Rating, Audit and Accounting

FINAUDIT – INFORMATION-BASED SOLUTION FOR AUDITING FINANCIAL STATEMENTS OF VARIOUS BUSINESS ESTABLISHMENTS

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Abstract

Our paper is a synthesis of the practical achievements of a research programme financed by the Ministry of Education and Research of Romania, focused on auditing by information-based means the financial statements of different business establishments. It is well-known the fact that since the financial auditor is not an employee of the audited company the financial-accounting information is submitted on various media, which means it is highly unlikely that it could be incorporated in the auditing software. At this level of our research, we suggest a prototype of information-based product that would facilitate the work and exchange of financial-accounting information. In other words, our prototype is based on an on-line dialogue interface with the audited company, which will allow the auditor a quick development of the audit files (both the permanent and current ones) based on electronic evidence. At the same time, we shall make a presentation of certain financial-accounting restrictions considered when developing the marketable version of the information product called FINAUDIT.

Keywords: *FINAUDIT, financial statements, financial audit, prototype.*

1. Introduction

Accounting is, in fact, an information system that quantifies, processes and communicates financial information related to an identifiable economic entity. Each accounting information user needs information which reflects reality that is "real" information, although it refers to an "accounting truth" built by reference to a series of accounting conventions. In order for the user to trust this accounting information, there is needed the intervention of the accounting information quality controllers who thus provide a guarantee for the enforcement of and compliance with accounting principles [4].

2. Financial audit and the accountant profession

The checking and certification of the financial statements by authorized bodies before they are made public has become a must. Moreover, the Romanian accounting legislation, drawn up in accordance with the provisions of the 4th Guideline of the European Economic Community and with the International Accounting Standards, states that the publication of the annual financial statements should occur after their auditing by authorized bodies called financial auditors. In the countries having a tradition in the market economy, the checking of the financial statements of the economic entities is stipulated by the act of companies of each country, many of these laws dating back from the 1900s.

Etymologically speaking, the term *audit* comes from Latin and means listening or checking. Considering the statement according to which *finacial audit consists of an examination performed by a qualified and independent professional accountant, in order to be able to express a justified opinion on the drawing up and presentation of the financial statements in accordance with an identified accounting reference system,* the re-establishment of the trust between the accounting information emitting and the receiving parties is influenced, among other things, by the quality and efficiency of the audit. The independent opinion expressed by the auditor on the financial statements in question must defend all the users of accounting information alike [Berheci, M., 2004].

The reputation of the auditors as regards their skills and independence was highly appreciated throughout the time. Hence, banks, investors and creditors request the opinion of a financial auditor whenever they decide to invest in a company or to give a loan to a company that was audited.

The international standards regulating the audit profession originate from America, since the United States of America are one of the countries

that have had the longest experience in the financial audit field. At international level, IFAC has taken on the task of drawing up the financial audit standards aimed at supporting the development of the accountant profession. International audit standards are the reference grounds for the elaboration of national standards and are meant to improve the quality of the financial information on international markets. It highly unlikely that international audit standards apply to all the situations an auditor may encounter. Therefore, we may consider that these standards set out the *basic principles* that one must comply with, as procedures vary depending on the circumstances of each case and any professional accountant is free to decide upon.

3. Financial audit in information-based society

a. Definition of the information-based society

Generally speaking, we may say that the information society may be defined as an information-based society. In a modern meaning, we may speak of an information-based society since the use of computers in economy, after the building of the ENIAC in 1947, that is since the second half of the 50'.

b. Transition towards the globally information-based society

The following years will bring about essential changes in our every day life. Thus, the use of electronic computer will be extended to all activity fields, due to an increase by almost 100 thousand times of the current performance, until it reaches the performance of the human brain, together with a reduction of its sizes to the shape of a chip. The name of this computer will be system-on-a-chip, and its price will be so small that its package will be more expensive than the system itself. At the same time, the information and communication technologies, together with the discoveries of new materials, shall lead to the so-called Cyberspace, whose spine will be the INTERNET and the virtuality through digitization. Moreover, the federal government of the USA has recently launched a 5 year research program, financed with 400 million dollars for the future development of the INTERNET, that should be 100 faster than the current one and will be called NREN [7]. Finally, the Cyberspace will include the BODY AREA NETWORK (BAN) [3].

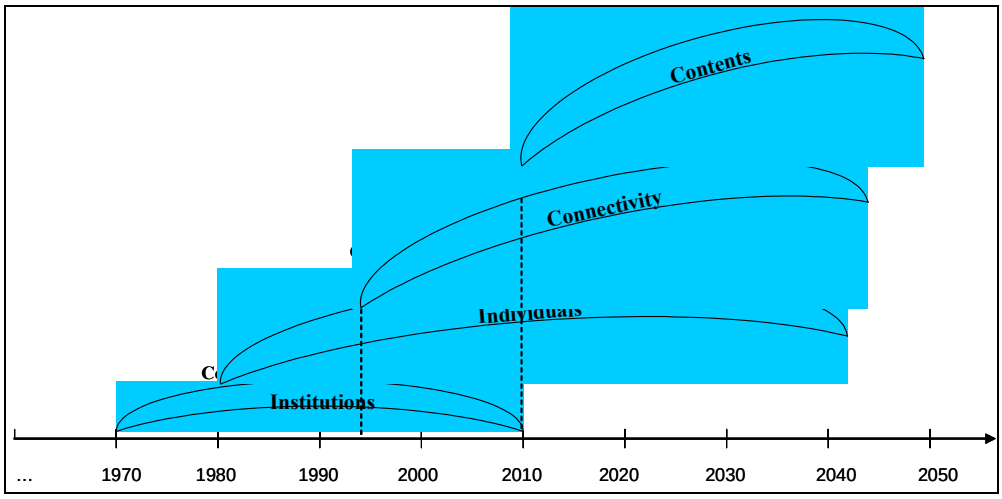
At network level, performance will be amazing. Thus, many types of networks are meant to fulfill people's dreams about a wholly or partially cyber-based world and about an information super-highway.

In other words, the grounds of tomorrow's society will be constituted by information and computer-mediated communications. J.A. O'Brien has

drawn up a globally information-based society transition chart and he reckons that humanity, in order to reach that point, must go through four waves, namely:

- Computerized Enterprises, corresponding to the period 1970-2010;
- Networked KnowledgeWorkers, which started in 1980;
- Global Internetworked Society, started around 1992-1993;
- Global Information Society, which will begin after 2010.

Figure 1. The four waves of information technology



As it is presented in figure 1, until 2010 we will be crossing a period of time when the first three waves superpose, what means we are in a transition period with its specific risks and advantages. Thus, as we can see, humanity has not even gone through the first stage, but two other have already been started and in 2010 the fourth will start as well. In other words, until 2010, the human society is crossing a continuous transition process towards this information world-wide covering. Therefore, the traces of modernity will become even more obvious as we approach 2010, when the first wave of the simple information technology is completed and the fourth wave is more and more present, namely the "*Globally information society*" wave.

c. Necessity of total informatization of the financial audit

Literature in the field of informational technologies shows us the fact that subjects like intelligent company, virtual companies, Internet extention, e-commerce, e-bank, e-* and the global informatization of the society are trends that mankind cannot avoid. Under these circumstances, companies, with or without their will, must get modernized. At the same time, the professional accountants should understand at least partially their field of competence from the perspective of this evolution, otherwise their opinions will be easily influenced and disregarded. Therefore, professional accountants cannot stay indifferent to these technological trends!

In other words, in the current society based on information, which is more and more based on knowledge, in which the achievements in the field of artificial intelligence are more and more promising, it becomes imperiously necessary that the professional of the financial audit field should be endowed with as many work tools as possible based on the newest information and communication technologies.

By the means of the International Audit Standard no. 400, titled Audit in an environment of computer systems, there are determined a few criteria for the evaluation of the risk in an audited entity that avails of a partial or integrated accounting information system. We consider that it is necessary to resume and materialize the issue of accounting and audit informatization in standards that should take into account the specific technological system of an information-based society.

Recently, INTOSAI[1] Standing Committee on IT Audit centralized in a published report the situation of the use of softwares in the field of financial audit and IT. In table 1 we present this situation (*http://www.intosaiitaudit.org/directory/topic/Audit1.html*).

[1] INTOSAI is the professional organization of supreme audit institutions (SAIs) in countries that belong to the United Nations or its specialist agencies.

