	0	0,363726	0,273481	0,090245	0,071993
Liabilities & Equity								
Shareholders funds	1	0,641633	0,358367	0	1,279352	0,961927	0,317425	0,253225
- Capital	1,558523	1	0,558523	0	1,993899	1,499185	0,494714	0,394657
- Other shareholders funds	2,790435	1,790435	1	0	3,569948	2,684194	0,885754	0,706607
Non-current liabilities	0,781646	0,50153	0,280116	0	1	0,751886	0,248114	0,197932
- Long term debt	1,03958	0,667029	0,372551	0	1,329989	1	0,329989	0,263247
- Other non-current liabilities	3,150352	2,02137	1,128982	0	4,030407	3,030407	1	0,797747
* Provisions	3,949062	2,533848	1,415214	0	5,052238	3,798708	1,253531	1
Current liabilities	0,807756	0,518283	0,289473	0	1,033404	0,777002	0,256402	0,204544
- Loans	2,025225	1,299451	0,725774	0	2,590974	1,948118	0,642857	0,512837
- Creditors	2,116345	1,357917	0,758428	0	2,707549	2,035769	0,671781	0,535911
- Other current liabilities	3,680359	2,36144	1,318919	0	4,708473	3,540235	1,168238	0,931958
TOTAL SHAREH. FUNDS & LIAB.	0,284305	0,182419	0,101886	0	0,363726	0,273481	0,090245	0,071993
Working capital	20,16288	12,93717	7,225712	0	25,79541	19,39521	6,400201	5,10574
Net current assets	-4,62865	-2,96989	-1,65876	0	-5,92167	-4,45242	-1,46925	-1,17209
Enterprise value	0,478699	0,307149	0,17155	0	0,612424	0,460473	0,151951	0,121218
Number of employees	433,9066	278,4088	155,4978	0	555,1191	417,3863	137,7328	109,8759
Operating revenue (Turnover)	0,570022	0,365745	0,204277	0	0,729258	0,548319	0,180939	0,144344
Sales	0,616172	0,395357	0,220816	0	0,788301	0,592713	0,195588	0,15603
Operating P/L [=EBIT]	5,889228	3,778723	2,110505	0	7,534393	5,665006	1,869388	1,491298
Financial revenue	63,74681	40,90206	22,84475	0	81,55458	61,31976	20,23482	16,14227
Financial expenses	13,51673	8,672783	4,843952	0	17,29265	13,00211	4,290548	3,422771
Financial P/L	-17,154	-11,0066	-6,14744	0	-21,946	-16,5009	-5,44512	-4,34383
P/L before tax	8,968109	5,754235	3,213874	0	11,47336	8,626663	2,846701	2,270947
Taxation	17,12642	10,98888	6,137543	0	21,91071	16,47436	5,436352	4,336832
P/L after tax	18,8264	12,07964	6,746761	0	24,08558	18,10962	5,975968	4,767309
Extr. and other revenue	78,72039	50,5096	28,21079	0	100,711	75,72324	24,98781	19,93395
Extr. and other expenses	51,04915	32,75482	18,29433	0	65,30981	49,10554	16,20427	12,92691
Extr. and other P/L	-145,227	-93,1824	-52,0445	0	-185,796	-139,698	-46,0986	-36,775
P/L for period [=Net income]	21,63045	13,87881	7,751639	0	27,67295	20,80691	6,866043	5,477364

	Current liabilities	- Loans	- Creditors	- Other current liabilities
	2462412	982127	939841	540444
Assets				
Fixed assets	0,496112	0,197873	0,189354	0,108886
- Intangible fixed assets	1,668684	0,665551	0,636895	0,366239
- Tangible fixed assets	0,765515	0,305324	0,292178	0,168013
- Other fixed assets	9,083676	3,623002	3,467012	1,993662
Current assets	1,211405	0,483166	0,462363	0,265876
- Stock	22,82717	9,104559	8,712557	5,010049
- Debtors	2,645999	1,05535	1,009912	0,580737
- Other current assets	2,476772	0,987855	0,945322	0,543596
* Cash & cash equivalent	44,27763	17,66003	16,89966	9,717944
TOTAL ASSETS	0,351969	0,140382	0,134338	0,077249
Liabilities & Equity				
Shareholders funds	1,237998	0,493772	0,472513	0,271713
- Capital	1,929448	0,769556	0,736422	0,42347
- Other shareholders funds	3,454553	1,37784	1,318516	0,758197
Non-current liabilities	0,967676	0,385955	0,369338	0,212383
- Long term debt	1,286998	0,513316	0,491215	0,282467
- Other non-current liabilities	3,900128	1,555556	1,488581	0,85599
* Provisions	4,888929	1,949938	1,865982	1,07301
Current liabilities	1	0,398848	0,381675	0,219477
- Loans	2,507224	1	0,956944	0,550279
- Creditors	2,62003	1,044993	1	0,575038
- Other current liabilities	4,556276	1,81726	1,739016	1
TOTAL SHAREH. FUNDS & LIAB.	0,351969	0,140382	0,134338	0,077249
Working capital	24,9616	9,955873	9,527218	5,478509
Net current assets	-5,73026	-2,2855	-2,1871	-1,25766
Enterprise value	0,592628	0,236368	0,226191	0,130068
Number of employees	537,1754	214,2511	205,0264	117,8979
Operating revenue (Turnover)	0,705686	0,281461	0,269342	0,154882
Sales	0,76282	0,304249	0,291149	0,167422
Operating P/L [=EBIT]	7,290851	2,907938	2,782735	1,600178
Financial revenue	78,9184	31,47641	30,12118	17,32081
Financial expenses	16,73369	6,674189	6,386829	3,672667
Financial P/L	-21,2367	-8,47019	-8,1055	-4,66097
P/L before tax	11,1025	4,428204	4,237546	2,436748
Taxation	21,20247	8,456552	8,09245	4,653464
P/L after tax	23,30704	9,295956	8,895713	5,11537
Extr. and other revenue	97,45565	38,86995	37,19638	21,38932
Extr. and other expenses	63,19873	25,20666	24,12137	13,8707
Extr. and other P/L	-179,791	-71,709	-68,6216	-39,46
P/L for period [=Net income]	26,77845	10,68052	10,22066	5,877266

