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CONTENTS - ΠΕΡΙΕΧΟΜΕΝΑ

- E. I. ROGDAKI – M. RODOSTHENOUS – S. GOUMAS: The Interim and Year-end Financial Statements Disclosures: The Case of Greek Companies 7
- G. FLOROU – P. POLYXRONIDOU: Factors That Affect the Duration of Studies at the Accountancy Department of Kavala Institute of Technology 23
- A. G. SAHINIDIS – J. D. BOURIS: The Motivational Effects of Employee Perceived Training Effectiveness 33
- A. M. TZORTZAKI: A New Taxonomy of Knowledge Management Theory 45
- V. BRINIA: Selection of Headmasters of Educational Units in the Primary and Secondary Education According to the Presidential Decree 398/95 and 25/02 57
- N. K. VAKALFOTIS: Dealing With Risk in Planning Audit Evidence: An Overview of the Audit Risk Model 71

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THE INTERIM AND YEAR-END FINANCIAL STATEMENTS DISCLOSURES: THE CASE OF GREEK COMPANIES

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Abstract

The main purpose of our research is to examine if the financial position of a Greek company is depicted and disclosed in an accurate and efficient way. This has become of extreme importance in the current economy, given the fact that economical environment changes rapidly. In this study, we examine the correlation between internet disclosures in interim and year – end financial statements and the company’s financial effectiveness. For this survey, we examine in which way that four factors are related with the extent of internet disclosure. These four factors are: the company’s robustness, the multitude of free float shares, the number of years listed on the Athens Stock Exchange and the company’s industry. We conclude that a company’s robustness and the multitude of free float shares affect the level disclosure of accounting information, whereas the “industry classification” as well as the “years that a firm is listed” are non statistically significant related parameters.

JEL classification: M40, M48.

Keywords: interim disclosure, financial statements disclosures, year-end financial statements.

1. Introduction

Due to globalization, there is a continually increasing demand in accurate presentations of financial statements worldwide for all the business entities in determined periods (i.e. quarterly, semi-annually, annually) within a delimited institutional accounting framework reference (e.g. local GAAP or IFRS).

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Particularly when the financial statements are prepared for legal usage (i.e. we do not include financial statements for reporting purposes within groups of multinational companies), the corporation can prepare their financial statements in accordance with the local GAAP, whereas in the case of listed companies or subsidiaries, financial statements have to be prepared in accordance to the IFRS and IAS.

A lot of research papers have been conducted for year-end financial statements. However, we would like to extend our research by reviewing also the interim (semi-annual) financial statements that are mandatorily audited by certified auditors. Business experience has proved that semi-annual financial statements are used as an important basis for the year-end audit opinion on financial statements. In most of the cases, during interim reviews, crucial characteristics of an entity's ability to prepare correct financial statements are tested through tests of controls and internal procedures. In addition to this, an important analytical review of the company's performance during the year is presented on the interim financial statement.

The big significance of the interim financial statement has led to the implementation of ISRE 2410 (International Standard on Review Engagement) as an audit instruction intended to be used on interim financial statement, except for the widely adopted International Standards of Auditing (ISA). In addition to this, the companies prepare their interim financial statements in accordance with the specialized interim "Illustrative disclosures" and interim "Disclosure checklists" according to IAS 34 "Interim Financial Reporting".

The main objective of our research is to survey, in accordance with the illustrative disclosures, if all of the information referring to the financial position of a company is presented and disclosed adequately, because the financial information is very important for many users of the financial statements. These users are the shareholders of the company, interested investors whose primary objective is to receive a satisfactory return on their invested money provided that there is sufficient security and liquidity for the organization, suppliers and lenders (whose main concern is the security of their debt or loan), as well as management (concerned with the trend and level of profits, since this is the main measure of their success). Nevertheless, there are also other potential users interested in the financial statements; bank managers, employees, professional advisors to investors, financial institutions and financial journalists and commentators are typical examples.

The implemented research approach for this purpose will be the following: studying the Greek stock market, we are going to examine whether financial statements (final and interim) published on web-pages and specific reporting

components e.g. “Explanatory note on loans”, “Explanatory note on segments” etc. are appropriately disclosed in accordance with the illustrative disclosure checklist (both final and interim). In addition to this, we will test the correlation of the disclosure or not of our reporting components with certain characteristics of a company’s financial position and performance, such as Total revenue, Total Assets, profitability, leverage and selected ratios.

We found evidence that there is a positive trend in the adoption of interim disclosure checklist requirement by the companies of the Greek stock market, mainly related with the company’s size and also with the factor of whether a company is consolidated under a parent company’s group (i.e. preparation of financial statements for consolidation purposes and for reporting purposes to the group) or not.

2. Literature review

The literature investigating Internet financial reporting has increased. Many studies have been conducted aiming at a descriptive account of corporate practices as well as research using analytical tools from the disclosure literature and the widespread use of net to indulge corporate organizational needs. There has also been a research interest on regulation issues concerning the changes in accounting regulations that have to be done with respect to the changes that internet reporting brings on the identity of business organizations and on the needs of the third parties.

First surveys concerning online accounting disclosure were mainly interested in investigating the existence and use of corporate websites. According to Breton and Taffler (1995), the accounting information disclosed by the company is one of the most valuable informational sources for analyst and investors during the valuation of a company. Petravick and Gillet (1996) studied whether Fortune-150 companies had a website and they continued (Petravick and Gillet, 1998) by exploring whether 125 companies from the Fortune-500 list used their websites to disclose information related to earnings. Their findings suggested that 80% of these corporations had a website and used it to release financial information. Furthermore, Lymer (1998) found out that more than 90% of the top UK listed companies had a website and more than half of them used it to disclose accounts and reports.

Lymer and Tallberg (1997) surveyed Finnish data and concluded that while the majority of companies listed in the Helsinki Stock Exchange had a website they did not fully use it for reporting purposes. Furthermore the situation in Spain and Sweden was explored by Gowthorpe and Amat (1999) and Hedlin

(1999) respectively. It was found that in Spain, the corporations had a low rate of website creation and use, in contrast to the majority of listed companies in Ireland and Sweden which had created corporate websites and used them in order to provide financial information. Moreover, Deller et al. (1999) used a sample of the top 100 companies in the UK, the US and Germany and found that the majority of these companies had created a website for communicational purposes.

Avallone and Veneziani (2002) concluded that disclosure of obligatory information is a crucial service a corporation can offer its users as it saves on time and cost. However, the information disclosed on the net depends on the reliability and the degree of security. Mandatory context consists of: financial statements, auditors report (annually or interim) and additional statements. At the same year another survey conducted by Debreceny et al. (2002) investigated the extent to which 660 companies from 22 countries used the Internet for financial reporting. The results were that financial reporting was positively correlated with company's size, while leverage and listing of a company on overseas securities markets were of minor importance.

Marston (2003) surveyed the extent of financial disclosure on the internet using 99 leading Japanese companies, by investigating the association between the extent of disclosure and company's size, industry, profitability and overseas listing. The outcome was that 79% of the organisations disclosed financial information on their websites. Another interesting conclusion has been provided by Xiao et al. (2004), performing a research on the largest 300 listed companies of China. According to the results, the economic environment plays an important role to the extent of the internet disclosures as these are subject to certain systematic influences, thus factors which are considered as important determinants of disclosure choices in the more advanced market economies, may not play equally important roles in the Chinese economic environment. For example, "state ownership" in the companies appeared to have negative effect as a result of the proposition that state owners do not have a high demand for voluntary financial disclosures because they tend not to have company profitability as a primary concern and because they tend to have privileged access to private information. On the other hand, "legal person ownership" has positive effect as a result of the assertion that legal person shareholders have both the incentive and capability to monitor company's management.

Andrikopoulos et al. (2009), in the end of the previous decade conducted an accounting research on internet reporting seeking for the factors which systematically affect corporate disclosure practices on the companies' websites. For example, Craven and Marston (1999) examined disclosure practices

of 206 large UK firms and revealed that firm size was positively linked to the extent of website financial disclosure. Pirchegger and Wagenhoffer (1999) produced similar conclusions on size (as well as on the percentage of free float shares) studying a sample of 32 Austrian companies and 30 German companies included in the DAX index.

Ettredge et al. (2002) found that size and the raising of equity capital are significantly associated with the extent of disclosure on the internet concerning US companies. Additionally, Matherly and Burton (2004) also studied US companies, in the context of voluntary disclosure of operational as well as corporate governance data and found that size was significant in determining accounting disclosure practices. In a study on German companies included in the DAX 100 group, Marston and Polei (2004) found that the factor that systematically determined the extent of voluntary disclosure on the internet was size. Furthermore, Bonson and Escobar (2006) examined disclosure practices in a sample from 14 countries of Eastern Europe in the framework of their participation in the European Union and found that size, the company's activity being in the financial sector and the company's auditor being one of top four accountancy firms were the factors significantly associated with disclosure practices on the internet.

To this direction, Andrikopoulos and Samitas (2009) investigated the cross sectional determinants of online disclosure practices of companies listed in the Cyprus Stock Exchange. They used regression analysis to explore the potential dependence of online corporate disclosure practices on size, profitability, leverage and the ratio of market value to book value of equity. They found that internet is not largely adopted by firms listed in the Cyprus Stock Exchange and that firm size is significantly associated with the extent of online accounting disclosure.

Previous research in the Greek stock market, has shown that the Greek companies rely mostly on common and traditional internet reporting practices and thus lagging significantly behind other companies from other developed markets, on the field of corporate reporting via the internet. According to Spanos (2006), adequate corporate disclosure via the internet was confined to just a small number of large listed companies being tuned with the international practices. On his Internet reporting index (IRI), larger size companies received 60.3 points, versus 50 and 39.9 points of the medium and small-sized companies respectively.

Furthermore, Anargiridou and Papadopoulos (2009) showed that the capitalization category of a company is positively related with the score on the Internet reporting index (IRI). Big capitalization companies achieved the best

IRI scores, while on the other hand the companies “under supervision” were placed on the last positions based on the score.

In the present paper we test the relation between internet disclosures concerning interim and year-end financial statements and the firm’s robustness, the specific industry in which the firm operates the number of years that a specific firm is listed in the Athens Stock Exchange and the number of free float shares. Our sample includes all the corporations that were listed in the Athens Stock Exchange at the end of 2010.

3. Methodology

In this study, all the 268 companies listed in the Athens Stock Exchange (ASE) at the end of 2010 of all industries were taken into account. A common hypothesis in this area has been that larger firms will tend to disclose more information than smaller ones, which is supported by the argument that large firms are of big importance to the global economy, and therefore attract both the attention of regulatory authorities and the pressure to reveal more analytical information (Watts and Zimmerman, 1978). It is also generally accepted that a firm’s robustness in terms of performance will have certain affect on the amount of published information. In spite of what we saw in the literature review, Anargiridou and Papadopoulos (2009), found a positive correlation between disclosure and size, while Spanos (2006) has shown that this is not always the case as adequate corporate disclosure via the internet was confined to just a small number of large listed companies being tuned with the international practices. For the reasons mentioned above, we chose to test the relation between the firm’s robustness in terms of performance and the extent of internet disclosure. Our first hypothesis to be tested is the following:

H1. The company’s robustness in terms of effectiveness will be positively related to the extent of internet disclosure

The number of free float shares of a company is another factor that hasn’t been adequately studied with respect to the determinants of voluntary disclosure. Organisations with a greater number of available shares will have a motive to disclose more financial information on their internet-published financial statements than others, as these companies intend to attract the interest of a larger amount of investors. Based on this our second hypothesis is the following:

H2. The company's number of free float shares will be positively related to the extent of internet disclosure.

Another determining factor that reveals also the internal philosophy of the under examination corporations, is the number of years that the latter are listed in the Athens Stock Exchange. It is considered that companies that are listed for more years will provide more adequate accounting information. Therefore, our hypothesis will be

H3. The company's number of years listed in the ASE will be positively related to the extent of internet disclosure.

Summing up, all the organizations that are part of specific sectors (insurance, banking) can be more perplexed than in companies that belong to other sectors, with lots of ways. To begin with, there are differences in Tax regulation, in comparison with the companies of the commercial sectors who operate under plain business terms. Based on the Greek law 3556/2007 and in accordance with the Hellenic Capital Market Committee (HCMC), there is in a fixed way a differentiated disclosure pattern for the economical institutions as well as the insurance companies. For these reasons, it is our firm belief that the certain industries, in which an organisation operates, could very likely be related to the extent of internet disclosure.

H4. The company's specific industry will be positively related to the extent of internet disclosure.

Companies belonging to the insurance and banking sector are expected to show in a more qualitative level, which in turn makes the analysis more perplexed. For example, a bank's balance sheet includes account descriptions like "Investments hold to maturity", "Receivables from financial institutions" and "Cash & cash equivalents to Central bank" with relevant disclosure notes. Furthermore, an insurance company's balance sheet consists of account descriptions such as "Provision for life insurances" and "Receivables from insurances" followed by disclosures notes with detailed analysis. Such account descriptions are not included in the disclosures of a commercial company which belongs in plain commercial sectors.

4. Data collection and statistical analysis

Our model consists of all the firms listed in the Athens Stock Exchange (ASE) at the end of 2010. For all the 268 companies listed in the ASE, we estimated the value of the tested variables. All companies that are listed are obliged to upload their financial statements on corporate websites and to comply with the IFRS regulatory setting. Table 1 provides the listing of the companies in industries and sectors. The industries with the largest number of companies are the Consumer Goods (41), the Industrial Goods and Services (29) and the Construction (28).