Table 1. Software used in financial auditing on international level

Country	Down-loading	Data extraction & analysis	Sampling
Australia		IDEA, Excel NT	IDEA NT
Bahamas	IDEA Windows 98	IDEA Windows 98	IDEA Windows 98
Bahrain		IDEA Windows	IDEA Windows
Barbados		IDEA DOS	
Belgium	ACL Windows 95 / NT	ACL Windows 95 / NT	
Botswana	Connect OS Windows	IDEA Windows	
Brazil	Excel/Tempus Windows 95 / MVS	Access/Excel Windows 95	
Brunei		ACL Windows	ACL Windows
Canada	IDEA/CAATS Windows 95/DOS	IDEA Windows 95/DOS	IDEA Windows 95/DOS
China	Foxpro Windows 95	Excel Windows 95	
Colombia	IDEA, SQL Windows, Unix	Excel, IDEA Windows	
Costa Rica		ACL, Oracle Browser Windows	
Croatia		EKOFINA Win 3.1 Effect Dubrounix CBO	
Cyprus		IDEA DOS	IDEA DOS
Czech Republic		IDEA Windows	
Denmark	Access Windows NT/2000	Access Windows NT/2000	Access Windows NT/2000

Ecuador	IDEA / Excel Windows	IDEA / Excel Windows	
Ethiopia		IDEA Windows 98	
Fiji	ACL Windows	ACL Windows	ACL Windows
Finland		ACL Windows	ACL Windows
Germany		IDEA V1.2 Windows	IDEA V1.2 Windows
Greece			IDEA, EXCEL
Grenada			IDEA DOS
Hungary		IDEA, SAS Windows 98	IDEA, SAS Windows 98
Iceland	Entire Connection Software AG. Windows	ACL Windows	ACL Windows
India	IDEA Windows	IDEA, MS Access Windows	IDEA Windows
Indonesia	ACL Windows		ACL Windows
Iraq		FoxPro2 DOS	123 DOS
Ireland	Entire Connection Software AG Windows	ACL Windows	ACL Windows
Israel	The auditee downloads the data to PC and we transfer it to our equipment	Excel, Access, IDEA, SPSS, Wizrule Windows	SPSS, IDEA Windows
Japan		SQL, Oracle Unix	
Jordan		IDEA Windows	
Korea	Unix, Telnet, FTP Unix, Windows	Excel, IDEA DOS, Windows	IDEA Windows XP
Lesotho	Yes DOS, UNIX	Yes DOS	Yes DOS

Malaysia	ACL DOS/Windows	ACL DOS/Windows	ACL DOS/Windows
Malta		IDEA Windows	IDEA Windows
Mauritius		IDEA DOS	IDEA DOS
Mexico	1 Q SQL AIX	Excel, SQL, IDEA Windows, AIX 3 2.5	
Nepal		Excel, Access Windows 98	
Netherlands	Easytrieve DOS	IDEA Windows	IDEA Windows
Netherlands Antilles	IDEA	IDEA	IDEA
Norway		IDEA/SPSS Windows	IDEA
Oman	ACL ver. 5 Windows 95	ACL ver 5, MS Access 97 Windows 95	
Papua New Guinea	Laplink, ACL, Autoimport DOS, Windows 95	ACL Windows 95, DOS	
Philippines		IDEA, ACL, SQL DOS, Windows	ACL DOS
Poland	ACL Windows	ACL Windows	ACL Windows
Puerto Rico		IDEA Windows	IDEA Windows
Russia		Oracle Discoverer Application Software Win NT 4.0/Solaris	
Saint Lucia	PC Support Windows	IDEA Windows	IDEA Windows
Saudi Arabia		IDEA 3.03 Windows	IDEA, ACL Windows

Slovenia		IDEA Windows	
South Africa			ACC Windows
Spain	Excel Windows		
Sweden		IDEA	
Switzerland	Made by Client Windows 2000	ACL Windows 2000	ACL Windows 2000
Tanzania			
Thailand	ACL Windows	ACL Windows	ACL Windows
Trinidad & Tobago		IDEA Windows	IDEA, Excel, FoxPro Windows
Tunisia		Systems pertaining to the organization DOS	
U.K.	Various	IDEA Windows 2000	IDEA Windows 2000
Ukraine	SQL Win NT 4.0, 2000	SQL Win NT 4.0, 2000	SQL Win NT 4.0, 2000
Uruguay	ACL v. 6.5 Windows	ACL v. 6.5 Windows	ACL v. 6.5 Windows
Zimbabwe	IDEA Windows	IDEA Windows	IDEA Windows

The previous table shows that there are countries which do not have the practice of using such an information product in the financial audit field or countries which use it by means of applications developed within the organizations, which are, most of the times, unstandardized and hard to generalize.

4. Stage of financial audit computerization in Romania. A few accomplishments

Romania currently makes shy attempts at employing the IDEA information product used by a part of the National Audit Office of Romania, and to a smaller extent by the private audit offices. On the other hand, international audit offices use information products meant for audit activities in companies whose partially integrated business computing and accounting programs are audited. This limitation of the use of financial audit information programs is justified by:

1. a developing financial audit market;
2. rather aged financial auditors;
3. considerable IT investments required;
4. lack of an integrated information system of the company which is the beneficiary of the audit activity;
5. high price of softwares.

As concerns the coverage of the financial audit market, one should note that our research shows that about 95% of the financial auditors active on the market do not use an computerized solution for auditing the financial statements of their clients, while, on the other hand, the latter use MSO Word and Excel on a large scale, when preparing the financial audit files needed for drawing a conclusion. In other words, computers are used as audit file "type writers" and storing and finding devices. The rest of 5% of the financial auditors work with foreign audit companies that provide them with modules ready to use for the partial preparation of the financial audit sections[2].

All these justify the need for a wider use of information products in this financial audit field.

5. Finaudit – prototype of software for auditing financial information

a. Research team

From our research, it results that in Romania there are information models at a conceptual level resulting from doctoral research, that are usually

[2] These data result from a survey we performed in December 2003 among professionals in 6 counties in Romania.

made at an industrial level and not by a team, which restricts the area of the future prototype or commercial applications further to the fact that the field to be covered involves knowledge coming from accounting, financial administration, specialized practice, programming, design etc.

These reasons determined us in proposing for financing to CNCSIS of the Ministry of Education and Research of Romania, a research theme that should have as finality the automated modeling of all activities specific to the financial audit, theme that was accepted for financing for a period of three years, starting from 2004. To approach this theme we have made up a complex team of highly skilled members: certified accountants, financial auditors, accountants, PhDs and PhD students in accounting and administration computing, PhD students in accounting and accounting and financial-audit companies, as it results from the table below.

Table 2. Structure of the research team

No	Members of the research team	Qualities, scientific titles
1.	Prof. univ. PhD Alexandru Țugui	PhD in Accounting, Certified accountants, CECCAR[3] member, IPAO member, member of Academie des Sciences et Technique Comptable et Financiere, member of the Institute of the Professionals associated to the Order of the Certified Accountants of France, Certified evaluator of companies, ANEVAR member Financial auditor - trainee
2	Prof. univ. PhD Georgescu Iuliana	PhD in Accounting, Certified accountant, CECCAR member, Financial auditor – trainee
3	Senior Lecturer PhD Pintilescu Carmen	PhD in Economy Specialist in Data Statistics and Analysis
4	Senior Lecturer PhD Munteanu Adrian	PhD in Administration Computing, CISCO, Auditor of information systems
5	Prof. dr. Iuliana TUGUI	PhD in Accounting, Certified accountant, CECCAR member, Company evaluator
6	Senior Lecturer PhD Georgescu Mircea	PhD in Economy, IT specialist

[3] Association of Certified Accountants and Licenced Accountants of Romania.

7	Muntenescu Mihai	PhD Student in Accounting and Financial Audit, Trainee financial auditor Specialist in administration computing Manager and administrator of an accounting company
8	Aparaschivei Florin	PhD Student in Accounting and Financial Audit, Specialist in administration computing
9.	Romică Adam	PhD Student in Accounting and Financial Audit, Specialist in cibernetics and applied computing Banking specialist
10	Pătruț Bogdan	PhD Student in Accounting and Financial Audit, Specialist in computing Programmer
11	Greavu Şerban-Valerica	PhD student in Economic Computing, CISCO Programmer
12	Mihalache Sabina	PhD Student in Accounting
13	Bacain Ionela	PhD Student in Accounting
14	Genete Laura	PhD Student in Accounting
15	David Neculai	Master Student
16	Ciocoiu Sorela	Master Student
17	Gherasim Cristian	Master Student Programmer
18	Pisaru Irina	Master Student Programmer
19	SC AUDIT SERVICES SRL	Company of Accounting Expertise, Financial Audit
20	SC CONT AUDIT SRL	Company of Accounting Expertise, Financial Audit
21	SC EXPERT AUDIT SRL	Company of Accounting Expertise, Financial Audit
22	SC Cabinet Exp. Cont. Pavel Badragan SRL	Company of Accounting Expertise, Financial Audit
23	SC Expert Cont-Grup SRL	Company of Accounting Expertise, Financial Audit
24	SC VIO CONTEXPERT SRL	Accounting Company
25	C.E.C.C.A.R. Iasi	Professional Association

As you can see from the previous table, the research team has specialists in theoretical and practical fields necessary for the development of

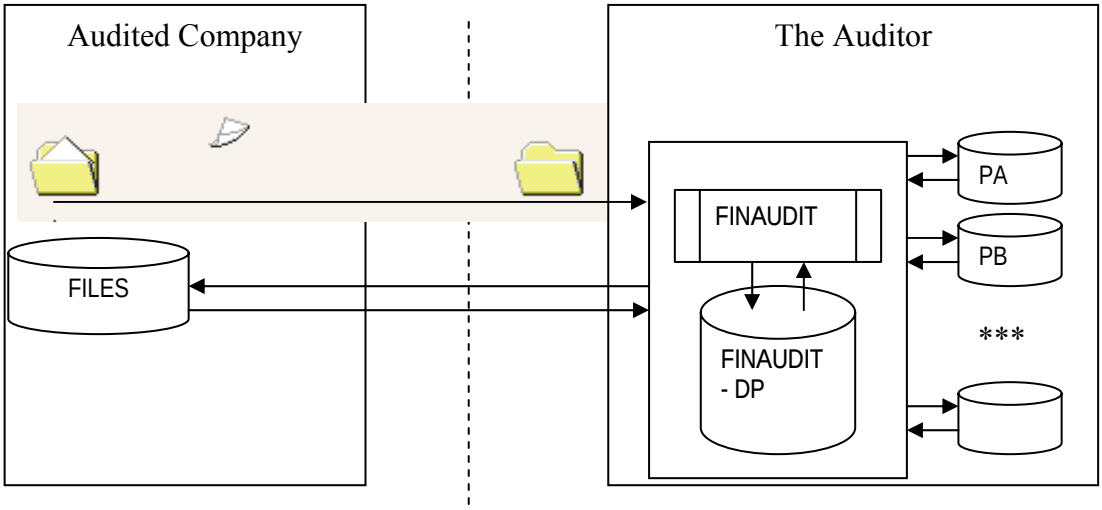
the FINAUDIT application. Moreover, the partners of the trade company provide the link with the market in the financial audit field.

b. Presentation of the information product FINAUDIT

An information product for the financial audit must settle two basic components of a financial audit file, that is: the permanent file and the current file of the audited company. At this moment, the FINAUDIT prototype settled from a conceptual viewpoint the permanent file.