	TOTAL SHAREH. FUNDS & LIAB.
	6996106
Assets	
Fixed assets	1,409535
- Intangible fixed assets	4,740998
- Tangible fixed assets	2,174951
- Other fixed assets	25,80818
Current assets	3,441795
- Stock	64,85563
- Debtors	7,517707
- Other current assets	7,036906
* Cash & cash equivalent	125,7998
TOTAL ASSETS	1
Liabilities & Equity	
Shareholders funds	3,517349
- Capital	5,481871
- Other shareholders funds	9,814936
Non-current liabilities	2,749322
- Long term debt	3,656567
- Other non-current liabilities	11,08089
* Provisions	13,89023
Current liabilities	2,84116
- Loans	7,123423
- Creditors	7,443925
- Other current liabilities	12,94511
TOTAL SHAREH. FUNDS & LIAB.	1
Working capital	70,9199
Net current assets	-16,2806
Enterprise value	1,68375
Number of employees	1526,201
Operating revenue (Turnover)	2,004965
Sales	2,167294
Operating P/L [=EBIT]	20,71447
Financial revenue	224,2198
Financial expenses	47,54307
Financial P/L	-60,3367
P/L before tax	31,54397
Taxation	60,23959
P/L after tax	66,21902
Extr. and other revenue	276,8871
Extr. and other expenses	179,5577
Extr. and other P/L	-510,814
P/L for period [=Net income]	76,08184

	Working capital	Net current assets	Enterprise value
	98648	-429721	4155074
Assets			
Fixed assets	0,019875	-0,08658	0,83714
- Intangible fixed assets	0,06685	-0,29121	2,815737
- Tangible fixed assets	0,030668	-0,13359	1,29173
- Other fixed assets	0,363906	-1,58521	15,32779
Current assets	0,048531	-0,2114	2,044125
- Stock	0,914491	-3,98362	38,51856
- Debtors	0,106003	-0,46176	4,464859
- Other current assets	0,099223	-0,43223	4,179305
* Cash & cash equivalent	1,77383	-7,72699	74,71407
TOTAL ASSETS	0,0141	-0,06142	0,593912
Liabilities & Equity			
Shareholders funds	0,049596	-0,21605	2,088997
- Capital	0,077297	-0,33671	3,255751
- Other shareholders funds	0,138395	-0,60286	5,829212
Non-current liabilities	0,038767	-0,16887	1,632856
- Long term debt	0,051559	-0,2246	2,17168
- Other non-current liabilities	0,156245	-0,68062	6,581075
* Provisions	0,195858	-0,85318	8,249579
Current liabilities	0,040062	-0,17451	1,6874
- Loans	0,100443	-0,43754	4,230689
- Creditors	0,104962	-0,45723	4,421039
- Other current liabilities	0,182531	-0,79513	7,68826
TOTAL SHAREH. FUNDS & LIAB.	0,0141	-0,06142	0,593912
Working capital	1	-4,3561	42,1202
Net current assets	-0,22956	1	-9,66924
Enterprise value	0,023742	-0,10342	1
Number of employees	21,52007	-93,7437	906,4297
Operating revenue (Turnover)	0,028271	-0,12315	1,190774
Sales	0,03056	-0,13312	1,287182
Operating P/L [=EBIT]	0,292083	-1,27234	12,30258
Financial revenue	3,161592	-13,7722	133,1669
Financial expenses	0,670377	-2,92023	28,23642
Financial P/L	-0,85077	3,706057	-35,8347
P/L before tax	0,444783	-1,93752	18,73435
Taxation	0,849403	-3,70009	35,77704
P/L after tax	0,933716	-4,06736	39,3283
Extr. and other revenue	3,904223	-17,0072	164,4467
Extr. and other expenses	2,531838	-11,029	106,6415
Extr. and other P/L	-7,20269	31,37566	-303,379
P/L for period [=Net income]	1,072786	-4,67317	45,18595

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