Table 1: Number of listed companies in the ASE grouped by sector

Industry	Number of companies
Insurance	3
Banks	14
Financial Services	10
Industrial	17
Construction	28
Industrial Goods and Services	29
Travel and Leisure	15
Retail	12
Media	12
Consumer Services	4
Technology	20
Food and Drinks	28
Consumer Goods	41
Chemical	9
Real Estate	12
Telecommunications	2
Health	9
Petroleum and gas	3
Total	268

In order to measure the extent of accounting disclosure on the internet, we survey the disclosure of interim and year-end financial statements. We

employee the methodology introduced by Andrikopoulos et al. (2009) and we manage to measure the extent of accounting disclosure on the internet, by compiling a set of 19 rather than 39, informational items that express disclosure policy. We will use Andrikopoulos et al. (2009) composite index for each firm by assigning a value of 1 to every informational criterion satisfied by the company's website. The IRI for stock j is given by the following equation:

$$IRI_j = \sum_{i=1}^n D_i$$

Where n equals to the number of items tested and D_i equals 1 if the company's website satisfies the i -th informational criterion and equals zero otherwise. The components of the IRI are presented in Table 2.

Table 2: Internet Reporting Index Components

IRI01	Balance sheet
IRI02	Income Statement
IRI03	Interim reports
IRI04	Annual report
IRI05	Cash flow statement
IRI06	Notes to financial statement
IRI07	Balance sheet / previous years
IRI08	Income Statement / previous years
IRI09	Interim reports / previous years
IRI10	Cash flow statement / previous years
IRI11	Notes to financial statement / previous years
IRI12	Annual report / previous years
IRI13	Financial ratios
IRI14	Auditor's report
IRI15	Auditor's report/ previous years
IRI16	Financial reports of the subsidiaries
IRI17	Number of shares
IRI18	Classes of shares
IRI19	Shareholder structure

First evidence indicate that the majority of the under-examination companies (230 of 268) showed a positive value for the internet reporting index. Table 3 presents average scores for IRI per industry (according to the classification of the Athens Stock Exchange).

Table 3: Average value of the Internet Reporting Index per sector

Industry	Number of companies	Score (average)
Insurance	3	18
Banks	14	18.6
Financial Services	10	16.2
Industrial	17	16
Construction	28	14.4
Industrial Goods and Services	29	15.2
Travel and Leisure	15	16
Retail	12	18.3
Media	12	16.4
Consumer Services	4	17.6
Technology	20	17.4
Food and Drinks	28	16.4
Consumer Goods	41	16.2
Chemical	9	15.6
Real Estate	12	16.8
Telecommunications	2	17.3
Health	9	15.2
Petroleum and gas	3	17.3
Total	268	16.6

In addition to this, exploring the disclosure performance of the companies in the sample in each of the components of the IRI, we estimated the number

of the companies satisfied each of the 19 criteria of the IRI (Table 4). We conclude that the highest score was achieved for the availability of financial statements (100%) and the availability of interim financial statements (100%). On the other hand, the lowest scores appeared concerning the availability of previous financial statements and interim financial statements available on its website.

Table 4: Item Disclosures

IRI01	Balance sheet	100
IRI02	Income Statement	100
IRI03	Interim reports	100
IRI04	Annual report	100
IRI05	Cash flow statement	80
IRI06	Notes to financial statement	92
IRI07	Balance sheet / previous years	60
IRI08	Income Statement / previous years	60
IRI09	Interim reports / previous years	60
IRI10	Cash flow statement / previous years	60
IRI11	Notes to financial statement / previous years	60
IRI12	Annual report / previous years	60
IRI13	Financial ratios	70
IRI14	Auditor's report	100
IRI15	Auditor's report / previous years	60
IRI16	Financial reports of the subsidiaries	70
IRI17	Number of shares	80
IRI18	Classes of shares	80
IRI19	Shareholder structure	70

Taken all the above into account, we construct approximate measures for the employed explanatory variables. Robustness in our study is approximated

by performance indicators, while free float shares by the number of available shares. The industry in which each firm operates is classified based on the ASE listings and the years are calculated based on the continuation of the firm's presence in the ASE. Descriptive statistics for the explanatory variables are shown in Table 5.

Table 5: Descriptive statistics for explanatory variables

	Robustness in terms of performance indicators	Free float shares	Industry listing	Number of years
Mean	42.5	53.2	6.7	8
Maximum	263.7	132.7	15.9	12
Minimum	0	17.9	0.04	1
Median	38.4	43.8	2.7	5
Standard Deviation	87.3	16.4	5.42	2.1

In order to test Hypotheses H1 and H2 we employ the ordinary least squares approach and run the following linear regression

$$IRI = \beta_0 + \beta_1 PI + \beta_2 FFS + \beta_3 Id + \beta_4 Y$$

The results from our regression analysis are shown in Table 6.

Table 6: Regression analysis

	Variable	Coefficient	St. error	t-statistic	Probability
β_0 :	Constant	8.9467	0.9876	9.4508	0
β_1 :	Robustness	0.002**	0.301	1.2683	0.032
β_2 :	Free Float Shares	0.045*	0.1932	0.2641	0.5728
β_3 :	Id parameter	-0.1078	0.2903	-0.2452	0.7892
β_4 :	Years	-0.2598	0.1995	-0.1673	0.8332

*Significant at 10% / ** Significant at 5%

From the above results it is obvious that the firm's robustness in terms of performance is significantly correlated and has impact to the extent of internet disclosure of accounting information. The outcome comes in accordance with the evidence on the effect of profitability of internet reporting, given by Debreceeny et al. (2002) and Xiao et al (2004). Additionally, the parameter of Free Float Shares is statistically significant in comparison with the amount of provided information.

On the other hand, the explanatory variable of the specific industry in which each company operates does not provide any statistically important relation to the extent of internet disclosure of accounting information. To conclude with, the year parameter is also statistically insignificant in explaining the internet reporting practices of the companies listed in the ASE.

5. Conclusions

A lot of research has been conducted for year end financial statements. However, it is our goal to extend our research by reviewing also the interim (semi-annual) financial statements. In the current study we examined the connection between internet disclosures concerning interim and year-end financial statements and the firm's robustness, the industry in which the firm operates the number of years that a specific firm is listed in the Athens Stock Exchange and the number of free float shares. Our sample takes into account all the corporations that were listed in the Athens Stock Exchange at the end of 2010.

Evaluating the statistical analysis results it is obvious that both the firm's robustness as well as the parameter of Free Float Shares are statistically significant in relation to the amount of provided information. On the contrary, the parameter of the specific industry in which each company operates doesn't provide any statistically important relation to the extent of internet disclosure of accounting information. To sum up with, the year parameter is also statistically insignificant in explaining the internet reporting practices of the companies listed in the Athens Stock Exchange.

The interim's and year-end financial statements online disclosure are of high significance for the interested third parties (the shareholders of the company, bank managers, suppliers and lenders and management, potential investors, financial institutions, employees, professional advisors to investors and financial journalists and commentators.), but the ultimate user of the accounting and financial information in order to be able to have an general aspect of the firm's economical condition, has also to have access to other elements, such as the auditor's report, the notes on the financial statements and the report

of the board of directors. Unfortunately we find that the elements mentioned above are not fully disclosed by the majority of the firms listed in the Athens Stock Exchange.

Another issue of great importance that comes up is that of the transparency and reliability of the disclosed items and the extent to which the users of the financial statements can depend on the information provided on the web, since there is no statutory body that ensures the credibility and reliability of the online presented financial information. One very important restriction of our study is the fact that we concentrated only to the extent of disclosing accounting information but didn't analyze further the content of the disclosures. As for future research, we believe that it would be very important to study the transparency and reliability of the online disclosed accounting information.

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FACTORS THAT AFFECT THE DURATION OF STUDIES AT THE ACCOUNTANCY DEPARTMENT OF KAVALA INSTITUTE OF TECHNOLOGY

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Abstract

Institutions of Greece's higher education have to inform and update the scientific society and the relevant Ministries about their students' progress among their overall image. In this paper, we analyze statistically the duration of studies at the Accountancy Department of Kavala Institute of Technology. We describe the demographic characteristics of all of our Department's students through the years. We use several techniques of the multivariate analysis, in order to detect correlations among the factors that affect the duration of studies and the degree class of Bachelor.

JEL classification: A22, A23, I21, M41

Keywords: Accounting, Study duration, Education

1. Introduction

A lot of discussion and studies are realized in order to reform education in international perspective (Amagi, 1988), (Berkner and Choy, 2008). Higher education is the most important level of education all around the world. The duration of studies at Greek universities is an important issue. There has been a long argument over the past few years about whether it should be unlimited or not. Recently, the Greek Government has established a rule of $2v+1$ (v :years of normal studies), for the upper limit of the duration of studies.

In this work, we analyze all Accountancy Department's students and we emphasize on the data that deals with the duration of studies. For the purpose of our study we selected data from the secretariat office on February 2009

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for all the students who have registered at the department from 1991 to 2008. For each student we recorded sex, origin, year of registration, admission way, semester of registration (at Technical Institutes students can register either at the winter or the summer semester). Also, we recorded whether a student is active, on respite, has graduated or has been deleted (stop the study without bachelor) from the department. For those who have graduated, we recorded the year of graduation, the duration of studies and the degree of bachelor.

Our goal is to extract important information about how many of students graduate, in how many years and how many of them had study's duration greater than the upper limit of years that the Government has established recently. Also, we detect correlations among the factors that affect the duration of studies and Bachelor's degree. We want to detect similarities and differences among the students, in order to compare and group them in relation with the variables of our analysis. We use Ascendant Hierarchical Classification and chic software (Markos et al., 2008) to separate the total of the students in homogeneous groups of data, without any a priori assumption, but based only at the characteristics of the data.

The structure of our paper is the following. First, we present the characteristics of Accountancy department's students. Secondly, we analyze the factors that affect the duration of studies and the degree class of Bachelor applying the Ascendant Hierarchical Classification. Finally, we indicate the conclusions of our research.

2. Characteristics of students

Table 1 presents the frequency and the percentage of Accountancy department's students who registered from 1991 to 2008. The biggest percentage (45%) of students has been deleted for various of reasons. 26% of the registered students have graduated. A significant percentage 5,3% of students has put their studies on respite, while 2,3% are stagnate.

Generally, considering sex, almost 60% are female and 40% are male. (Table 2). The majority of the active students registered the last few years; 530 are male and 714 are female. An important variation results for the graduated students, which are 70% female. On the contrary, most of the respite students are male (57,3%). It seems that female students are more diligent than the male students. (Table 2).

Regarding the origin of the registered student (table 3), almost half of them comes from Macedonia and Thrace (North and East Greece, where Kavala is located), 18,4% from Attica (the county of Athens) and the rest from other

Table 1: Students

Registered students	Active	Graduated	Deleted	Ready to Graduate	Respite	Stagnate	Total
Total	1244	1908	3283	342	389	171	7337
Percentage	17,0%	26,0%	44,7%	4,7%	5,3%	2,3%	100%

Table 2: Student sex

	Sex		Total	% registered
	Male	Female		
Active	530 (42,6%)	714 (57,4%)	1244	17%
Graduated	581 (30,5%)	1327 (69,5%)	1908	26%
Deleted	1390 (42,3%)	1893 (57,7%)	3283	44,7%
Ready to Graduate	152 (44,4%)	190 (55,6%)	342	4,7%
Respite	188 (48,3%)	201 (51,7%)	389	5,3%
Stagnate	98 (57,3%)	73 (42,7%)	171	2,3%
Total	2939 (40,1%)	4398 (59,9%)	7337	100%

regions of Greece (Table 3). 8,9% of registered students comes from Kavala's region. 11,3% of the active students and only 3,7% of the deleted students come from Kavala. The highest presentence of the deleted students (25%) comes from Attica and probably the reason for that is the long distance (the distance from Kavala to Athens is approximately 750km) or inner transfers to another Institute of another city.

Regarding the admission way (Table 4), most of the students pass the general exams of Senior High School ($61+17,2=78.2\%$). Almost 10% of the students registered from Technical Schools based on their graduation degree. Also, other admission ways are through rating exams and from inner transfers from other departments of Greek universities.

Table 3: Origin of students

Origin of students	Registered	%	Active	%	Deleted	%
Kavala	655	8,9	140	11,3	122	3,7
East Macedonia and Trace	1159	15,8	244	19,6	297	9,0
West Macedonia	2040	27,8	310	24,9	898	27,4
Attica	1348	18,4	188	15,1	800	24,4
Other Greek regions	1638	22,3	224	18	1029	31,3
Abroad	440	6	118	9,5	111	3,4
Not recorded	57	0,8	20	1,6	26	0,8
Total	7337	100,0	1244	100,0	3283	100,0

Table 4: Ways of admission

Admission way	Frequency	Percentage
General Exams	4466	60,9%
General Exams (old system)	1261	17,2%
Technical Schools	728	9,9%
Degree of Evening Senior High School	118	1,6%
Degree of Evening Technical School	286	3,9%
Special Category (athletes, etc)	131	1,8%
Rating Exams	109	1,5%
Inner Transfer	238	3,2%
Total	7337	100,0%

Regarding the year of registration in relation with the amount of the registered students (see figure 1), an important increase took place during 1998-2002 and 2007. Most of the students who registered those years passed through the general Senior High School exams. After 2008, when the Government established a minimum level of limit pass for the exams (10 out of 20), there is a significant decrease of the registered students.