From a conceptual viewpoint, FINAUDIT is designed as a *module that meets the demands of the audit company and of the beneficiary company*, it enables various security levels for information updating between both partners. In other words, on the server of the audit company FINAUDIT is installed and the audited company by an authorized agent, shall have the possibility to access the permanent file in order to view and to add information in an electronic format. The auditors of the audit company shall take over the electronic files and shall attach them as enclosures to the specific section of the permanent audit file. Hence, we shall make more efficient the work of collecting the documents necessary for the development of the permanent audit file and we shall contribute to the enhancement of the financial audit quality. In Figure 2 we have the work schemata between the two partners of an audit file.

Figure 2. Work schemata with the module Permanent file of the information product FINAUDIT



The stages of using the DP module (permanent file) of FINAUDIT consist in:

1. Installing FINAUDIT with the audit company;
2. Installing the module DP with the audited company (client) and the assignment of a username and of a password;
3. Generation of the database for the client at the audit company;
4. Joint preparation of the work sheets PA, PB … PF;
5. Viewing data and information on the permanent file at any time by the client;
6. Adding information (enclosure electronic documents) by the client;
7. Auditor's using the new documents as enclosures to the sections PA, PB …;
8. Printing at request the permanet file.

The main characteristics of the FINAUDIT product are:

1. uses WEB technologies for registering and storing information on trade company auditing;
2. the basic technology for the interface of the application is *Windows SharePoint Services* (WSS[4]).
3. users' authentication is made based on the Active Directory that represents the directory service supported originally by Windows 2003 server and Windows SharePoint Services;
4. data persistence is provided by the data support SQL Server 2000;
5. list and list format customizing may be achieved originally from WSS or using a Web page editor, in the case of this application we recommend using FrontPage 2003;
6. the advantage of using Web technologies as application interface is represented by the fact that at the main office of the customer there should not be installed a client-type component, the only requirement being a WSS-compatible browser: Internet Explorer (recommended), Firefox etc;
7. users may be grouped per page-access levels from read-only users to administrators;

[4] Customizable solution of document management provided by Microsoft Company

8. entry security and data confidentiality may be achieved by determining and grouping the users per work groups and per access levels;
9. to determine a security per correlated levels, the solution is Small Business Server that includes all services necessary for the implementation of the application at the level of the audit company.

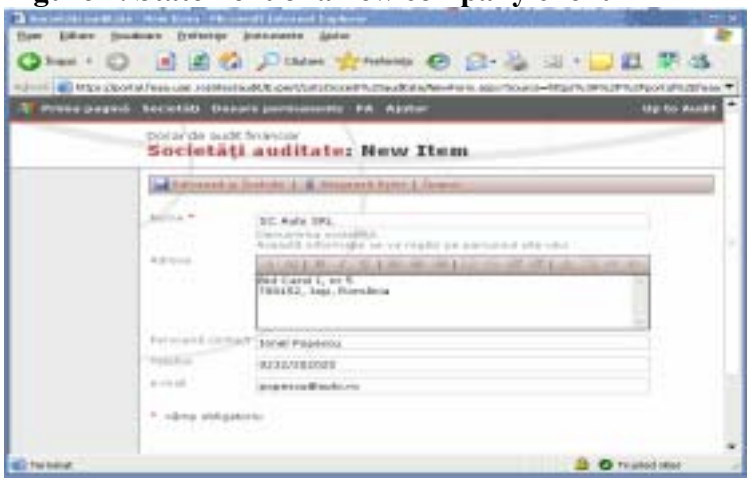
In order to use the application FINAUDIT, the following aspects should be known:

- main page: https://portal.feaa.uaic.ro/sites/audit/Expert/default.aspx (figure 3);

Figure no. 3. Main page of the application FINAUDIT

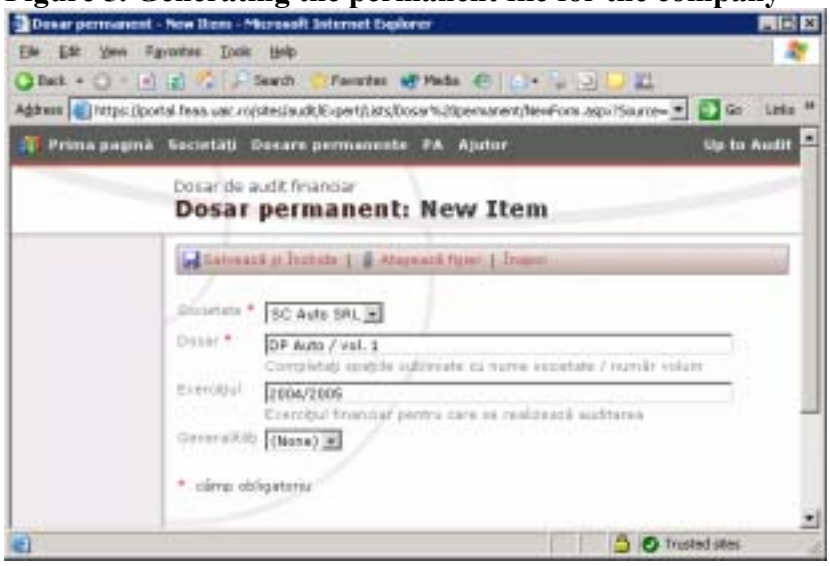
- to add a new company, press the button *New item* of the area audited *Companies*.

Figure 4. Statement of a new company client



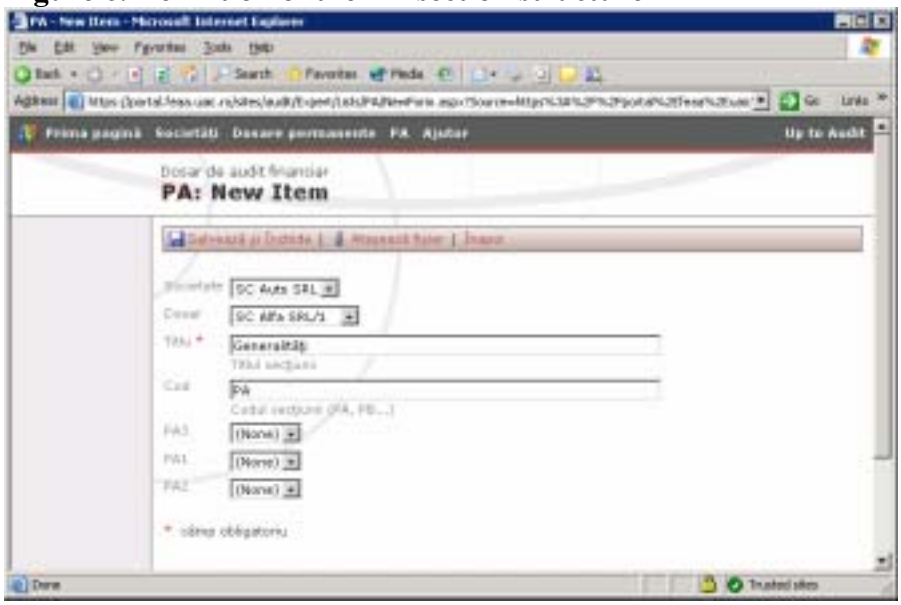
- to add a new permanent File, activate the link ***Permanent files*** of the top menu and then press the button ***New item*** of the permanent file page;