Figure 1: Registration year in relation with the amount of the registered students



Figure 2: Registration year in relation with the amount of the registered students

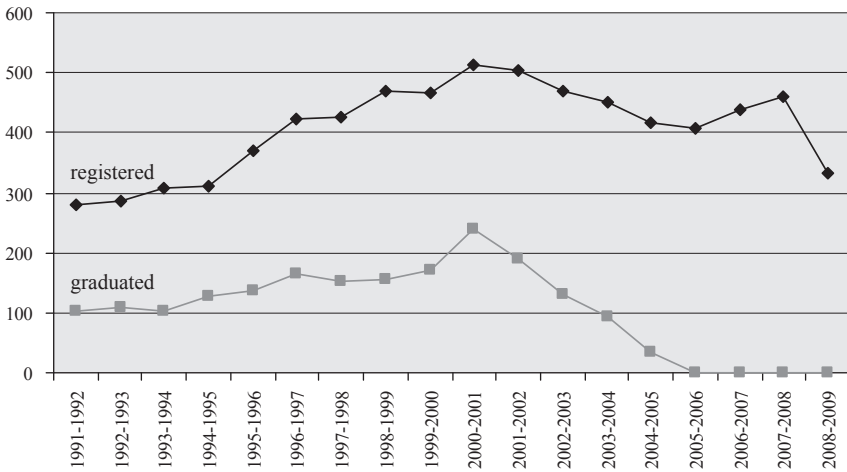
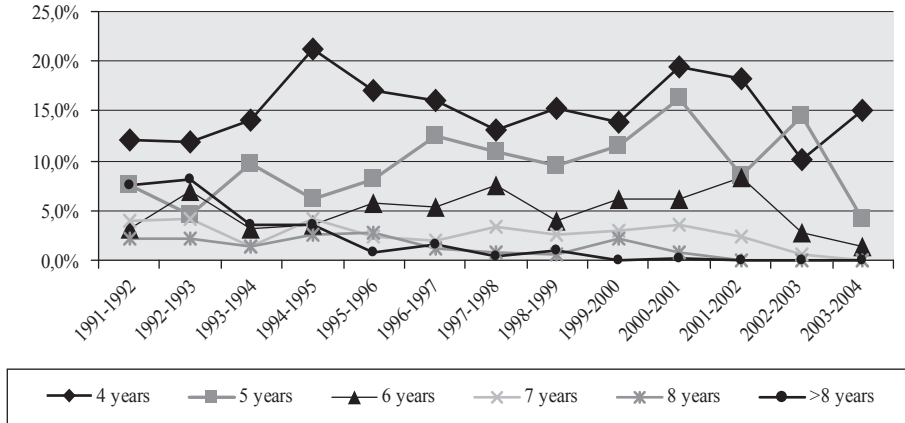


Figure 3: Registration year in relation with the duration of studies

The percentage of the graduated students, who were registered until 1999 was around 37% per year and of those who were registered after 2000 is more than 46,5% per year. While the percentage of the graduated students, who were registered at 2002 or 2003 was only 28% per year. This is, because, a very small number of students graduate on the 4th year of their studies.

Figure 3 correlates the registration year and the duration of studies. After 4 years of studies only 12-18% of students have graduated. We must mention, that the rule of $2v+1$ seems to stand, because after 1995 only 0,5-1% of the students graduate after 8 years of studies.

Regarding the duration of studies (Table 5), the active students graduate after 4,5 years and the students who are ready to graduate, that is, they have completed 3,5 years of studies, graduated after 6,5 years from their registration. Most of the students who are stagnate or on respite graduate after 8 years. Finally, all of the deleted students are deleted in first three years after their registration. (Table 5).

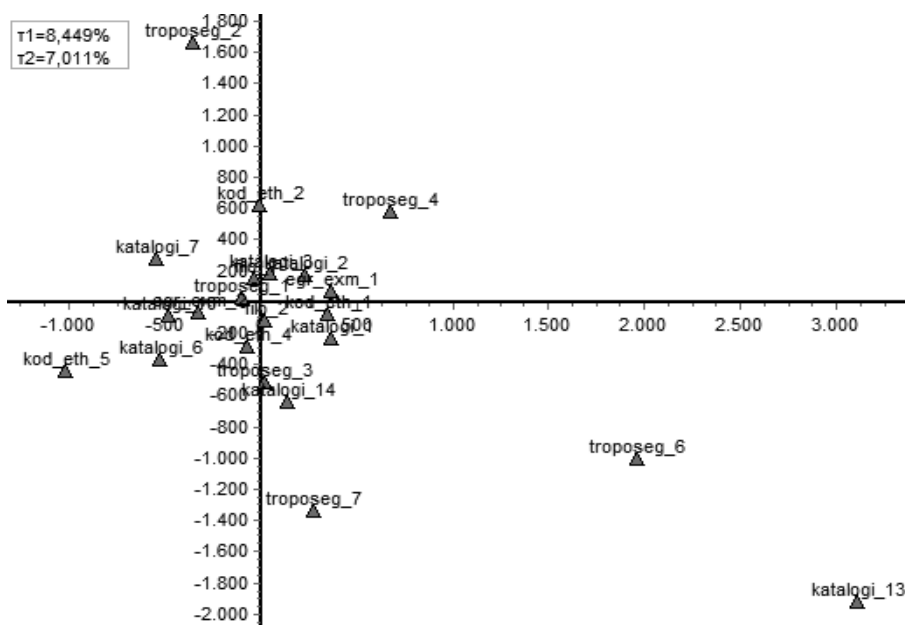
3. Grouping active students

In this paragraph we study only the active students and we apply the Factor Analysis of Correspondences (Papadimitriou 2007). The data of our research are both qualitative and quantitative variables. We categorized the quantitative variables (degree and duration), in order to convert them to qualitative. Figure

Table 5: Duration of Studies

	Duration of studies						Total
	0–3,5	3,5–4,5	4,5–6,5	6,5–8,5	8,5–12	12–18	
Active	1128 (90,7%)	116 (9,3%)	0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)	1244
Graduated	90 (4,7%)	519 (27,2%)	1010 (53,0%)	219 (11,5%)	57 (2,9%)	13 (0,6%)	1908
Deleted	3191 (97,6%)	52 (1,6%)	20 (0,6%)	6 (0,1%)	7 (0,1%)	5 (0,1%)	3283
Ready to graduate	1 (0,3%)	114 (33,3%)	225 (65,8%)	2 (0,6%)	0 (0,0%)	0 (0,0%)	342
Respite	1 0,3%	0 0,0%	20 5,1%	80 20,6%	137 35,2%	151 38,8%	389
Stagnate	0 (0,0%)	0 (0,0%)	42 (24,6%)	79 (46,2%)	41 (24,0%)	9 (5,3%)	171
Total	4411 (60,3%)	801 (10,9%)	1317 (18,0%)	384 (5,2%)	242 (3,2%)	178 (2,4%)	7337

Figure 4: Factor Analysis of Correspondences (factor axes 1x2)



4, presents the results of that were realized with the chic software (Markos et al, 2008). The initial data matrix had a lot of rows (1244) and few columns. For that reason, we processed the coincidence matrix (Burt table).

The active students are separated in groups, mainly, because of the origin, the way of admission and the year of their studies variables. The sex variable does not seem to affect the grouping. At the bottom and to the right there is a small group of 5 students who come from Cyprus or have registered as a special category and they are mainly at their 1st year of studies. At the left we spot those who registered after passing the general exams, they are after the 4th year of their studies and they come from Attica. At the bottom, we spot those who come from abroad, mainly from Technical Schools or rating exams. Finally, at the top we spot 26 students who are at their 2nd year and we have not recorded the way of their admission.

4. Grouping the graduated students

In this paragraph, we study only the graduated students and we apply the Correspondences Factor Analysis (Papadimitriou, 2007). Figure 5, presents the results that were realized with the chic software (Markos et al, 2008). The initial data matrix had a lot of rows and few columns, so we processed the coincidence matrix (Burt table).

At the first factor level (figure 5), that processes almost 14% of the data variability we have 4 groups of graduated. At the right those who have registered at 1991-1993 and finished their studies in less than 4 years. At the left, we have those who were registered after passing at the general exams and finished their studies in 4,5-6,5 years. At the top, we have the group of those who have finished their studies in 6,5-8,5 years with low degree (5-5,5) and those we have registered in the summer semester (low exam score). At the bottom we have the students who finished their studies in 4 years, have registered at the winter semester (high exam score) and they have good degree (6-6,5).

We apply the Ascendant Hierarchical Classification to detect the characteristics of each group of the graduated students. As it can be seen in Figure 6, we spot 4 groups of graduated students. At first, we spot the group of the first graduated students who were registered at 1991-1993 and finished their studies after 4 years. Next, we spot the group of the graduated students who registered at the winter semester, finished their studies within 4 years with a degree of 6,5-7,5 and are mainly female origin from Kavala or East Macedonia and Thrace. Furthermore, we spot a group of male who registered after studying at a Technical School with a medium degree (5,5-6) and a duration of studies

Figure 5: First factor level for the graduated (factor axes 1x2)

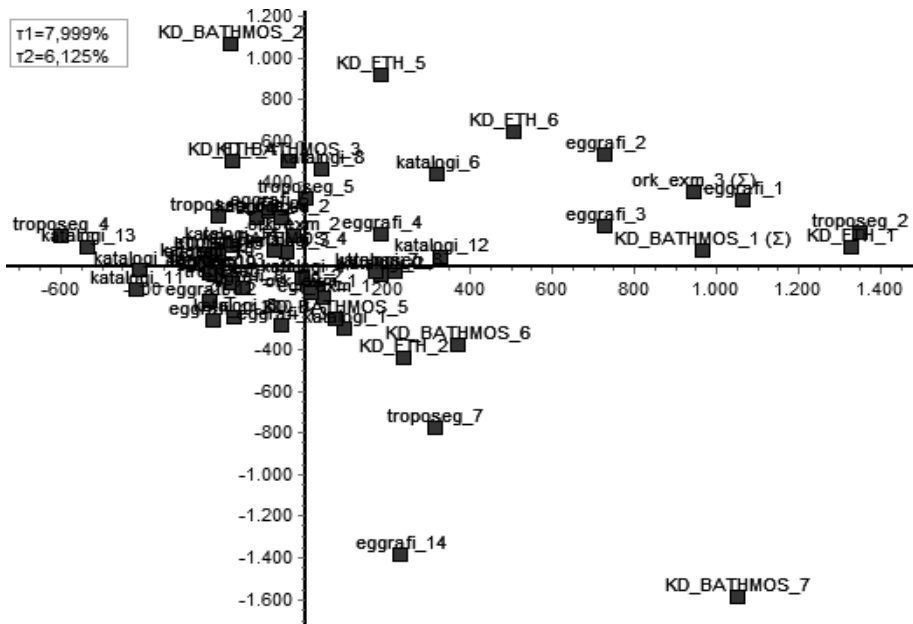
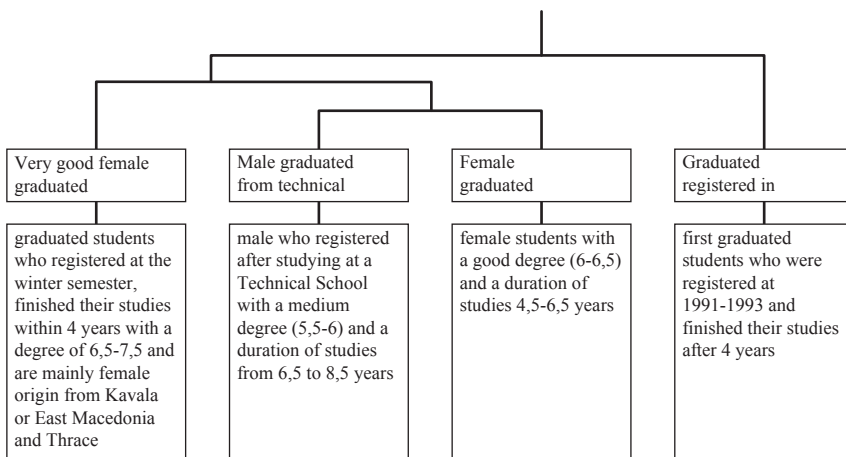


Figure 6: Tree (dendrogram) for the Ascendant Hierarchical Classification



from 6,5 to 8,5 years. The fourth group, includes female students with a good degree (6-6,5) and a duration of studies 4,5-6,5 years.

5. Conclusions

Students who have registered the first years that our department was founded (1991-1993) finished their studies fast with good degree. After, the increase of the number of the registered students, there was a decrease of the number of the graduated students with good degrees and a short duration of studies.

Female students are more attentive than male students, since they finish their studies faster and with better degrees.

One of the main problem of Accountancy Department is the 50% percentage of the deleted students, basically, because of their inner transfers to other cities. The abrogation of the transfers at the first year of the studies, improved the situation. However, a large amount of students give up their studies for various other reasons.

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THE MOTIVATIONAL EFFECTS OF EMPLOYEE PERCEIVED TRAINING EFFECTIVENESS

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Abstract

Organizations of the private as well as the public sectors, in the context of their efforts to become more effective, engage in a variety of human resource development activities, part of which are formal and informal training. In this article we examined the effects of the perceived training effectiveness by employees on their motivation and job satisfaction. The sample of the study consists of 506 employees and supervisors from five large companies. It was found that, in line with our hypotheses, a very strong positive relationship exists between perceived training effectiveness and job satisfaction and similarly, between training effectiveness and work motivation.

JEL classification: M53, M54

Keywords: Motivation, Job satisfaction, Employee training effectiveness.

1. Introduction

In an era of qualitative, disruptive change in the global marketplace, one of the salient characteristics of some of the best performing companies, is their attention to their employees needs and desires. Fortune magazine, in its annual edition of “the best places to work” list, consistently presents many of the human resource practices that these “Best” companies use in order to attract, keep and nurture their employees. A common theme among these practices appears to be the upward mobility of the employees and the growth and development opportunities they get by being members of these companies. Employers tend to invest in training their staff in order to maximize their potential and allow them to deploy their abilities and unfold their talent. Employees then, in

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turn, reciprocate by being more productive, motivated, committed and satisfied. (Halepota and Shah, 2011) All these appear to be highly correlated in a number of studies with corporate performance. (Guest 1997, Swart et al. 2005 Harrison, 2000, Bartel, 1994) In this study an attempt is being made to understand the intricacies of the relationship between motivation and employee perceived training effectiveness (PTE) and job satisfaction and employee PTE. An assumption is made that a motivated person, receiving effective training, will be more productive. Since we examine the perceived training effectiveness in this study, one must make allowances for perceptual errors on the part of the employees as they assess the training they receive. The purpose of this study is to improve our understanding of the relationships between the three variables i.e. work motivation, job satisfaction and PTE, in the context of the Greek work culture. We will then see how the findings of our study blend with the work of other researchers in the specific domain and draw our conclusions as to how the findings of this study can help practicing managers and future research in this field.

2. Literature Review

Job satisfaction (JS) is one of the most extensively studied subjects in the history of management, with the early studies dating back to the 60's and 70's, in the work of Herzberg and other scholars of that time. Since then, numerous studies have exhaustively examined the relationship between JS and other variables at the organizational and individual level, including overall satisfaction, motivation performance, personality etc. (Abdulla, Djebarni and Mellahi, 2011). Budria (2012), examined the relationship between JS and employer-provided training, presenting evidence of a positive causal link between the two. Other researchers propose that the role of JS is even more important, since it is linked to overall life satisfaction and to happiness (Kahneman and Krueger, 2006), while Fischer and Sousa-Poza (2009) found that employees with higher JS appear to be healthier.

Halepota & Shah (2011), in a study of public sector employees reported findings similar to those of Budria, depicting a strong significant correlation between job satisfaction and job training. A similar positive relationship between training and JS is also discussed by Rowold (2007). Job satisfaction is defined in this study as “pleasurable or positive emotional state resulting from an appraisal of one’s job or job experiences” (Locke, 1976). Training, or development interventions by the employer such as technical training, non-technical training or coaching (Rowald, 2007) can lead to greater JS due to a

number of reasons. First, the training requested or offered by the employer is targeted to the increase of the employee skills, so that the probability of the organizational goal attainment is maximized (Chiabaru and Tekleab, 2005). Also, Chen et al. (2004), propose that training can help reduce stress, brought on to the employee by work demands he or she is not familiar with. The training received, will tend to increase the self-efficacy of the employee handling demanding tasks that require new skills. Effective training then, as perceived by the employees, is expected to be associated with job satisfaction. Bundria's (2012) findings point to a job satisfaction – training link, through an average increase of 17.7% in employee earnings due to training. This confirms Choo and Bowley's (2007) proposal that the provision of effective training programs enhances employee J S. This leads us to our first hypothesis:

H1: There is a positive relationship between job satisfaction and employee training.

Although job satisfaction is clearly related to work motivation, as proposed in the extant literature, it remains unclear what the causality of the direction is. However intuitively compelling it may be, the link between work motivation and employee perceived training effectiveness is far from being established through empirical studies. Most of the research in the field focused on training motivation, i.e. motivation to learn (Aziz et al., 2011, Gegenfurtner, 2011).

In this study, we are attempting to address the issue of how employee PTE relates to the motivation level of employees. The work of Tannenbaum et al. (1991) examining training fulfillment effects on motivation, organizational commitment and self-efficiency, found a strong link between the training received and all three employee attitudes. Budria (2012), addressed this relationship, to a large extent, using Herzberg's approach, distinguishing between, satisfiers (motivators) and dissatisfiers, as they affect the perceived monetary value employees place on training. Considering that, individual growth and development needs (i.e. training needs) have been found to positively associate with work motivation in the majority of the studies of the need theories of motivation, we can then expect that:

H2: There is a positive relationship between employee PTE and work motivation.

3. Methodology

3.1. The Sample

The people comprising the sample of this study were 506 males and females (238 and 212 respectively). The survey participants derived from the following sources:

Sample Size (N)		506
From:	e-ballot box	179
	e-mails	112
	interviews through on the job training seminars	125
	interviews on an individual basis	90

The participants were employees and first-line supervisors, working for five large Greek organizations representing five sectors of the industry. The participants were asked to complete a three-part questionnaire, after the completion of training seminars they attended. The companies, that the sample was taken from, are the leaders of their respective industries. Although a convenience sample, it is large enough to allow for analyses that require an approximately normal distribution of the data used.

3.2. The Variables

Employee Perceived Training Effectiveness (PTE) was measured using a one-item scale [“how effective is the training you receive at your company?” On a scale from 1 (not effective) to 3 (effective)], the employees were asked to describe their feelings about the effectiveness of the training they receive from their employer. The use of one item scales is generally avoided in the literature, although in several cases it has been proven to be as effective as the multiple-item scales (Purcell *et al*, 2003; Wanous, J.P., Reichers, A.E, Hudy, M.J, 1997).

Employee Motivation was measured through a 12-item 3 point scale, based on Alderfer’s work (1972), with responses ranging from 1 (not important) to 3 (important) (see also Scneider & Alderfer, 1973). The reliability was calculated at: $\alpha = 0.89$.

Job Satisfaction has been measured in a variety of ways in the extant literature. Researchers have used single item measures as well as few –item or multiple- item ones, such as the Minnesota Satisfaction Questionnaire, or an 87 item instrument used by Tsai, Yen, Huang & Huang (2007), trying to capture various dimensions of job satisfaction. In this study the concept was measured through M. Rokeach’s instrument in his work on human values. A 20-item questionnaire was used based on the previous author’s work, assessing the attitudes of the participants on a scale from 1 (dissatisfied) to 3 (satisfied). Chronbach’s *alpha* was calculated at 0.86.

3.3. Statistical Analysis

For the purpose of the article the following statistical methodology is utilized in order to enhance the validity of our conclusions.

1. The measures of tendency (i.e. average, mean, mode) and measures of variation (i.e. mean-square deviation) are employed to describe the research quantitative profile

2. The absolute (N) and relative (%) distribution frequencies are used to pictured the qualitative variables.

3. The Chi-square test for variable independence (also called contingency table analysis) is used.

We apply the Chi-square test (χ^2) at the level of significance $\alpha = 5\%$ to test whether or not there is a relationship between the two variables.

More specifically, we use the χ^2 for the following hypotheses testing:

Hypothesis #1 :

Ho: there is no difference (relationship) in Perceived Training Effectiveness (PTE) and Job Satisfaction (JS)

H1: there is significance difference (relationship) in Perceived Training Effectiveness (PTE) and Job Satisfaction (JS)

Contingency Table 1: PTE & Job Satisfaction (JS)

Job Satisfaction (JS)	Perceived Training Effectiveness (PTE)		
	1 = Poor	2 = Average	3 = Very Good
1 = Below Average	22%	32%	13%
2 = Average	37%	42%	57%
3 = Above Average	54%	64%	99%

1. The χ^2 statistic is equal to 96 which exceeds the value of $\chi^2_{\alpha(3-1)(3-1)} = 9,488$ and the P-value $\sim 0,0000001$.

Therefore, we reject the null hypothesis. There is a dependence (relationship) between the Perceived Training Effectiveness (PTE) and Job Satisfaction (JS).

2. The contingency coefficient C which shows the strength of the relationship between PTE and JS, is $C = 40\%$ (max value of $C = 80\%$ for (3X3) dimensions table).

Hypothesis #2:

Ho: there is no relationship between Perceived Training Effectiveness and motivation.

H2: there is a relationship between Perceived Training Effectiveness and motivation.

Contingency Table 2: PTE & Mo variables

Employee Motivation	Perceived Training Effectiveness (PTE)		
	1 = Poor	2 = Average	3 = Very Good
1 = Below Average	16,8%	52,6%	42,6%
2 = Average	25,0%	78,5%	63,5%
3 = Above Average	18,2%	56,9%	45,9%

1. The χ^2 statistic is equal to 20,34 which exceeds the value of $\chi^2_{\alpha(3-1)(3-1)} = 9,488$ and the P-value $< 0,0001$.

Therefore we reject the null hypothesis. There is a dependence (relationship) between the Perceived Training Effectiveness and Employee Motivation.

2. The contingency coefficient C which shows the strength of the relationship between PTE and Motivation, is $C = 20\%$.

4. Results

The hypotheses proposed above were tested with the use of the Chi-square test (χ^2) at the level of significance $\alpha = 5\%$. The results are succinctly presented in Table 3.

Among the participants there is a great difference in terms of their motivation and the way they perceived the Training Effectiveness. The Chi-square test (χ^2) indicates that the higher the employee job satisfaction the higher the Perceived Training Effectiveness. Similarly, the Chi-square test (χ^2) shows that the higher the employee motivation the higher the Perceived Training Effectiveness.

The contingency coefficient C indicates that the strength of the relationship between Perceived Training Effectiveness (PTE) and Job Satisfaction (JS) is stronger than the relationship between PTE and Employee Motivation (Mo).

Table 3: Hypothesis Testing matrix (level of significance $\alpha= 0,05$)

Kod	Dependent Variable	Independent variable	χ^2 statistic	P-value	Results: Yes = significance No = insignificance
H1	PTE	JS	96,0	~ 0,0	Yes – very strong
H2	PTE	Mo	20,34	0,0001	Yes – strong

5. Discussion and Implications of the Study

The results of this study show a strong support for the hypotheses presented. The Employee Perceived Training Effectiveness is clearly linked to

work motivation and employee job satisfaction, in agreement with the findings of Tsai et al, (2007). High quality training according to Tai (2006) will lead to higher job satisfaction, which in turn will have a beneficial effect on organizational performance. Bartel (1994) and Harrison (2000), have also found that training directly or indirectly has a positive effect on productivity. Sirota et al (2005), propose that motivation relates directly to the need for achievement, which is fulfilled through career growth, resulting from training and learning. In a similar vein, Pool & Pool (2007), reported a significant correlation between motivation and job satisfaction with the learning oriented organization. Our findings are in the same direction as those of the above two studies. Several studies indicated that employee commitment, a variable highly correlated with satisfaction and motivation is also linked with training. Gaertner and Nollen (1989) found that training opportunities increased employee commitment in an industrial setting. Meyer and Smith (2000), also reported a positive relationship between HR practices (including training) and commitment.

5.1. Implications

An attempt was made in this study, to examine the relationship between Employee Perceived Training Effectiveness and work motivation as well as Job Satisfaction in the context of the Greek culture. The results provide a picture of a robust relationship between the variables examined in the study. One of the challenges lying ahead, for researchers, is to re-examine the above relationships with better-designed instruments that measure the concepts discussed in this study. The Employee Perceived Training Effectiveness for example, could be measured with more elaborate instruments, potentially capturing more dimensions that the one-item scale may not be able to detect.

An additional hurdle is the incorporation of the antecedents of employee perceptions and their personal characteristics. Those employees who are committed to undertake training, may feel differently, in comparison with those who are not interested in learning (Tsai et al, 2007). Training motivation may be the key to successful training as many researchers have shown. Therefore, if those selected to be trained, are already motivated, it is very likely that, once they are given the opportunity to receive training, will end up more satisfied with their job and more motivated at work.

6. Conclusion

This study addressed the issue of the relationship between Employee

Perceived Training Effectiveness with Work Motivation and with Job Satisfaction. The sample used was taken from five large companies and may be representative of organizations of that scale only. The hypotheses tested, demonstrated that as expected, there is a strong link between Employee PTE and JS, on the one hand, and Employee PTE and Motivation on the other. The findings can be of use to practicing managers who can use training and development as a motivator or satisfier, to achieve greater organizational performance. Additionally, researchers may use these findings to go further and construct better measurement instruments, or, may test similar ones in different organizational settings such as SME's.

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A NEW TAXONOMY OF KNOWLEDGE MANAGEMENT THEORY

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Abstract

The paper's main aim is to contribute towards the advancement of knowledge management (KM) theory, by suggesting a new approach to grouping the theoretical aspects of this constantly evolving field. The literature review revealed a plurality of definitions for KM and the closely related notion of intellectual capital (IC). Both notions are referred to in academic literature in a number of different ways. The various definitions of IC and KM are categorized into groups each representing a different school of thought. The groups are dependant upon the academic roots of the scholars involved. The view adopted in this paper is that KM facilitates the effective transformation of IC into unique capabilities, so there is a definite link between the two notions.