Figure 5. Generating the permanent file for the company



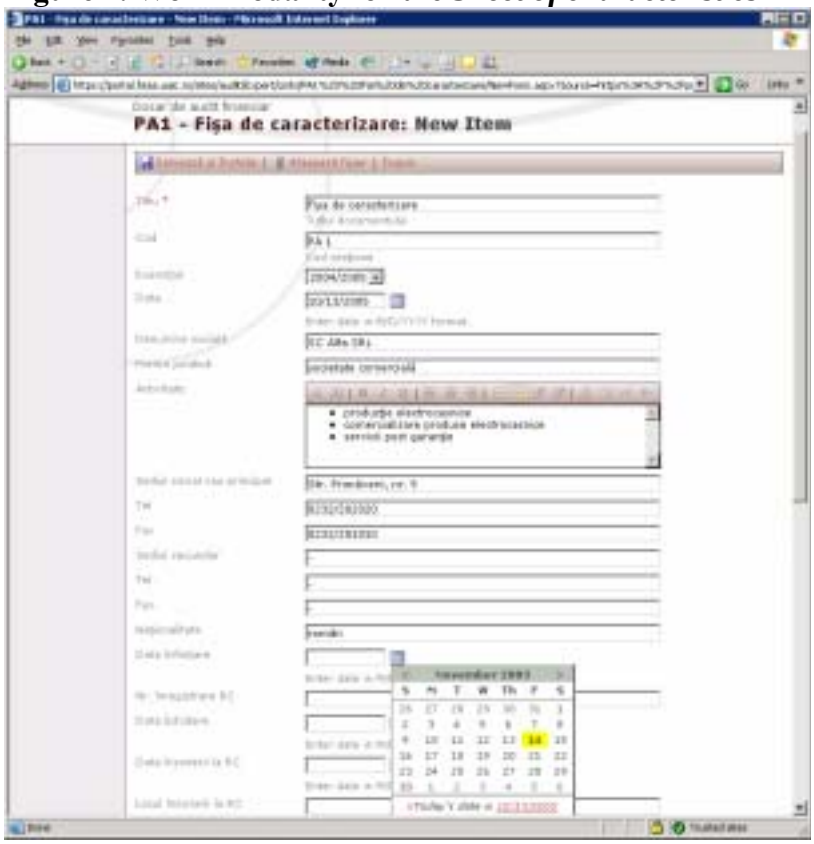
- o fill in the sheet PA, press the link *PA* and then the button *New item*;

Figure 6. Definition of the PA section structure



- to fill in the sheets PA1 and PA2 … activate the left links of the first page of the application, press the button *New item*. For instance, in figure 7 we present the PA1 form;

Figure 7. Work modality for the *Sheet of characteristics*



This is the final shape of PA, after the other sheets have been completed.

Figure 8. Presentation of the PA sheet

SC Auto SRL

Dosar: DP Auto / vol. 1	DOSAR PERMANENT Generalităţi	Ref. PA Pagina

CUPRINS	Referinţă	(1)
* Fişa de caracterizare	* PA 1	
* Organizarea generală a întreprinderii	* PA2	
* Cunoaşterea întreprinderii	* PA3	
* Documentaţie privind întreprinderea	* PA4	
* Fişa de acceptare a mandatului	* PA5	

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Last modified at 10/13/2005 5:46 PM by Alexandru TUGUI

We mention the fact that the work logic for the PA section is applicable also to the other sections of the permanent file afferent to an audited company (client).

The main advantages of the FINAUDIT application are:

- converts into digital format the Audit Files of an audited company;
- involves in the stage of Audit File completion the audited company;
- imposes electronic administration of documents at the level of the audit company;
- the cost of the application is relatively low;
- provides the possibility of audit automated modeling and of obtaining under the requested format for the work sheets the enclosures of the two audit files;
- very low costs of the implementation of the application with the users;
- enhancement of the auditing quality by observing certain information procedures;
- an advantageous role of the ones that implement the product FINAUDIT;

- a work interface close to the logic of financial auditors.

These are some *disadvantages*:

- difficulty in automated modeling of the professional reasoning, hence the necessity of auditor's intervention in the work sheets;
- the continuous harmonization of the auditing activity imposes the permanent updating of the application, if this one was designed as modular;
- great reticence of financial auditors with regards to the new information and communication etc.

6. Conclusions

This study shows the high degree of informatization of the tomorrow's society in which business operators will work, which justifies the necessity to resort to ICT in the activity of financial audit, too. By our research theme, we undertook to make available for Romanian financial auditors a work tool in the logic of the end users, which should enable the construction of the audit files of their customers.

Our research team is on an advanced stage of design of the current file of an audit mission and we succeeded even in obtaining a prototype for the F section - Audit approach.

What do we undertake? We undertake this year to complete the demo version of the FINAUDIT product and to present it to the accounting and financial accounting professionals. During 2006, we want to achieve the commercial version of FINAUDIT. Moreover, we want to continue our studies in the field, with financing from the forecast sales on the Romanian market, on two directions: a. product completion with modules specific to artificial intelligence (expert systems, intelligent agents etc) and b. the conversion of this product on the market of the Republic of Moldova and other countries that undergo the same process of financial-audit harmonization.

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STATISTICAL METHODS OF PREDICTING FINANCIAL STATEMENTS

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Abstract

This paper try to emphasize the importance of predicting financial situation for any firm's management, necessity of this process and certainly are present some practice modalities of preview a balance sheet, a profit and loss account and a cash-flow statement. Especially we will refer at the statistical method of preview the financial statements based on the data of the last 5 to 10 years of activity.

***Keywords**: prediction, financial statements, additional funds needs, managerial finance*

1. Introduction

In any activity, the existence of a program that can provide the future coordinates of the activity is very important. In the economic activity, such an objective must be achieved. The enterprises must plan the value of their assets, expenditure, income, results in order to efficiently allocate their funds.

The firms need more assets if they wish to increase their sales, meaning that they have to make new investments. For this, they need funds that in most of the cases are represented by new loans. These loans generate interest. Although a part of funding can be obtained by self-finance, a high growth rate implies external financing even for a very profitable firm. In these circumstances, every firm, in its process of financial prediction, needs to have appropriate solvability, liquidity, profitability rates.

As a conclusion, any accounting management that wants to increase the efficiency of his activity must accept the aid of predicted financial statements. The degree of detail of these financial statements depends upon the period considered.

The prediction of financial statements refers to the following documents:

- the predicted financial position synthesized in the actual predicted balance sheet;
- the predicted financial performances synthesized in the predicted Profit and Loss account;
- the modification of the predicted financial position reflected in the predicted Cash-Flow;
- the predicted efficiency of the activity reflected by the main predicted financial indicators.

Prediction of sales, that is the estimation of net turnover for a certain future period, is the starting point in estimating the future funding needs. The prediction of future sales is done by analyzing the net turnover of the last 5 -10 years, its trend providing the future evolution. This can be very useful. Even so, the hypothesis that the sales will grow in the same rate as in the past not always can be valid and can lead to unrealistic predictions. Because of this, the following information need to be analyzed, such as:

Establishing the strategic fundamental objective of the firm.

Every firm acts in a specific economic and competitive environment and, because of this, the future strategic objectives are dictated by this

environment. Practically, a firm can establish a certain objective. The degree in which this objective is accomplished is very much influenced by the governmental policy, by the legislative system and so on.

The elaboration of a market study.

Every company produces for the market, and consequently it must know the demand. The market study must offer the producer, information on future evolution of demand and factors with impact in the future. In every day activity this information has a certain degree of probability due to the several natural, political, legislative factors that may appear.

Every good prediction implies a lot of effort. If the prediction is wrong, the consequences can be negatives. .

If the demand is higher than the predicted one, the firm won't be able to satisfy the customers. The consequences can be accumulated orders, delayed delivers and finally lower market share because the clients will choose a firms more competitive and prompt with its deliveries.

On the other hand, if the prediction regarding sales is too optimistic, the company will be in the situation of having more product reserves and unused technology. This will generate low rotation speed for fixed assets, increased costs which will result in general depreciation of the firm's stocks and value. But, if the company has financed its development with bank loans, the problems could be much worse.

Because of these, a correct sales prediction is useful for a firm's long run success.

2. Methods of predicting the Balance Sheet and the Profit and Loss Account.

Next, we will refer to the methods of predicting the Balance Sheet and the Profit and Loss Account because the Cash Flows and the financial indicators result of the predictions concerning the financial position.

In consequence, for the elaboration of the two predicted documents can be used the following methods:

1. Method "percent from sales" which can be applied successfully in the hypothesis:

a) The majority of the elements of the financial position presented in the Balance Sheet vary in the same rate with the sales.

b) The current values of the entities assets are optimal for the current values of the sales.

2. "Statistical methods"

When the hypothesis used by the "percent from sales" method are not confirmed, another prediction can be used, among which regression methods has the largest applicability. There are numerous situations when the two conditions cannot be fulfilled

a)The existence of the "scale savings"

Various times the entities must have a basic stock even though the turnover at the moment is very low. According as, this turnover increases also increases the value of the stocks but with a lower growing rate so the initial ratio among the value of the stocks and turnover degreases.

b) Lumpy assets

In many industries, the development of an enterprise can be made only buying valuables assets. This is the case of the paper industry where even the smallest cellulose operation unit can be efficient.

In Canada, for example, the firm must have at least 75 millions fixed assets, this meaning at least a complete unit in order to be competitive. This situation influences significantly the ratio fixed asssets/turnover for different sales amounts is influenced also the financial needs. The relation between an asset and turnover is in several occasion laniary. In this case, simple laniary regression method is applied for assessing the increase in value of that asset determined by a certain increase of the sales. A mathematical equation can be established based on information from the last five to ten years. In inflation this methods determines consequent transformations in a constant currency in order to obtained pertinent data.

Practically, the application of the regression method for the provisions of the financial statements is the following:

a) The assets from the last 5 to 10 years are analyzed in accordance with the turnover which they generated each year. The relationship between each asset element and turnover over the analyzed period is reflected by the "statistical cloud". The parameters of the regression equation are estimated and subsequently the value of every asset element considered.

b) Based on the prediction of sales, the incomes and the expenditures are assessed and the predicted profit and loss account is elaborated. for the following year.

These stages can lead to a predicted balance sheet without equilibrium between assets and liabilities. In the liabilities will appear a so called "*additional funds needed*" – AFN. This need will generate new loans, from the shareholders or banks and this choice is based on the compared analysis

of the the costs generated by these two and by the existing restrictions. The restrictions regarding supplementary loans are determined according to:

- the maximum level of loans established by the indicator "degree of debt";
- the loan estimated for the following period;
- the difference represents the loan that the firm can contract.