Keywords: Knowledge Management, Intellectual Capital, knowledge assets, taxonomy.

1. Introduction

The late 1990's marked the introduction of the Internet as a commercial tool (Roberts, 2003) and brought a revolution to the way business was conducted. The changing patterns of interpersonal activities have meant that now society operates as a network. Proven not just to be a fad, but a trend, what is at this stage important is the generation and sharing of new knowledge, rather than the identification, measurement and warehousing of knowledge already owned by the organization.

In 'Post Capitalist Society' (1993), Drucker develops the idea of the knowledge worker and the knowledge intensive firm. These notions lay the foundations of modern managerial theories. Company employees that drive organizational performance and success through the effective use of the knowledge they possess are defined as knowledge workers (McFarlane, 2008). Knowledge workers are key to a company's survival as they are expert users of technology and networks.

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The paper's main aim is to contribute towards the advancement of knowledge management (KM) theory, by suggesting a new approach to grouping the theoretical aspects of this constantly evolving field. The paper is divided in three parts. The first section discusses the literature concerning the definition of knowledge. The second part presents the main theories on KM. Finally, the third part outlines the suggested new taxonomy of KM theories.

2. Definitions of Knowledge

There is a lack of consensus on the views on knowledge. This is clearly demonstrated best in Nonaka's and Peltokorpi's (2006) review of the 20 top articles in KM. In fact there are two streams for the definition of knowledge. The first stream sees knowledge as an entity and was developed by economists. It focuses on the functional differences between information and knowledge. For instance, Nonaka (1994) a supporter of this stream, connects knowledge directly to company values and employees' commitment. Brooking (1999) also belongs to this stream. She purports that knowledge is information based upon which action is taken.

A clearer profile of knowledge is offered by Zeleny (2005) who sees KM's role as being the transformation of a description of a piece of information into managerial decision and then into action (=knowledge). Still within the first stream of definitions on knowledge, one of the first KM scholars, Polanyi (1967), made a seminal distinction of knowledge types. He divided knowledge into tacit and explicit knowledge. In 1994 Nonaka demonstrated the dependency of explicit and tacit knowledge and concluded that knowledge can be converted from one form to the other. Finally, it appears that this epistemological stream of knowledge examines knowledge in the light of the codification of employees' activities and the use of technology to generate company-specific rules and procedures.

In contrast to the first stream, the second stream of knowledge definitions identifies knowledge as an organizational asset. Knowledge is divided into personal and organizational knowledge. Tsoukas and Vladimirov (2001) define organizational knowledge as the knowledge that is organized in a company context. They emphasize the importance of heuristic organizational knowledge, which is the 'soft' knowledge generated while employees are performing their tasks. This cannot be codified and can only be captured while employees socialize. The social nature of knowledge has also been argued by other theorists such as Brown and Duguid (2001) and Nahapiet and Ghoshal (1998). According to this viewpoint, for a company to become more productive,

knowledge needs to be dealt with at a strategic level as it relates to culture. Overall, this second stream of knowledge scholars appears to uphold that knowledge's nature does not allow for strict taxonomies.

The two streams examined herein are reflected in Choi and Lee's (2003) division of knowledge definitions into systemic definitions, where knowledge is viewed as an entity and human-oriented approaches where knowledge is identified as an organizational asset. The position taken in this paper is closer to the second approach to knowledge and concurs with Sveiby's (2001) definition that 'Knowledge is the capacity to Act' and plays a strategic rather than a functional role within an organization.

3. Knowledge Management Theories

It is needless to say that the Knowledge Era has generated new terms that did not exist a few decades ago. The closely related concepts of KM and Intellectual Capital (IC) have great appeal not only amongst academic circles, but also amongst business and government environments. KM and IC evolved from a spectrum of disciplines ranging from philosophy to computer science, from economics to accounting. This may be the reason why there is so much controversy surrounding the definitions of KM and IC (Spender, 2006). It could be argued that the confusion surrounding KM and IC is in part to blame for the high failure rate of KM projects within companies. The chronological review that follows identifies the milestones in the development of IC and attempts to demonstrate the field's development from a wider perspective outside the usually adopted financial viewpoint. Back in the early 1980's, pioneering companies such as Dow Chemical and Microsoft understood the importance of IC in adding market value to a company's book value. These companies were heavily reliant on information intangibles, so they attempted to 'capture' and measure IC, mainly for reporting purposes. The beginning of the first stage in IC development and research was therefore led by practitioners.

The first stage is generally characterized by efforts to define and measure IC. The goal was to make IC visible and to convince senior managers, stockholders and academic researchers that it was worthy of attention. Nonetheless, during this first stage IC was often identified as equal to a company's goodwill. In 1992 Kaplan and Norton introduce the Balanced Scorecard, a method for measuring performance from different perspectives within the company other than just the strictly quantitative, financial perspective. They justify the need for new qualitative forms of performance evaluation by arguing that "If you can't measure it, you can't manage it".

The second stage of IC development is fronted by innovative company executives that work with researchers to further the field, like the Skandia Navigator (Edvinsson and Malone, 1997), or the Intangible Assets Monitor (Sveiby, 1997). In fact in the 1994 Annual Report of Skandia, one of Sweden's leading insurance companies, the measurement of the company's intellectual capital stock appears for the first time in managerial boardroom history (Edvinsson and Malone, 1997). This is not to say that during the second phase attempts to redefine and categorize IC subfields have ceased. The first phase runs into the second phase and is often seen to develop in parallel. Nonaka's and Takeuchi's (1995) influential book on 'The Knowledge Creating Company' is one such example as it presents a clear distinction between knowledge management and intellectual capital.

During this period, an increasing number of academic researchers became involved in the IC discourse, as a result of which many papers surrounding the subject were produced and presented in conferences (Serenko et al., 2004). A number of guidelines to measure IC were produced. The first of these was the result of a three year study (1998-2001), named the MERITUM Project (Measuring Intangibles to Understand and Improve Innovation Management) and was financed by the TSER Programme of the European Commission. Participants in the project were research teams from Spain, France, Finland, Sweden, Denmark and Norway. The final report was published in January 2002 and included the 'Guidelines for the Management and Diffusion of Information on Intangibles (Intellectual Capital Report)'.

In 2001 the Nordic Industrial Fund also produced a guideline used to guide on the management and reporting of IC specially applied in the Nordic countries (NORDIKA). Finally, a third guideline worth noting was produced in 2003 by the Danish Agency for Trade and Industry (DATI): 'Intellectual Capital Statements – The New Guideline'. This was the result of a conglomeration of experiences of research findings carried out by the Copenhagen and Aarhus Business Schools and empirical experiences of companies, consultancies and official organisms in Denmark.

According to Petty and Guthrie (2000) we are now entering the third phase which moves away from research being practitioner-led to a more academic and structured research setting. This phase is important because it will bring the IC field closer to being more widely accepted, as it will provide concrete research evidence of the best metrics to be used rather than piecemeal results of actions produced by a small sample of companies. In this sense, IC has a chance of gaining widespread acceptance at a market and regulatory level, with IC becoming a mandatory reporting requirement. To reinforce this, Burgman

and Roos (2007), argue that a legislative requirement for intellectual capital reporting is an absolutely necessary condition for moving the field forward. For Europe in particular they believe that ‘the OECD and European Commission need to take the lead in developing the overall architecture and legislative framework for intellectual capital reporting within the context of operational reporting on behalf of European companies. There have been initiatives in the past but these seem to have stalled’.

The arena of IC was expanded by the entry of Germany in 2009 when German researchers launched the first KM Study Tour. This was in co-operation with the Asian Productivity Organization (APO) and the project ‘Fit for the knowledge competition’ which was supported by the German Ministry for Economics and Technology (BMWi). Large companies such as Airbus, Burgel, R. Bosch and Reinisch participated, demonstrating new measurement systems of IC, such as the ‘Wissensbilanz - Made in Germany’ method which facilitates the production of an Intellectual Capital Report (ICR), (First KM Study Tour, 2009).

Concluding this part of the paper, the literature review revealed a plurality of definitions for KM and IC. Both notions are referred to in academic literature in a number of different ways. For instance, Marr, Schiuma and Neely (2004) refer to IC as organizational knowledge assets, whereas Roos et.al (2007), as weightless wealth.

4. A New Taxonomy for KM Theories

On the basis of the literature review performed for the purposes of this paper, the various definitions of IC and KM are categorized into four groups each representing a different school of thought. The taxonomy proposed herein represents a further development of Marr and Spender’s recent work (2004) on measurement approaches to knowledge. The four groups identified are: the positivistic group, the interpretive group with a resource based hue, the interpretive group with a knowledge based hue and the organic/ dynamic group. The four groups are dependant upon the academic roots of the scholars involved.

Therefore, the epistemological background of the positivistic group has its foundations in micro-economic theory, where knowledge is seen as an object and the focus is on the economic valuation of IC. The interpretivists examine knowledge under the viewpoint of meaning and to what extent and under what circumstances knowledge is shared within the company. Interpretivists tend to have roots in organizational theory and it is argued in this study that they can be further distinguished into resource and knowledge based theorists depending on the theory of the firm they support, as mentioned previously. The fourth

group is closer to the modern theory of the firm where views support that the dynamic interrelationship of capabilities form a company's competitive advantage. Knowledge assets are managed through paths, processes and positions (Teece, Pisano & Shuen, 1997 and Spender et al., 2005).

More specifically, in the first group, Hall (1992) is classified here as a positivist as he describes IC as a representation of a company's 'assets' or 'skills' and seeks to calculate their value. Horibe (1999) also has a similar static viewpoint of IC and defines it as the company's goodwill. Expanding on this notion, Olve, Roy and Wetter (1999) define IC as the expression of a company's market premium. Edvinsson and Sullivan (1996) as Ordonez de Pablos (2003) are on the border of the two positivistic and interpretive-resource-based groups, as they regard IC as an object, but go further than the aforementioned scholars by recognizing its contribution to long term competitive advantage as a valuable company resource.

The next group of scholars, the interpretive-resource-based group, has Brooking (1996) as a key representative with her renowned resource-based view of the firm. She regards IC as 'meaning' and seeks to investigate to what extent and under what circumstances the combined intangible assets of market, intellectual property, human-centered and infrastructure, enable a company to function. In the same group are Roos et al. (1997) and Edvinsson and Malone (1997) that view IC as the combination of human and structural capital. Lev (2001) and Stewart (1997) also supporters of the resource-based theory of the firm (Penrose, 1959), belong to the same interpretive group.

The third interpretive-knowledge-based group includes Bontis (1996, 1998) and Sveiby (1997) as they discuss IC within the context of the knowledge-based theory of the firm (Zack, 1999). The combination of internal and external structure and human competence form the intangible assets which when effectively used as knowledge represent the most important strategic resource of a company. Finally, Marr and Schiuma (2001) represent the fourth stream in IC academic literature (i.e. organic-dynamic stream), as they view IC as a knowledge-based asset whose source is a combination of organizational actors or infrastructure itself and that is produced through the dynamic interrelationship of a company's capabilities.

A review of the conceptual definitions of KM is presented next, grouped into the same four previously identified groups: the positivistic group, the interpretive group with a resource based hue, the interpretive group with a knowledge based hue and the organic/ dynamic group. In the positivistic group, knowledge features as an entity or an object, therefore the management of knowledge is heavily procedural and resembles the management of a

production line. De Jarnett (1996) identifies stages in KM. Knowledge creation is followed by knowledge interpretation, knowledge dissemination and use, and knowledge retention and refinement. Also seen as a process, from Blake's (1998) positivistic standpoint, KM has as a purpose to capture a company's collective expertise and to distribute it.

Darroch (2003) also belonging to the positivistic group, expands the KM process outside the organization whereby the knowledge exchange is both internal and external. Gurteen (1998) views KM as an emerging set of organizational design and operational principles, processes, organizational structures, applications and technologies that enable knowledge workers to produce business value. Finally, Hansen, Nohria and Tierney (1999), also positivists, identify two types of KM strategies: personalization and codification KM strategies.

Similarly to the taxonomy proposed for the definition of IC, Brooking (1997) appears to belong to the interpretive-resource-based group, as she defines KM as the activity which is concerned with strategy and tactics that manage human centered assets. Peters (1992) also steers away from KM being the management of an entity, as he argues that with KM the crux of the issue is not information or information technology but more about the psychology and marketing of knowledge within the company.

As a known supporter of the knowledge-based theory, Sveiby (2001) is placed within the interpretive-knowledge-based stream and views KM as 'the art of creating value from intangible assets'. Even though Buckman (1998) precedes Sveiby chronologically, he appears to be the forerunner of the organic-dynamic stream on the definitions of KM, arguing that KM embodies the use of knowledge in a way that the entire company works together to address given business challenges and seize covert opportunities. Belonging to the organic-dynamic group, Sveiby's (2005) argues that KM's purpose is linked to how the organization can best nurture, leverage and motivate people to improve and share their Capacity to Act. KM becomes a strategic issue for the whole organization.