If the need for funds is not satisfied by contracting new loans then new shares are issued and the assets grow. The equilibration of predicted balance sheet by contracting loans will take into consideration the cost of these new loans (the interest or the dividends).

The need for funds can be determined from the balance sheet equilibrium or with the help of a formula that has some advantages:

- it reveals the relation between the sales growth and the need for finance;

- by the equation AFN=0 we can see the growth rate that can be financed from the firms resources; this growth rate is know as the sustainable growth rate.

The formula for the need for financing is:

$$AFN = \Delta CRA + \Delta FA - \Delta NFL - M * Rap * S1$$

Where:

- AFN represent additional funds needed

- ΔCRA= CRA1-CRA0 where CRA1 represent estimated current assets presuming that this increase at the same rate with a sales according to the equation: CRA1= a+b*S1, where "a" and "b" are the parameters of the regression equation, which where resulted from the statistical analysis of the relationship between CRA and S over the analyzed period; CRA0 represent current assets on the N year (the last year analyzed).

- S1 represent the predicted net turnover;

- ΔFA= FA1-FA0 where FA1 represent the estimated fixed assets presuming that this grow at the same rate with sales after the equation: FA1= c+d*S1, where "c" and "d" are the parameters of the regression equation, which where resulted from the statistical analysis of the relationship between FA and S over the analyzed period. FA0 represent the fixed assets on the N year;

- Δ NFL= NFL1- NFL0 where NFL1 represent the estimated nonfinancial liabilities (like note payable, trade account payable, taxes and wages to pay and so on) presuming that this grow at the same rate with the sales after the equation: NFL1= e+f*S1, where "e" and "f" are the parameters of the regression equation, which where resulted from the statistical analysis of the relationship between NFL and S over the analyzed period. NFL0 represent the nonfinancial liabilities on the year N;

- M represent the profit rate (Net profit/Net turnover *100);

- Rap represent acumulated profit ratio; Rap = (1-dividend payout ratio);

For exemplification we will consider a company **α** that has the following predictions:

- the estimated net turnover is 1.500 monetary unit (m.u.) for the year N+1;
- the profit rate (Net profit/Net turnover)*100 is estimated at 4%;
- from the net profit, 50% is given as dividends;
- general liquidity rate is not to exceed 250%;
- debt degree (total debt/total liabilities)*100 is not to exceed 50%;
- the production technology isn't used at the maximum capacity;
- the expenses will decrease to 60% of sales;
- assets sales is estimated that will generate 300 m.u.. loss;
- other exploitation expenses are estimated at 98 m.u.;
- profit tax is 16%.

The balance sheet and the profit and loss account at 31.12.year N is:

Table 1. Simplified Balance sheet at 31.dec.year N (m.u.)

Fixed assets	300
Current assets	390
Stocks	200
Trade account receivable	170
Liquidities	20
Total assets	**690**
Trade account payable	100
Taxes and wages to pay	50
Current liabilities	150
Bonds	140
Total liabilities	290
Share capital	200
Reported result	200
Net result	10
Repartition of result	(10)
Total shareholders equity	400
Total liabilities and equity	**690**

Table 2. The simplified Profit and Loss Account at 31.dec.year (m.u.)

Net turnover	1000
Material costs	700
Amortization costs	20
Loss from asset selling	168
Exploitation result	112
Interest costs	100
Current result	12
Gross result	12
Profit tax	2
Net result	10

The assessment of the current assets and nonfinancial liabilities for the year N+1 is made based on the statistical analysis of the connexity between these and turnover in the last five year. From the statistical analysis of the variables mentioned above, can be determined the following conditions:

FA = 40+0,26 *S

St = 20+0,18*S

TAR =10+0,16*S

C =5+0,015*S.

NFL = 18+ 0,132 *S, where

- FA represent the fixes assets in the last five years;
- St represent the stocks in the last five years;
- TAR represent the trade accounts receivables in the last five years;
- L represent cash in the last five years;
- NFL represent the nonfinancial liabilities in the last five years.
- S represent the sales in the last five years.

For an estimated turnover for the year N+1 of 1500 m.u., can be obtained the following values of the assets:

- Estimated fixed assets for the year N+1 : FA1= 430 m.u.
- Estimated stocks for the year N1: St1= 290 m.u.
- Estimated trade accounts receivables for the year N+1: TAR1= 260 m.u.
- Estimated cash (liquidity) for the year N+1: C1 = 27,5 m.u.
- Estimated nonfinancial liabilities for the year N+1: NFL1 = 216 m.u.

Based on the mentioned formula, the *additional funds needed* is:

AFN=(430-300)+(290-200)+(260-170)+(27,5-20)+(216-150)- 4%*50%*1500 =221,5 m.u.

The need for financing will be satisfied by new loans but in case of emergency by issue of shares or by increase in equity. For this, must be respected certain restrictions such as:

a)The restrictions regarding the degree of debt imposed:

Maximum of debt allowed = 0,5 * Total assets =

= 0,5 * 1.007,5 = 503,75 m.u.

Minus: Loaned capital estimated for year N+1:

Current debt = 216 m.u

Bonds = 140 m.u

Total = 356 m.u

Maximum of supplementary loan = 503,75-356= 147,75 m.u

b) The restrictions regarding the general liquidity degree impose:

Maximum of current debt allowed = Current assets allowed/2,5 = 577,5/2,5= 231 m.u.

Minus: Current debt estimated for N+1 = 216 m.u

Maximum of supplementary current debt = Maximum of current debt allowed - Current liabilities already estimated = 231-216 =15 m.u

c) Need for shareholders equity:

Total supplementary need for funds = 221,5 m.u

Maximum of allowed supplementary loan = 147,75 m.u

Need for shareholders equity = 221,5-147,75 = 73,75 m.u

d) The predictions for external financing are:

Current debt = 15 m.u

Long run debt = 132,75 m.u

Supplementary shareholders equity =73,75 m.u

After satisfying the need for financing and after take into consideration the restrictions mentioned above, the predicted simplified balance sheet for 31 December year N+1 will be the following:

Table 3. The Simplified provisioned balance sheet for 31.dec.N+1 (m.u.)

Fixed assets	430
Stocks	290
Trade account receivables	260
Liquidities	27,5
Current assets	577,5
Total assets	**1 077,5**
Nonfinancial liabilities	216
Current debt	15
Current liabilities	31
Bonds	272,75
Total liabilities	503,75
Share equity	273,75
Reported result	230
Net result	60
Result repartition	(60)
Shareholders equity	503,75
Total liabilities and equity	**1 077,5**

Table 4. B. Estimated profit and loss account at 31.dec.N+1 (u.m.)

Net turnover	1.500
Material costs	900
Amortization costs	30[1]
Loss from asset give away	300
Other exploitation costs	98
Exploitation result	172
Interest costs	100
Current result	72
Gross result	72
Profit tax	12
Net result	60

[1] Amortization expenses are increased with 10 m.u. by taking into consideration the supplementary purchase of assets.

[2] We didn't took into consideration the implications of the indebtment over the profit and loss account.

Using the estimated balance sheet and the profit and loss account we can determine the predicted cash-flow. Using the indirect method this will be:

Table 5 The predicted cash-flow for 31.dec.N+1 (m.u.)

Exploitation activity	
Net result	**60**
Adjustments:	
*** Regarding current assets**	**-104**
- Δ Account receveibles	-90
-Δ Stocks	-90
+Δ Nonfinancial liabilities	66
*** Regarding nonmonetary exploitation elements**	**53**
+ Amortization costs	53
*** Regarding investments**	**300**
+ Loss from fixed assets sale	300
A. Net cash flow from exploitation activity	**299**
Investing activity	
- Fixed assets bought	-550
+ Fixed assets sold	67
B. Net cash flow from investing activity	**-483**
Financing activity	
- Contracting loans on short and long term	147,75 (15+132,75)
+ Bonds issued	73,75
- Dividends paid	-30

C. Net cash flow from financing activity	**191,5**
Net cash-flow (A+B+C)	**7,5**
Estimated reserve for end of N+1	**27,5**
Reserve at the beginning of N+1	**20**

For the estimated cash flow we will take into consideration the following information extracted from the investment budget: new investments in the amount of 550 m.u. will be made a part of the old machinery will be sold at a value of 67 m.u ;the estimated net accounting value (entry value minus costs with cumulated amortization) is 367 m.u.

3. Conclusions

Statistical methods are very good used in the prediction of financial statements especially based on the regression method. In this way the manager benefits of the most elevated methods for the best decisions that he wants to do refering the future of their activity.

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THE RISKS OF THE FINANCIAL-ACCOUNTING AUDIT AND THE RELATIVE IMPORTANCE

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Abstract

The financial-accounting audit was legalized in Romania in 1999 and since then there were made important steps of development through CECCAR, as well as through the Ministry of Finances. The financial–accounting audit interposes between the manufactures and the users of accounting information, by high-class professionals, which assume the responsibility of certification that the financial situations are concluded in all the significant aspects and in comply with the national and international standards of accountancy. In a financial audit, the control of objectives is planned in terms of the risk factors and of their relative significance, which changes from a company to another. Through his activity, the auditor must achieve a comprehensive understanding of the accounting systems and of internal control in order to program the audit activity.