Bringing this section to an end, though the term IC is often used interchangeably with the term KM, the first notion is static whereas the later is dynamic (Sveiby, 2001). Nevertheless, there is a definite link between the two notions. In agreement with Sveiby, this paper concurs that KM facilitates the effective transformation of IC into unique capabilities. The role of KM is to "nurture, leverage and motivate people to improve and share their Capacity to Act. KM becomes a strategic issue for the whole organization" (Sveiby, 2005).

5. Conclusion

This paper aims to provide a new taxonomy of KM theory, which is based on the academic roots of the scholars proposing the theories. Four categories appear to be dominant: the positivistic category, the interpretive category with a resource based hue, the interpretive category with a knowledge based hue and the organic/ dynamic category. The view adopted in this paper is that KM facilitates the effective transformation of IC into unique capabilities, so there is a definite link between the two notions. This explains why the definitions of KM and IC are often marked with controversy (Spender, 2006) as discussed earlier in this paper. It needs to be made clear therefore that IC represents a static concept whereas KM is dynamic (Sveiby, 2001).

Following the literary review of the more recent KM theories it has become apparent that in modern times, managers increasingly find it more effective to stimulate subordinates to voluntarily transfer their experiences and talent to the organization, rather than force or manipulate subordinates to pass on their tacit knowledge as was the case in the past. In other words, facilitating and mentoring leadership styles rather than power-based management and leadership styles, are proven to positively facilitate knowledge sharing and value creation (Roth, 2003; Yang, 2007). Aptly put by Sveiby (2005), the role of KM is to “nurture, leverage and motivate people to improve and share their Capacity to Act.”. Nonetheless as discussed in this paper, there is no common consensus on the direction of KM’s future development, mainly due to the lack of research background.

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SELECTION OF HEADMASTERS OF EDUCATIONAL UNITS IN THE PRIMARY AND SECONDARY EDUCATION ACCORDING TO THE PRESIDENTIAL DECREE 398/95 AND 25/02. A COMPARATIVE APPROACH

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Abstract

Taking into account the significance of the innovations and changes carried out in education (flexible zone, all-day schools, school activities schedules, school networks, exchange programs, etc.) as well as the need for constant development and improvement, the significance that the role of the Headmaster of the educational unit acquired, since he is the only one who can change or at least try to change the philosophy, the culture of the educational organization, to promote the school and make it effective, is in the offing.

The acknowledgement that an effective school must change management or at least change the style of its management fortifies the viewpoint that the headmasters of the educational units are one of the most important factors of effective schools.

JEL classification: M12, M54

Keywords: Headmaster, Primary & Secondary Education, Educational Organization, Management, Effective Schools

1. Introduction

In the level of the public Primary and Secondary Education, the role of the Headmaster is restricted (Ministerial Decision / Official Government Gazette 1340, issue B-16-10-02). The educational unit is in the base of the managerial pyramid. This means that school Headmasters have mainly executive powers and only a few managerial ones (Drucker, 1998). In such a concentrative system, a central service (Greek Ministry of National Education and Religious Affairs) decides for its function, and as a result the intermediate powers are

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merely executed, without any initiatives being taken. These managerial powers are localized in the level of the daily school function, in the functional (short-term) programming, in the effective organization of the school and staff, in the guidance and motivation of the staff and in the control of the school functions as well (Paisey A., 1997).

All the above mentioned advocate in favour of the significance that should be given to the selection of Headmasters of educational units.

2. Criteria for the selection of the headmaster of an educational unit

The Presidential Decree 398/1995 defines the duration of incumbency, the qualifications, the criteria as well as the procedure for the selection of all Officers of Education. Concerning the selection of the Headmaster of an Educational Unit in the Primary Education, according to the Presidential Decree 398/1995 (Chapter C, clause 11), the following are provided for:

Applicants for the positions of the Headmasters may be Educators with an A' degree. The criteria for the selection of the Headmasters of Educational Units are in a whole assessed in one hundred assessment credits, are distinguished into three categories and in each category there are included criteria that are credited and criteria that are co-estimated by the Selection Council. These three categories of criteria are: a) scientific and pedagogic training and composition, b) service training and teaching experience, and c) skills of exercise of managerial duties and guidance work – social activity. (In table 2 there are the qualifications for the headmasters according to the Presidential Decree 398/1995).

Based on all the above and according to the data of table 2, concerning the criteria for the selection of School Headmasters, it is established that, even though in the three categories the objective and measurable criteria clearly outnumber the co-estimated criteria ascertained during the interview procedure, the co-estimated criteria are particularly increased, especially in category C (Ability of exercise of managerial duties and guidance work – social activity). The co-estimated criteria possess a determinative role in the final result (Brinia V., 2008).

Therefore, one can support that in the specific selection of Headmasters of Educational Units the subjectivity of the members of the Selection Councils of the Regional Service Council of Primary (Secondary) Education regarding Primary Education and of the Regional Service Council of Secondary Education regarding Secondary Education have a significant role (Brinia V., 2008).

The Presidential Decree 25/2002 based on which the selection of the current Headmasters of Educational Units was performed re-defines the qualifications

as well as the criteria for the selection of the Officers of Education and amends the procedures for the selection of specific Officers of Education.

The criteria which are included in the Presidential Decree 25/2002 are divided into three categories, into the category of credited criteria, the category of criteria resulting from evaluation reports (the reports are drafted in a 50-degree scale) and of the criteria co-estimated by the respective Selection Council (In table 2 the qualifications of the headmasters according to the Presidential Decree 25/2002 are presented).

According to the data of table 2, the Presidential Decree 25/2002 has a difference, where apart from the eight-year educational service a five-year teaching service in schools is required. An interesting point observed concerning the right to apply is that the law 2043/92 provides for the educational service carried out in all three education degrees (provided they complete a twelve-year educational service in the primary or secondary education, public and private or in the tertiary education) in relation to the Presidential Decree 398/95 and Presidential Decree 25/02, which not only do they not grant the above mentioned right but they also place the exclusionary condition that they have been carried out in schools of the respective degree (see Presidential Decree 25/02 clause 17).

Based on all the above, concerning the criteria for the selection of School Headmasters according to the Presidential Decree 25/2002, it is established that in the particular Presidential Decree, although there are provisions for the objective credit allocation of many scientific, pedagogic and auctorial actions of the applicants, the interview (co-estimated criteria) of the applicant before the Selection Council still holds a determinative role in the procedures for the selection of the Headmaster, a fact which particularly contains the element of subjectivity in judgement.

This happens because in many cases applicants do not accumulate many of the above mentioned objective and measurable credited criteria. However, with this specific Presidential Decree, as we have already mentioned, the scientific qualifications of the applicants are sufficiently assessed in contrast to the managerial and service experience.

Table 1: Differences in the rights to apply for candidacy for the Selection of Headmasters of Educational Units from 1976 until 2002.

1	Law 309/ Official Govern- ment Gazette 100/ 30-5-1976 Clause 17	In eight-year and more Primary Schools, as well as in exemplary Boards of Directors, teachers holding the degree of a Headmaster A (Wage Scale 8) are placed as Headmasters
2	Clause 11 of Law 1566/1985	Educators of the branch of teachers with degree A are appointed as headmasters of three-teacher and more primary schools. Educators of the branches of the specialties 1 to 11, specialty 15 and specialty 16 with degree A are appointed as headmasters of junior high schools and general and classic senior high schools.
	Law 1824 Official Government Gazette 296/30-12-1988 E No.D/5716/ 15-4-1988 Official Government Gazette 217/B/ 21-4-1988	Educators who have the qualifications of the chapter A of the clause 1566/1985.
3	Law 2043 Official Government Gazette 79/19.5.1992	The right to submit an application for the occupancy of these positions is held by the tenured educators who satisfy the prerequisites A of the clause 11 of the law 1566/85 (with degree A) as well as the educators of the branches of University Education 13, 19 and 20, under the condition that they complete <i>a twelve-year educational service in the primary or secondary education, public and private or in tertiary education</i> . For the occupancy of the position of the headmaster in a Technical Vocational Secondary Schools, Technical Vocational Schools and Schools Vocational Buildings, instead of the above mentioned twelve-year educational service, a minimum of an eight-year educational service in school units of the public secondary technical-vocational education or of the tertiary education and a degree of tertiary education are required.
4	Presidential Decree 398/95	Educators with degree A
5	Presidential Decree 25 (Official Government Gazette 20 issue A/7-2-2002)	Those who have at least an eight-year educational service in the position of a tenured educator and have performed teaching duties in schools of the relevant degree for a minimum of five years.

Table 2: Comparative analysis of the Presidential Decrees 398/95 and 25/02 of Headmasters of Educational Units

Presidential Decree 398/95	Presidential Decree 25/02
Clause 6	Clause 13
<p>Qualifications:</p> <p>1. Educators who have a degree A</p>	<p>Qualifications:</p> <p>1. At least an eight-year educational service in the position of a tenured educator and they have performed teaching duties in schools of the relevant degree for a minimum of five years.</p>
Clause 7	Clause 10
<p>Credited criteria</p> <p>A. Scientific and Pedagogic Training</p> <p>1. Post graduate studies:</p> <p>a) PhD 8</p> <p>b) Post graduate diploma of specialty 4</p> <p>In case the applicant has a PhD and a post graduate degree in the same science only the PhD is credited</p> <p>2. Other studies:</p> <p>a) Second university degree in the sciences of education or relevant to his specialty</p> <p>1) Acquired based on the first one or other 2</p> <p>2) Acquired independently 2.50</p> <p>b) Other university degrees acquired independently 2</p> <p>c) Degree of Pedagogic Academy or of Kindergarten Teacher School which has not been used for appointment 1.50</p> <p>d) Two-year post graduate studies 2</p> <p>e) Training of one-year duration 1</p> <p>f) Training of six- or three-month duration 0.50</p>	<p>A. Credited criteria</p> <p>1. Scientific and Pedagogic Training</p> <p>a) PhD 8</p> <p>b) Post graduate title of studies or degree of Public Administration School 4</p> <p>PhD diploma and post graduate title of Studies in the same scientific field, only the PhD is credited.</p> <p>2. Other studies:</p> <p>c) Two-year Post graduate studies 4</p> <p>d) Training of one-year duration 1.50</p> <p>e) Six-month training 1</p> <p>f) Three-month training or Regional Educational Centre apart from the introductory one 0.50</p> <p>g) certified training in new technologies 1</p> <p>h) Second university degree 3</p> <p>i) Other degree of Technological Educational Institute for the selection of Headmasters and Senior Supervisors for the Secondary Education Offices 1.50</p> <p>j) Degree of Pedagogic Academy or of Kindergarten Teacher School which has not been used for appointment 1</p> <p>k) University degree which has been used for the acquisition of second degree 1</p>