Keywords*: financial audit, internal control, financial-accounting*

1. Introduction

In an increasingly active business world, the performance of the enterprise is expected by its partners – shareholders, banks, financial analysts, suppliers, creditors, etc. In a first phase, the ensemble of its activities, translated in accounting language, makes the object if thorough examinations, conducted by management controllers or internal auditors who intervene in the area of the enterprise business management; they contribute to the improvement of the enterprise organization and thus to the ability to reach the objectives set by the management of the enterprise.

The effectiveness of the financial and accounting information, synthesized in the financial statements, is subsequently validated by a professional accountant holding the title of auditor. He will not reiterate the examinations already conducted within the enterprise, examinations whose extent varies according to the size of the enterprise.

In the course of an audit of the accounting data, the most important step is to determine whether the recorded information correctly mirrors the economic events that occurred during the accounting activity. As the accounting rules represent the evaluation criteria of the adequate recording of the accounting information, any auditor involved in the activities related to these data, must also have perfect knowledge of these rules. In the context of an audit of the financial statements, the rules applied are often the generally accepted accounting principles.

Aside from a good knowledge of accounting, the auditor must also have experience in collecting and interpreting the audit samples. It is this experience that separates the auditors from bookkeepers. The identification of the adequate audit procedures, the assessment of the number and types of elements to be tested, as well as result evaluation, these are all unique problems that define the activity of an auditor.

The auditors that certify and identify the financial statements and the information provided by the accounting department are called in to fulfill their mission according to “The Code of professional ethics and conduct in the field of financial audit”, without getting influenced by the often contradicting interests of the users of the information. Due to the need external users have of relying on the financial statements, there is a set of strictly defined standards for the audit of these financial statements.

2. Manager decision process

In order to underline the need of the auditing, let us take as an example the decision of a bank manager concerning a loan granted to an enterprise. This decision will be based on factors like: the previous financial relations of the bank with the respective enterprise and the financial position of this enterprise, as reflected in its financial statements. If the bank grants the loan, it will request an interest rate widely determined by three factors [1, p. 81]:

1. The interest rate for no risk investments. It is approximately equal to the interest rate the bank could get if it were to invest in state bonds with equation of payments as the loan requested by the enterprise.
2. The economic risk represented by the client. This type of risk reflects the probability that the enterprise may not be able to return the loan due to general or specific economic circumstances linked to the activity of the enterprise like: economic recession, wrong managerial decisions or unpredicted competition in the branch.
3. The informational risk reflects the probability that the information on which the evaluation of the economic risk was based might not be exact. A possible cause for the occurrence of an informational risk is the probability of drawing up inaccurate financial statements.

The audit has no influence on the interest rate for no risk investments or on the economic risk but it may have a significant impact on the informational risk. If the bank manager is content with the minimum informational risk of a client because the latter has hired an auditor for his financial statements, the risk is significantly diminished and the total interest rate applied to the debtor can be alleviated.

As our society becomes more complex, the decision factors are facing an increasing probability of receiving incorrect information. This is explained by several reasons: the wider distance between the information and the users, bias and the personal reasons of the information provider, the large volume of data as well as the existence of certain complex commercial transactions.

The enterprise managers and the users of the financial statements could conclude that the best way to manage the informational risk consists in simply maintaining it on a reasonably high level. A small company could find that it is cheaper to pay higher interest than increase the expenses brought about by the attempts to reduce the informational risk.

For larger enterprises, it is a more practical habit to assume the expenses on the reduction of the informational risk. This measure can be enforced in three ways: the information is checked by the user, the

informational risk is shared between the management and the user, and audited financial statements are provided.

The user verifies the information. The user could come to the headquarters of the enterprise that provides the information in order to examine its accounting records and to get information on the effectiveness of the presented situation. Normally, this measure is not a practical one because of its cost. Moreover, it is economically inefficient for each user to verify the information. Nevertheless, certain users conduct their own checks. For example, the IRS conducts important examinations of the enterprises and the natural persons in order to determine whether the tax return mirrors the real taxes or not. Similarly, if an enterprise intends to take over another enterprise, the buyer often makes use of a special audit team to examine and independently assess the key information of the potential purchase.

The user shares the informational risk with the management. There are significant juridical precedents that suggest that the management is responsible for providing effective information to the users. If the users rely on incorrect financial statements and, as a consequence, they record financial loss, they have the possibility to sue the management of that enterprise. One of the difficulties of sharing the informational risk with the management consists in the possibility that the users may not recover their losses. If a company is unable to reimburse a loan on grounds of bankruptcy, there is a small chance that the management should dispose of sufficient funds to compensate the information users.

Providing audited financial statements. The most frequent way for the users to receive accurate information is conducting an independent audit. Subsequently, the audited information is used in the decision-making process, starting from the premise that the information is reasonably complete, exact and unbiased.

The management usually hires an auditor who will reassure the users that the financial statements are accurate. If the financial statements are eventually proved to be wrong, the auditor can be sued by the users of the information as well as by the management of the enterprise that hired him in the first place. Without a doubt, the auditors have a significant juridical responsibility concerning their line of work.

3. Risks of audit

The control of the objectives, in the case of a financial audit, is planned varying with the *risk factors* and *their relative importance*, which differs for every enterprise. During his activity, the auditor must gain sufficient knowledge of the accounting and internal control systems in order to program the audit activity.

A competent auditor acknowledges the existence of the risks and approaches them in the correct manner. Most of the risks the auditors encounter are very difficult to quantize and require thorough analysis in order to be properly assessed. For example, let's assume that the auditor decides that the branch of the client is going through major technological changes that will affect the audit client as well as the purchaser of his products. This change could have an impact on the moral usage of the client's stocks, on the probability of cashing in the commercial claims and perhaps also on the client's ability to sustain business. An adequate reaction to these risks is of critical importance for conducting high quality auditing.

The risks do not have the same probability of occurring. From this viewpoint one can distinguish potential risks and possible risks.

- Potential risks are those likely to occur if no control is imposed in order to detect and correct the errors that might happen. These risks are common to all the enterprises.
- Possible risks are potential risks the enterprise has no means of reducing.

In an enterprise, the auditor usually encounters the following categories of risk [5, p.61]:

- general risks specific to the enterprise;
- risks related to the nature of the developed operations;
- risks related to the conceiving and functioning of the system.

In an enterprise the auditor encounters general risks specific to the enterprise, risks which are likely to influence all the activities of the enterprise. In order to control the enterprise, the auditor must identify those features that distinguish it from the others. Therefore, the following information must be researched and analyzed:

- the activity of the enterprise and its sector of business, including the existence of special regulations for that sector (supply, sales, finance, price formation, etc.);
- the enterprise structure and organization;
- the general policies of the enterprise: financial, commercial and social;
- the enterprise development prospects;
- the administrative and accounting organization, the existence of a data processing system;
- the accounting policies of the enterprise.

As the auditor is not able to control everything, he must be fully aware of the potential risks that may happen in any patrimonial unit; to

identify them and to focus most of his procedure on them in order to determine whether the errors or the inaccuracies have materialized or not.
The general risks can be illustrated as follows: [3, p. 178]

a) *The risks related to the economic situation of the enterprise*, caused by:

- Economic factors like: lack of solvency of certain states, thus reducing the markets of the enterprise;
- Internal factors: the existence of certain economic, juridical and revenue regulation specific to one sector.

The economic situation of the enterprise can generate risks caused by the different reactions of the managers. The reaction of a manager from a profit enterprise differs from that of the manager of an enterprise experiencing difficulties, as they may have scattered and dangerous reactions (ruinous loans, dangerous fiscal operations).

The auditor must be fully aware of the perception managers may have on their situation, in order to anticipate their reactions and to help them assess their real situation. This can be accomplished by direct contact with those managers.

b) *The risks related to the general organization of the enterprise* are caused by:
   - The policies chosen by the managers: the financial investment policy can influence the classification of the movable values (sharing or investment securities) that must be correctly recorded in the bookkeeping or development policy of the new products can accelerate the ageing of other products;
   - The structure of the enterprise: if it is an enterprise founded with the participation of another enterprise at the setting up of the share capital, it will have certain advantages as opposed to another independent one (easier loans, certain advantages) as well as servitudes (supply and sales under certain required conditions etc.).

c) *The risks related to the management's attitude* concern the position adopted by the management with regard to the quality of information.

A management concerned with the quality of information will permanently aim at the implementation and use of accurate and effective systems. On the other hand, if the management puts too much trust in the qualities of the employees and of the current systems, the problem of the

information system tends to get neglected, a situation which can lead to important errors and irregularities.

The risks related to the nature of the operations approached can be identified by classifying the data being recorded in the ledgers as follows:

- repetitive data – are those that result from the normal activity of the enterprise: sales, purchases, wages, etc; these data are dealt with in a uniform manner, depending on the chosen system;
- punctual data – are complementary to the repetitive data but are more or less regularly emphasized, e.g.: physical stock control, final evaluation, etc. These data carry significant risks if they are not discovered in due time and, therefore, the auditor must get acquainted to the situation in time to organize the necessary examinations;
- exceptional data – resulted from operations or decisions that derive from current activities: reevaluations, merges, restructuring. The enterprise does not have the prerequisite criteria of comparative elements and of experienced staff for such operations, therefore the risk of errors and their recording are of high importance;

The more important is the value (individual or cumulative) of a certain category of operations (repetitive, punctual or exceptional), the more likely are the errors to influence the financial statements.