<p>3. Foreign languages</p> <p>a) university degree 2</p> <p>b) Competency or proficiency or corresponding titles in other languages 1</p> <p>c) Lower or corresponding titles in other languages 0.50</p> <p>In case the applicant has all the above mentioned only the higher is credited.</p> <p>B. Service status and teaching experience</p> <p>1. Educational service beyond the required for the participation in the selection (0.50 for each year and up to 9)</p> <p>2. Teaching work in Universities, Technological Educational Institutes (1 for each year and up to 3)</p> <p>3. Teaching work in post graduate studies for educators (0.50 for each year and up to 2)</p> <p>4. Teaching work in Schools of Training of Officers of the Secondary Education, Schools of Training of Officers of the Intermediate Education, Regional Educational Centres (0.5 for each year and up to 2)</p> <p>The assessment credits for teaching work are not accumulated when they coincide chronologically.</p> <p>C. Ability of exercise of managerial duties and guidance work – social activity.</p> <p>1. Experience from the exercise of managerial duties and guidance work</p> <p>a) Exercise of managerial work (1 for each year and up to 3)</p> <p>b) Exercise of duties of the Senior Supervisor of Management or Office (1 for each year and up to 4)</p> <p>c) Exercise of duties of the Headmaster of a School Unit or School Vocational Buildings (1 for each year and up to 3)</p>	<p>3. Foreign languages</p> <p>l) University degree or post graduate studies title acquired abroad, competency or proficiency or corresponding titles in other languages 1.50</p> <p>m) Lower or corresponding titles in other languages 0.50</p> <p>In case the applicant has all the above mentioned only the higher is credited.</p> <p>2. Service status and teaching experience</p> <p>a) Educational service beyond the required for the participation in the selection (0.50 for each year and up to 8)</p> <p>b) Teaching work in post graduate studies schools, Schools of Training of Officers of the Secondary Education, Schools of Training of Officers of the Intermediate Education, Regional Educational Centres (0.30 for each year and up to 1.50)</p> <p>Teaching work of duration shorter than a year is credited per trimester by 0.10 of the credit.</p> <p>c) Autonomous teaching in Universities and Technological Educational Institutes (0.50 for each academic year and up to 2)</p> <p>The assessment credits for teaching work are not accumulated when they coincide.</p> <p>3. Exercise of guidance work and managerial duties</p> <p>a) Exercise of duties of the Headmaster of a School Unit or School Vocational Buildings (1 for each year and up to 4)</p> <p>b) Exercise of duties of the Headmaster of Education or Senior Supervisor of an Education Office or the Senior Supervisor of Management of the Greek Ministry of National Education and Religious Affairs or the President or the Managing Director or the Director of an Organization supervised by the Greek Ministry of National Education and Religious Affairs (1 for each year and up to 4)</p>
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<p>d) Exercise of duties of the Headmaster of the Management or Department of the Greek Ministry of National Education and Religious Affairs or the Senior Supervisor of a service of an organization supervised by the Greek Ministry of National Education and Religious Affairs (0.5 for each year and up to 3)</p> <p>e) Exercise of duties of the Headmaster or the Sub principal of Training Schools (0.5 for each year and up to 2)</p> <p>f) Exercise of duties of the Sub principal of a School Unit or Manager of the field of School Vocational Buildings or the senior supervisor of a department of Educational issues (0.5 for each year and up to 2)</p> <p>2. Experience from the participation in councils</p> <p>a) Participation in Central Service Councils (0.5 for each year and up to 3)</p> <p>b) Participation in Regional Service Councils (0.5 for each year and up to 2)</p> <p>In case this participation coincides chronologically it is calculated once.</p>	<p>c) Exercise of duties of the School Councillor (1 for each year and up to 3)</p> <p>d) Exercise of duties of the Headmaster or the Sub principal of Training Schools (0,5 for each year and up to 1)</p> <p>e) Exercise of duties of the Sub principal of a School Unit or the Manager of School Vocational Buildings or the senior supervisor of the Department of Educational issues of the Managements of Education or of a Department of Managements of Education or of a Department of the Greek Ministry of National Education and Religious Affairs or the Manager of the Central Environmental Education or Consultative and Orientation Centre or Offices of School Vocational Orientation or Examination Centres of the Secondary Education or Informatics Networks or Youth Consultative Stations or Health Education or the Senior Supervisor of up to three-teacher Boards of Directors or kindergartens (0.5 for each year and up to 1)</p> <p>f) Participation in Central Service Councils (0,5 for each year and up to 1)</p> <p>g) Participation in Regional Service Councils (0.5 for each year and up to 1)</p> <p>h) Participation in the Council for the selection of School Councillors (0,5 for each year and up to 1)</p> <p>i) Participation in the Councils for the selection of Headmasters of Education or Managers of Offices of Education (0,5 for each year and up to 1)</p> <p>In case of a simultaneous participation in the Councils of the cases f, g, h and i, the credits are not accumulated.</p> <p>The total sum of the credits from the credit allocation of the criteria of the exercise of guidance work and managerial duties does not exceed 5.</p>
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B. Criteria that are connoted by the evaluation reports of the candidates	
<p>Co-estimated:</p> <ol style="list-style-type: none"> 1. The auctorial and research work 2.50 2. Other elements: <ol style="list-style-type: none"> a) Post graduate studies that haven't led to the acquisition of a post graduate degree yet 1.50 b) Participation in conventions 1 c) Organization and participation in scientific and educational seminars and events 1 d) Participation in the writing of teaching books up to 1 e) Ability of application of programs and novelties up to 1 <p>The general total sum of the assessment credits of the credited and co-estimated criteria of category A are up to 35.</p> <ol style="list-style-type: none"> 1. Knowledge of educational problems Credits up to 3 2. Ability of usage of knowledge (scientific and pedagogic up to 2) 3. Educational work – initiatives related to this Credits up to 2 4. Ability to confront educational issues according to the principles of pedagogy up to 2 <p>The general total sum of the assessment credits of the credited and co-estimated criteria of category A are up to 25.</p> <ol style="list-style-type: none"> 1. Ability of co-operation with the association of teachers, students and association of parents up to 4 2. Efficiency in educational and managerial work, in undertaking of initiatives and in decision making up to 4 3. Ability of organization of the school premises... up to 4 4. Organization of social and cultural events... so that the school is turned into an intellectual and cultural centre of its area up to 4 <p>Election in the Board of Directors of Scientific Societies up to 2</p> <p><i>The general total sum of the assessment credits of the credited and co-estimated criteria of category C are up to 40.</i></p>	<p>II. Criteria that are co-estimated</p> <p>The autonomous auctorial and research work. The following are perceived as auctorial and research work:</p> <ol style="list-style-type: none"> a) The publication and circulation of books that are related to education, assessment, training and to the subject of the assigned exercise of duties. They have documentation and use the relevant Greek and international bibliography. There is reference to the bibliography of other writings. There are positive reviews or awards. The number of publication is mentioned. It is proven, in case of group writing, the percentage of participation of the candidate in the writing. Credits up to 3. b) The publication of articles, which satisfy the prerequisites and furthermore have been published in credible scientific magazines. Credits up to 2. c) The announcements and introductions in conventions, meetings, conferences and teleconferences which satisfy the prerequisites of case (a) and furthermore have been put down to the relevant minutes. Credits up to 2 d) Participation in groups for the writing of educational books. Credits up to 1 <p>The assessment credits from the auctorial and research work do not exceed 4 in total.</p>

The assessment credits from the auctorial and research work are no more than four in total and have the same credit allocation for officers; however they are increased by two credits for the School Councillors, thus reaching six.

Table 3: Aggregated table of credit allocation for the Selection for the Headmasters of Educational Units

	Scientific Pedagogic condition	Other studies	Foreign Language	Service status	Managerial work	Auctorial work	Total	Co-estimated
Presidential Decree 398/95	12	11,50	3,50	16	22	-	65	-
Presidential Decree 25/02	12	14	2	11,50	17	-	56,5	-

The difference appearing in the total number of the credited qualifications between the two Presidential Decree lies in the impoverishment of the service status and especially of the teaching experience which is decreased drastically in Presidential Decree 25/02, since teaching experience acquired outside the two degrees of education is not reckoned necessary and is not considered significant. There is also an evident difference in the managerial work where there is an explicit decrease in Presidential Decree 25/02 in the exercise of guidance work and managerial duties.

An important element appearing in all three total sums of the executive staff of education in both Presidential Decrees is the skilful promotion with credits of the persons already serving (Everard K. B. and Morris G., 1999). In the exercise of guidance work everything is included. What is the purpose of credit allocation of the participation in Service Councils (of all types), which is self-explanatory and especially for the Headmasters of Education and the Senior Supervisors of Offices, when it falls into their managerial duties and constitutes their part. Such kind of credit allocation promotes only the holders, as well as the two elective ones of this branch, respectively in the Central Service Council of Primary Education and the Regional Service Council of Primary (Secondary) Education selected and for such type of work as well

(Koontz H. and O'Donnell, 1984). The use of the words “exercise of duties” automatically rejects the credit allocation of all the above mentioned.

Table 4: Aggregated table of credit allocation for the Selection for the Headmasters of Educational Units

	Scientific Pedagogic condition	Other studies	Foreign Language	Service status	Managerial work	Auctorial work	Total	Co-estimated
Presidential Decree 398/95								
School Councillors	12	11.50	3.50	17	22	-	66	-
Senior Supervisors	12	11.50	3.50	16	22	-	65	-
Headmasters of a School Unit	12	11.50	3.50	16	22	-	65	-
Presidential Decree 25/02								
School Councillors	12	16	2	13.50*	17	-	62.5*	-
Senior Supervisors	12	14.50	2	11.50	17	-	57	-
Headmasters of a School Unit	12	14	2	11.50	17	-	56.5	-

* The difference of the two credits arising is due to the credit allocation of the School Councillors of special education.

As shown in the above aggregated table there is almost no difference in the numeral assessment of the credited qualifications in the Presidential Decree 398/95 and the three total sums of the officers. The Presidential Decree seems to have retained the same structure and content for all officers of education despite the difference in their institutional role (Dubrin A. J., 1998).

The Presidential Decree 25/02 is of interest, since it has the same numeral assessment in the total sum of the credited qualifications, in the categories (Senior Supervisors, Headmasters of a School Unit) with mainly managerial powers. A closer look to the tables above in the category of exercise of

managerial work and managerial duties reveals that the redistribution of the credits in the first three paragraphs justifies this coincidence.

3. Conclusions

a) Throughout this period and especially until 1985, we have an educational system of a particularly concentrative type in Greece where the state always aspired of being the one deciding in the Organization and Management of the Educational Unit as well as in the procedures for the selection of Headmasters of Educational Units who were and still are the backbone of the Management of the Greek Educational system. Since 1985 the state has been trying to introduce and involve in the educational procedure more notables and institutions such as Associations of Teachers, the Local Self Government etc. which form a new scenery in Education which will have the characteristics of more participative procedures.

However, up to today the attempt still continues, on part of the state, to control especially the Regional Service Councils of Primary Education, which the state staffs mainly with the Educational Officers of its choice, and through this control (of the members of the Service Councils) it still has, in our opinion, the role of the notable that has the final call during the procedures for the assessment and selection of the Headmasters of Educational Units, too (Hoy W. and Miskel C., 1996).

b) As far as the criteria which determined all this period the procedures for the selection of School Headmasters are concerned, we could mention that until the mid 80s the criterion of seniority had a determinative contribution to the above mentioned procedures, given that the headmasters were not selected by Service Councils, but they were promoted and appointed either by means of reports of their service abilities (by selection) or by means of both reports of their service abilities and of seniority, or merely by the criterion of seniority (Μπουραντάς Δ., 2001).

Since 1981 and thereafter, but mainly since 1985 and after the passing of the Law 1566/1985, as well as the presidential decrees which followed (Presidential Decree 398/95 and Presidential Decree 25/02), there is a shift towards more objective selection procedures through the Service Councils with a clear reduction of the criterion of seniority.

Nonetheless, problems continue to exist, most of which refer to the selection criteria which are instituted by the state and are valid during the procedures for the selection of Headmasters, as well as of the Officers of Education that participate and constitute the local Service Councils, whose Officers are selected mainly based on partisan criteria (Law 2043/1992, Law 3260/2004).

It is however considered positive the fact that today with the last Presidential Decree 25/2002, despite the objections which are expressed from time to time and refer mainly to the composition of the Service Councils of Selection, as well as the weighty importance of the criteria co-estimated by the above mentioned Councils, the university degrees, the post graduate degrees, the training and the auctorial work are particularly taken into consideration, whereas seniority is secondary. More specifically, with the above mentioned Presidential Decree, only an eight-year educational service is required in order for an educator to apply for assessment as a candidate for the position of the Headmaster of an Educational Unit (Brinia V., 2008).

c) Another fact which, in our opinion, is worth commenting on also is the fact of the abolition, since 1985, of the tenure of educators in the position of the Headmaster of an Educational Unit as well as in the positions of the rest Officers of Education (Headmasters of Education - Senior Supervisors - Councillors). Since 1985 the service of four-year duration was legislated for all Officers of Education and despite the unsuccessful effort to reinstate the standard of seniority in 1992 by the political leadership at that time of the Ministry of Education, the standard of service prevailed as the more just and fair one and for this reason it is valid to this day.

In conclusion, we could mention that in the last thirty years there is, on part of the state, a gradual attempt to improve the role and to recognize the institution of the Headmaster of an Educational Unit, without however this taking place in determined steps and without this position to constitute a decision and a product of a unified and set political choice at least of the last years.

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- L. 1824/1988, 296^A/30.12.1998, «Setting educational issues and other provisions».
- L. 2043/1992, 79^A/19.5.1992, «Supervision and management of primary and secondary education and other provisions».
- P.D. 398/1995, 223^A/31.10.1995, «Definition of qualification, criterion and proceeding of election to executive of Primary and Secondary education».
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DEALING WITH RISK IN PLANNING AUDIT EVIDENCE: AN OVERVIEW OF THE AUDIT RISK MODEL

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Abstract

Statement of Auditing Standards (SAS) 300.1 defines that “the auditors should obtain an understanding of the accounting and internal control systems sufficient to plan the audit and develop an effective audit approach. The auditors should use professional judgement to assess audit risk and to design audit procedures to ensure it is reduced to an acceptably low level”. The primary way that auditors deal with risk in planning audit evidence is via the audit risk model. The purpose of this article is to provide an overview of this traditional audit tool. To this end, this paper has been divided into four main parts. First, some key definitions with respect to audit risk are set forth. The nature of the audit risk model is then explained and its limitations are subsequently identified. Finally, conclusions are drawn.

JEL Classification: H83, M42

Keywords: Audit Risk Assessment, Audit Risk Model, Inherent Risk, Control Risk, Detection Risk

1. Introduction

Risk is historically considered as a fundamental concept in the audit process. It is normally classified in two main types, namely the audit and the business risk (Messier, 1997). This paper pays attention to audit risk by providing an overview of its traditional assessment tool, the audit risk model. “Audit risk means the risk that the auditors give an inappropriate audit opinion when the financial statements are materially misstated” (HKICPA, 1997, par.3). Material misstatements may result from errors or irregularities or both (Konrath, 1996). An alternative definition of the audit risk has been formulated by Hayes et al. (2005). They describe audit risk as a measure of the reliability of the information used by the accounting system. “Accounting system means the series of tasks and records of an entity by which transactions are processed as a means of maintaining financial records. Such systems identify, assemble, analyse,

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calculate, classify, record, summarise and report transactions and other events” (HKICPA, 1997, par.7). The audit risk model provides auditors with a framework to assess risk when planning audit evidence. As Arens and Loebbecke (1999) note, it constitutes the primary way that auditors deal with risk in planning audit evidence. The audit risk model is presented and discussed below.

2. The Audit Risk Model

For years now, the audit risk model has been a very popular audit tool among the members of the auditing community. Peecher et al. (2007) state that the audit risk model “persists as a prominent aid for planning the audit and organising audit quality control efforts on individual engagements” (p.465). For example, it is used by the American Institute of Certified Public Accountants (AICPA) in terms of the traditional financial statement audit (Srivastava and Kogan, 2010). In consistence with the Generally Accepted Auditing Standards (GAAS), the audit risk (AR) is typically decomposed into three components, namely inherent risk (IR), control risk (CR) and detection risk (DR). These components are commonly related to audit risk in the following way:

$$AR = IR \times CR \times DR \quad (1)$$

As Boynton et al. (2001) describe, the auditors firstly determine the desired overall audit risk to be achieved and the intended levels of inherent and control risk. Subsequently, they solve detection risk as follows:

$$DR = AR / (IR \times CR) \quad (2)$$

A numerical example is now provided in order to explain how the audit risk model works. Assume that the auditor has determined the desired audit risk at 0.05. This is a significantly low level of audit risk which indicates that the auditor has reduced the potential that the account has been affected by a material misstatement. Suppose, furthermore, that the inherent and control risk assessments are 0.80 and 0.60, respectively. Substituting the values for AR, IR and CR into the above formulae, it arises that the auditor should set detection risk at approximately 0.10 [$DR = 0.05 / (0.80 \times 0.60)$] toward testing the accounts receivable balance. Therefore, the auditor has established that there is only a 10% chance for not detecting an existing material misstatement.

In the remaining of this section, the three components of audit risk –inherent, control and detection risk– are described in detail.

2.1 Inherent risk

Inherent risk is defined by HKICPA (1997) as “the susceptibility of an account balance or class of transactions to misstatement that could be material, individually or when aggregated with misstatements in other balances or classes, assuming that there were no related internal controls” (par.4). The assessment of inherent risk begins in the planning stage and is revised throughout the audit process (Arens and Loebbecke, 1999). In order to be as confident as possible toward the assessment of inherent risk, it is paramount for auditors to understand the entity’s environment, perform analytical procedures, study audit results of previous years, understand the transactions of the entity, their flow through the accounting system and the account balances they generate (O’Reilly et al., 1999). Manson (1997) suggests that when auditors assess inherent risk, they should consider a number of factors which may influence the occurrence of errors or misstatements. O’Reilly et al. (1999) indicate that such factors may affect financial statements misstatements at the entity level or at the account balance and class of transactions level. Accordingly, a two-level assessment is necessitated with regard to inherent risk. The two-level assessment considers the possibility that certain risks may have a pervasive effect throughout the accounts (Chidgey and Stone, 2001).

Chidgey and Stone (2001, p.265) identify a number of factors, which possibly influence inherent risk at the entity level, including:

- Integrity of management;
- Unusual pressures on management;
- Nature of the entity’s business; and
- Factors affecting the industry in which the entity operates.

Regarding the first factor, the auditors should assess to what extent they trust management. The consideration of this factor has been shown to be difficult. For this reason, auditors should use their past experience and knowledge of the related individuals before drawing their conclusions (Manson, 1997). Messier (1997) asserts that frequent personnel turnover in important management positions could be an indicator for auditors that the entity’s management lacks integrity. He recommends that in such a case the auditor should increase his or her assessment of the potential for material misstatement, because honest individuals are more likely to resign their management positions rather than perpetuate some type of fraud. The second of the aforementioned factors is related to the environment in which the firm operates and its characteristics which may motivate management to misstate the financial statements (Manson, 1997). In order to

consider this factor, the auditor should examine in depth any financial statements accounts or transactions that may involve estimates or subjective judgments by management (Messier, 1997). As regards the two last factors, both are associated with the entity and the environment in which the company is operating. At a general level, the assessment of all of the abovementioned factors helps auditors ascertain if the audit has low, medium or high inherent risk, and in the long run determine the amount of audit work that is required to be performed.

Chidgey and Stone (2001, p.265) also present a list of factors which possibly influence inherent risk at the account balance and class of transactions level, including:

- Adjustments in the previous period or a high degree of estimation in financial statements;
- Complexity of underlying transactions that may involve use of an expert;
- Degree of judgement involved in determining account balances;
- Susceptibility of assets to misappropriation or loss;
- Quality of the accounting systems;
- Completion of complex and unusual transactions, especially if close to period end; and
- Transactions not subjecting to ordinary processing.

The aforementioned factors enable auditors to concentrate on the account balances and transactions, and in essence assist them in establishing the nature and scope of their audit testing (Manson, 1997).

Very importantly, an effective consideration of the factors which may influence inherent risk either at the entity level or at the account balance and class of transactions level imposes that the auditor has significant experience and knowledge of the client. For this reason, it is highlighted by Messier (1997) that the assessment of inherent risk for new clients should be higher than this for continuous clients. Given that the consideration of the factors listed above has been observed to involve a high level of complexity, it is usually a senior member of the audit team (e.g. the audit manager) who undertakes to assess inherent risk (Manson, 1997).

2.2 Control risk

Having made some estimate of inherent risk, auditors should then estimate control risk. "Control risk is the risk that a misstatement that could occur in

an account balance or class of transactions and that could be material, individually or when aggregated with misstatements in other balances or classes, would not be prevented or detected and corrected on a timely basis by the accounting and internal control systems” (HKICPA, 1997, par.5). Control risk can never be eliminated. An explanation for this lies in the fact that the internal controls cannot ensure that all material misstatements will be prevented or detected (Boynton et al., 2001). However, control risk can be minimized if the internal controls have been systematically designed (Chidgey and Stone, 2001). Thereby, it is highly important for auditors to examine the internal controls in order to appraise their effectiveness. More specifically, Messier (1997) describes that the auditors should firstly identify specific internal controls which are associated with the prevention or detection of material misstatements and they should then evaluate these controls. During the assessment of internal controls, the auditors can employ documentation procedures such as narrative descriptions, checklists, questionnaires and flowcharts (Chidgey and Stone, 2001). The above can be used separately or in combination and are intended to help auditors judge the effectiveness of the internal controls. This judgement is known as initial or preliminary assessment of control risk.

Post the initial judgement, auditors have two different choices. If they estimate that control risk is at the maximum level, they perform directly substantive tests in an effort to obtain all the necessary evidence (O’Reilly et al., 1999). Conversely, if they estimate that the internal controls are effective, then the substantive procedures may not be able to provide the necessary evidence and an alternative audit on these controls should be performed (Cosserat, 2004). Finally, if the test results are as expected with regard to the number of detected errors, they would be considered as supporting evidence to the initial assessment of control risk. In a different case the control risk should probably be reassessed (Manson, 1997).

At this point, it is worth noting that, sometimes, there is an interrelation between inherent and control risk. How auditors should act in this particular case, it is described in section 3 in terms of the limitations of the audit risk model.

2.3 Detection risk

Post the inherent and control risk assessments, auditors should determine the level of detection risk that will reduce the audit risk to an acceptable level (Manson, 1997). Detection risk is defined as “the risk that auditors’ substantive procedures would not detect a misstatement that exists in an account balance or class of transactions that could be material, individually or when aggregated

with misstatements in other balances or classes” (HKICPA, 1997, par.6). In order to reduce the achieved detection risk, auditors can perform analytical procedures, substantive tests of transactions, and tests of details of balances (Arens and Loebbecke, 1997). A combination of analytical procedures and tests of details is believed to be more efficient in reducing the achieved detection risk (see, for example, O’Reilly et al., 1999), because these methods complement each other. Specifically, as Manson (1997) describes, detection risk can be subdivided into tests of analytical review risk (ARR) and detail risk (TD) in the way indicated below:

$$DR = ARR \times TD \quad (3)$$

Furthermore, the results of tests of control and substantive tests should also be considered together as the results of one type of test may influence the auditors’ conclusions on the other (Chidgey and Stone, 2001). The selection of an appropriate audit date and the use of larger sample sizes may further assist auditors in reducing the achieved detection risk. This is also supported by Boynton et al. (2001) who argue that a lower level of detection risk is more likely to be attained when performing the audit procedures close to balance sheet date and on larger samples.

As a general rule, the higher the assessment of inherent and control risk, the greater the audit evidence the auditor should gather via the performance of substantive procedures (Hayes et al, 2005). However, it is reasonably to assume that if these assessments are very high, then it may be impossible for auditors to obtain sufficient evidence in order to reduce detection risk, and, therefore, audit risk at the desired level. Chidgey and Stone (2001) argue that this problematic situation often results from ineffective accounting systems which tend to produce unreliable information. In such an instance, the auditors need to consider the implications for their report, and the guidance suggests they may consider withdrawing from the engagement.

3. Limitations of the Audit Risk Model

As already noted, the audit risk model has been very popular in recent years. However, the auditing literature suggests that the application of the audit risk model is subject to several limitations. In this section the main limitations are discussed.

3.1 Independence of components

Manson (1997) contends that a weak internal control system entails a higher control risk, and, possibly, a higher inherent risk, because it may allow employees either to commit fraud or to perform their tasks in an inappropriate manner. Thus, it seems that inherent and control risks are not independent of one another. This is corroborated by Haskins and Dirsmith (1995) who examined the potential interrelation among inherent risk, control risk and control environment components of the audit risk model. Carrying out an in-depth investigation, they revealed that there is a significant interdependence of the assessments of inherent and control risk in the control environment construct. In such a case, auditors should consider and assess inherent and control risk together (Manson, 1997). For example, this approach has been adopted by some public accounting firms (Messier, 1997). Moreover, Manson (1997) presents another possible interrelation among the components of the audit risk model, this between control and analytical review risk. As a possible solution, he proposes the consideration of the impact of the internal control system (therefore, control risk) on the effectiveness of the substantive procedures.

3.2 The measurement problem

Inherent and control risk assessments are likely to be different from the actual inherent and control risk, hence affecting the determination of the detection risk as well as the achieved audit risk (Messier, 1997). The difficulty that auditors often experience to measure precisely the components of the audit risk model is one of its most considerable limitations. The use of measurement terms such as “low”, “medium” and “high” is a solution that many auditors adopt in order to overtake this obstacle (Arens and Loebbecke, 1997).

3.3 The aggregation problem

Once the assessments of the audit risk model components have been completed, auditors should aggregate the audit risk for all the different audit assertions in order to estimate the overall audit risk. The audit risk model is limited by the fact that in the professional auditing literature, there is not established procedure of how this aggregation process should be performed (Fukukawa and Mock, 2010). As a result, this depends exclusively on the professional judgement of auditors (Manson, 1997), something that may involve bias. The adoption of the ‘AND’ logic is believed to be a solution to this problem (see,

for example, Srivastava and Shafer, 1992; Fukukawa and Mock, 2010; Gao and Srivastava, 2011). In brief, the 'AND' logic suggests that in order the overall assertion to be true, all of the three sub-assertions must be true (Fukukawa and Mock, 2010). Despite the fact that the application of the 'AND' logic is encouraged by auditing academics, the majority of professional auditors appears to overlook this approach (Fukukawa and Mock, 2010).

3.4 Non-sampling risk

Messier (1997) argues that the audit risk model does not consider the possibility of non-sampling risk. This drawback of the audit risk model has enhanced the use of alternative audit methodologies such as the so-called business risk auditing (see for example, Power, 2007). "Non-sampling risk is the risk that any factor other than the size of the sample selected will cause the auditor to draw an incorrect conclusion about an account balance or about the operating effectiveness of a control" (O'Reilly et al., 1999, p.141). This incorrect conclusion can result from a mistaken evaluation of the test results or from an inappropriate performance of the audit tests. In order to avoid such problems, auditors should adopt quality control procedures such as training and review procedures (Manson, 1997).

4. Concluding Remarks

Without doubt, the audit risk model constitutes a powerful audit tool that aids auditors to perform their tasks in a specified way which however may not always maintain audit quality. During the last two decades, the audit risk model has been subject to a number of criticisms, mainly of technical nature. In the 1990s, it has also been subject to criticisms of social nature (see, for example, Humphrey and Moizer, 1990; Power, 1995). Accounting and auditing academics have formulated various suggestions which aim to improve the audit risk model. For example, Chang et al. (2008) designed an audit detection risk assessment system in an endeavour to help detection risk assessment be more reliable in comparison with the traditional method. Interestingly, Srivastava et al. (2007) developed three different models towards improving the risk assessment process. More recently, Srivastava (2011) reinforced the audit risk model with the principles of the Dempster-Shafer theory of belief functions. The auditing literature seems therefore to comprise several updates on the audit risk model which should be carefully considered by professional auditors.

Furthermore, an issue which has been largely neglected in research to date

is the effectiveness of the audit risk model in relation to the technological infrastructure of the organisation being audited. Srivastava and Kogan (2010) question how the components of the audit risk model apply to the audit of an extensible business reporting language (XBRL) instance document? Developing this question, how the audit risk model changes in relation to its conventional structure, when it is applied in organisations which use integrated information systems such as enterprise resource planning (ERP) and business intelligence (BI) systems? How the audit risk model is adapted on organisations with different types of information systems? Can the audit risk model sufficiently enable auditors to deal with audit risks which lie in the use of modern information technologies, and, if so, how? Questions of this nature warrant considerable investigation.

Summing up, given the limitations of the audit risk model, further work should be devoted to identifying ways of improving this audit tool. Future work is also recommended to focus on the development of alternative audit tools. This is also supported by Peecher et al. (2007) who argue that a new model of audit risk is needed.

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