The risks related to the conceiving and functioning of the systems

The auditor must understand the bookkeeping and the internal control system of the entity. This will be of use to the auditor in the planning and programming phase of the commitment (mission) as well as in the phase of collecting and evaluation of the audit samples.

Knowing the organization and functioning manner of the bookkeeping and internal control systems, the auditor applies professional reasoning in order to evaluate the audit risks and to establish the audit procedures necessary to reduce the audit risk to an acceptable level.

In the Audit Standard no. 400 “Risk evaluation and internal control”, it is mentioned that the audit risk stands for the risk the auditor determines for an inadequate audit opinion when the financial statements have significant erroneous information.

The audit risk has three elements: inherent risk, control risk and omission risk. [6]

Inherent risk is “the likelihood that a current balance or a transaction category might contain erroneous information that could be individually significant or when accompanied by erroneous information from another balance or transaction”.

The inherent risk mirrors the vulnerability of the financial statements to the occurrence of errors in the case of lack of internal control. If the

auditor reaches the conclusion that there is a great probability of error, without considering the internal control, then he will conclude that the inherent risk is very likely to occur. Internal control is ignored in determining the inherent risk as it is separately analyzed in the risk model of the audit by control related risk.

The auditor should analyze certain important factors when he estimates the inherent risk as follows: [1, p. 305]:

- the nature of the client's activity;
- factors related to erroneous statements that result from fraudulent financial reports;
- the results of the previous audits;
- whether it is an initial or a repeated engagement;
- the affiliated parts;
- exceptional (unconventional) operations;
- the necessary reasoning for the correct recording of the current balances and operations;
- the vulnerability of the assets to the abduction (circumvention) risk;
- the component of the analyzed population.

The inherent risk for certain accounts is influenced by the nature of the client management activity. For example, the possible existence of morally used (unmarketable) stocks is higher in the case of a producer of electronic goods that in the case of a steel producer. The inherent risk has a high probability of varying from one activity sector to another, especially when it is applied to certain accounts like stocks, client debts, loans and fixed assets. The nature of the clients' activity should have a very low or no impact on accounts like cash means, commercial effects and mortgage loans.

The control risk is the risk that an erroneous statement that may appear in the balance of an account or in a category of operations or transactions might not be prevented or detected and corrected in due time by the bookkeeping systems and internal control.

After acquiring the knowledge on the internal control, the auditor conducts an initial evaluation of the control risk. This evaluation states the extent to which the auditor expects the internal control mechanisms to miss the possibility of significant erroneous statements as well as to fail to detect and correct the already existing significant erroneous statements.

The initial evaluation is generally conducted for each audit objective related to the operations and for each type of operations.

The initial evaluation usually starts with the analysis of the control environment. If, in the opinion of the managers, the internal control is of no importance, there is a low possibility that the specific control activities may be accurate. The best solution in this case is to assume that the control risk

specific to all the audit objectives related to operations is of a maximum degree. On the other hand, if the manager has a positive attitude, then the auditor analyses the specific policies and procedures of the secondary elements of the control environment and those belonging to the other four elements of internal control. The control mechanisms of all the five elements are used as grounds for evaluating the risk under its maximum level.

There are two important assessments as to the initial evaluation. First, the auditor is not compelled to conduct the initial evaluation in a formal, detailed manner. In the case of many audits, especially those for small companies, the auditor assumes that the control risk is high, regardless of the real situation. The auditors act as such because they decide that it is more economical to make a thorough audit of the balances in the financial statements than to test the mechanisms of internal control of these balances.

Secondly, even if the auditor thinks the control risk is low, the estimated value of the control risk is limited to the level justified by the gathered evidence.

After conducting the initial evaluation and analyzing if a lower risk is possible, the auditor has the possibility of deciding which of the estimated control risks should be used: either on the already justified level of the initial evaluation or on a lower level. The decision on the level to be used is essentially an economical one, based on a comparison between the costs of testing the relevant control mechanisms and the costs of conducting the substantial tests that will be avoided if the estimated control risk will be diminished.

Different techniques can be used for documentation on the information related to the bookkeeping systems and internal control. The selection of a certain technique is an issue that depends on the professional reasoning of the auditor. The common techniques, used singularly or combined, are represented by narrative descriptions, opinion polls, check lists and diagrams of the information flow. The form and extend of this documentation is influenced by the size and complexity of the entity, as well as by the nature of the bookkeeping and internal control systems of the entity. Generally, the more complex the bookkeeping and internal control systems of the entity and the control procedures of the auditor, the more extended his documentation should be.

Some of the procedures conducted for acquiring the knowledge on the bookkeeping and internal control systems, may not have been specifically planned as control tests but they can provide audit evidence on the efficiency of the development and operation mode of the internal controls relevant for certain assessments and, consequently, function as control tests. For example, in understanding the bookkeeping and internal control systems of the cash

flow, the auditor may have gathered audit evidence about the effectiveness of the bank reconciliation process by investigations and observation.

When the auditor concludes that the procedures conducted in order to understand and bookkeeping and internal control systems also provide audit evidence related to the adequate character of the effective development and operation of the relevant policies and procedures in the case of a private examination of the financial statements, he can use that audit evidence, mentioning that it is sufficient to maintain the control risk evaluation on a higher level.

The omission risk is the risk that an essential audit procedure may not detect erroneous information in a current balance or in a category of operations or transactions. The omission risk includes: the risk not associated with the sampling, determined by the quality of the staff conducting the audit and the sampling risk which consists in the possibility of reaching different conclusions based on the samples and not using opinion polls.

The auditor's evaluation of the inherent risks, in addition to the control risks influence the nature, length and extent of the essential procedures that must be conducted. In their turn, these essential procedures influence the level of omitting the risk and consequently, the audit risk level.

An important factor that allows the auditors to assess the importance of the above mentioned risks is the **relative importance** defined as opposed to the value or the nature of an inaccuracy or irregularity encountered in the financial statement which will lead to a biased reasoning of decision of a reasonable person that relies on this information.

By irregularity, one may understand all the actions or omissions that either bend the law or enforced regulations applied to companies; either the accounting principles or procedures; either the statutory provisions; either the decisions of the Annual General Meeting; or the decisions of the Board of Directors.

By inaccuracy one understands the accounting or juridical changes and interpretations of a certain fact, disagreeing with the reality like: calculus errors; recording errors; inaccuracies in the presentation of the annual balance (inaccurate numbers).

When the irregularities or the inaccuracies have been detected by the auditor, he conducts the necessary examinations to assess their nature and importance and to report them to the manager only when these errors relate to the direct object of his mission, when they have a relative, sufficient importance.

The assessment of the relative importance by the auditor id carried out taking into account the significant areas of the audited company:

- significant systems;
- significant accounts;

- ♦ significance threshold.

By significant system one understands any system existing in the patrimonial unit that secures the recording and posting of the repetitive information, when their accumulated value is itself significant in relation to the value of the financial statements. [4, p.518]

The significant systems related to the purchases from suppliers, sales to customers, payments to personnel, treasury, production of stocks, are common to all patrimonial units. The identification of the significant systems specific to the patrimonial unit is a very delicate activity of the auditor, as only these systems require his study of the procedures.

The significant accounts [4, p.518] are those accounts whose value or nature makes for an important part of the financial statements, accounts that can hide errors or significant inaccuracies whose relative importance is directly related to the regularity of the bookkeeping, bearing a significant influence on the financial statements.

In practice, the auditor takes into account the following bench-marks in order to determine the significant accounts:

- even if the current production is at a very low level at the end of his mandate, it can represent a significant account to the extent where the values it mediates are high and the operations are complex;
- the provisions, even at a low level, are significant accounts;
- accounts which, by their nature, are risk accounts (regulation accounts or accounts affected by a legislative change);
- accounts which have apparent anomalies as compared to the previous balance or against the functioning of the accounts, are also considered significant accounts.

The significance threshold allows the auditor to assess whether the detected errors or inaccuracies must be straightened or not, being able to decide the right direction.

The elements specific to the significance threshold are the following: [5, p.91]

1. The necessities of the users of annual financial statements

The annual financial statements provide information for different users: shareholders, associates, personnel, creditors, revenue authorities, unions, clients, etc. Varying with the requirements and needs of the users, the auditor will set the significance threshold.

2. The characteristics of the enterprise which can be significant for the significance threshold:

- the business sector – in certain business sectors, the actual result of the exercise is replaces by other indices (for example, in the trade field, the net result is replaced by the gross margin);
- the size of the enterprise determines the maximum and minimum parameters of the significance threshold;
- the evolution of the enterprise in time;
- the social-economic environment in which the enterprise conducts business, including legislation, economic circumstances, political situation, competition, social climate, etc;

3. The features of the significant elements are:
- sensitivity – an element is sensitive if a small change in its nature generates major changes in the assessment of the annual accounts;
- the approximation degree – an error is more significant if it refers to a job that requires precision and accuracy;
- the evolution of the element – it can reflect a tendency of increase or decrease of the element for dishonest reasons;
- the sum of several elements – the sum of several insignificant elements may lead to a significant result.

The auditor must consider the possibility of the erroneous information of low values which may have a significant effect on the financial statements if accumulated. "An error detected in the monthly closing procedure may be a clue for a potential significant erroneous statement, if the error is repeated every month". [6, p. 92]. Erroneous information must be considered from quantitative and qualitative viewpoint.

In order to emphasize the consequences of the significance threshold, at the end of his mandate, the auditor makes up a list of his findings. If the management of the enterprise accepts the corrections of the auditor, then, he grants the certificate without reservations. If the auditor must specify the nature of his reservations (the annual postings he is referring to), how these postings must be corrected and what the influence of correcting these balance postings is, then he will have reserves in granting the certificate.

The common definition of the significance threshold, as applied in accounting and in the area of expertise of the audit, is:

"An erroneous presentation in the financial statements can be considered as significant if the information on the existence of this erroneous presentation could influence the decision of a reasonable user of the situations concerned." [1, p.63]

In the practical use of this definition, three significance levels are used to determine the type of opinion expressed.

When there is an erroneous presentation in the financial statements, but this presentation is not likely to influence the decision of a reasonable user, it is considered as insignificant. In this case, an opinion without reservations must be expressed.

The second significance level or threshold exists when an erroneous piece of information in the financial statements could influence the decision of a certain user but the situations as a whole provide a correct image and are, therefore useful. For example, being aware of the existence of erroneous information in the presentation of the fixed assets could affect the decision of a user when he lends money to the company, only if those assets are used as collateral for this loan. An error in the presentation of stocks does not imply that the cash means, the debts – clients and other elements of the financial statements, or even the financial statements as a whole, are inaccurate in a significant percent.

In order to make decisions on the relative importance in the occurrence of one of the conditions that require a deviation from the report without reservations, the auditor must evaluate all the effects on the financial statements. Let us assume that, while making the decision on the adequate type of opinion, an auditor is not in the position of reaching a satisfying conclusion on the accurate presentation of the stocks. Because of the effects an error in the presentation of stocks may have on other accounts and on the total presented in the financial statements, the auditor must evaluate the relative importance of the accumulated effect of the error on the stocks, on the total circulating assets, on the total working capital, the total assets, on the profit tax, debts related to profit tax, the total of the short-term debts, the cost of the sold items, the profit before taxes and the net profit after taxes.

When the auditor reaches the conclusion that an inaccurate presentation is significant but it does not influence the financial statements as a whole, a reserved opinion must be expressed (including the expression "except for").

The highest significance level is applied when there is a high probability that the users might make erroneous decisions if based on financial statements as a whole. Returning to the previous example, if the stocks stand for the highest balance in the balance sheet, a considerable error will be so significant that the auditor's report will have to mention that the financial statements as a whole cannot present an accurate image. When this maximum level of relative importance occurs, the auditor must issue either refusal to express an opinion or an unfavorable opinion, varying with the applicable conditions.

In order to determine whether an omission is very significant, the percentage in which that omission may affect the different elements of the financial statements must be analyzed. This index is called "depth of

repercussions". An error in the classification of a sum between a monetary means account and a client debt account only affects the two accounts involved and consequently, does not have a deep impact, it does not influence other accounts. On the other hand, not recording a considerable sale is an error of wide repercussions as it affects the sales, the client debts, expenses on the profit tax, the payment profit tax and shared profit which, in their turn will influence the circulating assets, the asset total, short-term debts, total of debts, equity capital, the gross margin and the result of the exploitation.

As the effect of an error spreads, the possibility of expressing an unfavorable and not a reserved opinion also grows. For example, let us assume that the auditor decides that a classification error between the monetary means accounts and client debts accounts should lead to a reserved opinion as the relative importance of this error is high; not recording a sale of similar value could lead to an unfavorable opinion because of the deep and multiple repercussions of such an error.

Regardless of the sums involved, a refusal to express an opinion must be issued if the auditor is convinced that he does not have the independence required by the rules of the Professional Conduct Code. This very severe condition reflects the importance independence has for auditors.

In theory, the influence of the significance threshold on the type of opinion expressed is direct. In practice, making a decision on the real significance threshold in a certain situation is related to a difficult reasoning. There are no simple, clearly defined recommendations that allow the auditors to decide whether an element is significant, insignificant or very significant. . The evaluation of the significance threshold also depends whether a situation involves a breach of the generally accepted accounting principles or a restriction of the audit perimeter.

The decision of a user can be influenced by the type of erroneous presentation of the financial statements. The elements mentioned below could have a different impact than that of the majority of errors on the decision of the user and, therefore, on the opinion of the auditor:

- The transactions are illegal or fraudulent;
- An element could have repercussions in a future exercise, though not significant if only the present exercise is analyzed;
- An element has "psychological" repercussions (for example, if we compare the impact of a reduced profit with that of a small loss or the impact of a monetary means account with that of an overdraft).
- An element could be important in the light of the possible consequences resulted from contract duties (for example, the impact of disregarding a restriction on the indebtedness degree could consist in revoking a significant loan).

4. Conclusion

The audit report can be refused when the regularity and accuracy of the annual accounts does not present an accurate, clear and complete image of the patrimony, of the financial situation and of the results but it can also be impossible if the auditor thinks that there are not enough elements provided by the enterprise to establish an opinion.

The setting of the significant elements and of the significance threshold is important but it is done at the request of the auditor, because of the numerous factors that must be considered (the experience of the auditor, his professional experience and judgment) and of their relative importance.

As stated in the Audit Standard no 320, the relationship between the significance threshold and the audit risk is reversely balanced. The higher the significance threshold, the lower the audit risk is and the other way around. This relation is reversely balanced when the auditor determines the nature, length and duration of the audit procedures. If the auditor determines that the acceptable significance threshold is low, then the audit risk is high.

The auditor can draw significant conclusions along his financial activity as well as during the different stages of financial statement preparation: evaluation, presentation or examination. In practice, the most significant findings can make direct or indirect reference to a posting in the balance and/or in an exploitation account or a profit and loss account, or even to a piece of information written in the notes of the annual financial statements.

In certain cases, the consequence is yet undetermined as the auditor does not have the necessary information or perhaps the conclusions he had drawn have an influence on the general situation of the enterprise. These conclusions may be of a juridical nature or may refer to the future of the enterprise. It is the auditor who will decide whether his report should mention the facts that do not hold a direct influence on the financial statements undergoing his examination but facts that will have consequences on future examinations.

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ASSESSMENT OF THE SIGNIFICANCE THRESHOLD IN AUDITING FINANCIAL STATEMENTS

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Abstract

This paper is aimed at providing specialists with a practical method of assessing the significance threshold when auditing financial statements, as well as of determining the analyzed sample. The novelty of this study resides in the information-based modeling of the section "Audit approach" of the Current audit file together with the determination of the sample size depending on the risk margin corresponding to each category of patrimonial assets. Thus, we reckon that the subjectivity of financial auditors is significantly reduced. Hence, we shall present to you a brief description of the section F – Audit Approach, and a presentation of the possibility to automatize this section by means of the software FARisk.

Keywords: *audit, significance threshold, information-based modeling, FARisk.*

1. Introduction

The company images provided by the accounting division as information should not be credible except for the case when they are validated socially in two ways: by launching normalizing regulations and downstream, by account ratification achieved by accredited and certified professionals.

The phenomenon of harmonising accounting regulations at an international level makes the credibility of accounting questionable both from the perspective of accounting information production and from the perspective of its quality certification. Things became more serious after the financial scandals of 2001 (Enron, Parmalat etc.) that showed that accounting systems and implicitly accountants' organization systems are far from perfect.

2. The concept of financial audit and the role of the accounting profession

The correct operation of economy relied mostly on the confidence in audited financial statements. From the perspective of the accounting doctrine, the financial audit is the examination performed by a competent and independent professional in order to express a motivated opinion on the way in which the financial reports of a company are drafted and presented according to an identified accounting regulation book [6].

The requirements that some companies should have their financial statements audited by a skilled professional, introduced by European directives on accounting, protects the public interest. The safety provided by information comprised in audited financial statements should make all parties interested in the company business confide in such information and use it. For many users, the financial statements are the only information source. The transparency that results from harmonizing the way in which financial-accounting information is drafted amd presented, as it is published by entities of various countries, and the enhancement of the credibility of such information, further to the financial audit made by skilled professionals, is a premise for achieving the Unique Market.

The role of the financial audit consists in that it should apply checking methods that should lead to the formulation of an opinion on the drafting of financial statements under all significant aspects, in conformity with a general framework of financial reporting that may comprise: The Informational Accounting/Financial Reporting Standards (IAS/IFRS),

national accounting regulations, another framework of identified financial reporting.

The objective of the mission of auditing the financial statements is to allow the auditor to express an opinion that should determine if they were presented in accordance with the accounting principles and standards. This opinion should be communicated in a written report.

An important moment in the normalization and the harmonization of auditing practices is marked by the emergence in 1983 of the International Standard of Audit ISA 13 "Audit Report on Annual Accounts" [7]. This standard establishes regulations and provides recommendations regarding the form and the contents of the audit report drafted by an independent auditor on the financial statements of an entity [11].

In the process of planning and performing the audit procedures, and in the process of result evaluation and reporting, the auditor should admit that the uncompliance of an entity with the legislation and the regulations in force may significantly affect financial statements. Nevertheless, it is expected that an audit should detect such uncompliances. Uncompliance detection, irrespective of the significance level, requires the consideration of the implications of any misconduct of management or staff and of the potential effect on some other aspects of the audit process [3].

3. Significance Threshold in Audit

The audit of financial statements should enable the auditor to express an opinion according to which the financial statements were drafted under all *significant aspects* in compliance with an identified framework of financial reporting. The evaluation of what is significant is an aspect pertaining to the use of professional reasoning.

Information is significant if its omission or its erroneous declaration may influence the users' economic decisions, made based on financial statements. The significance threshold depends on the size of the issue or of the error, judged under the specific circumstances of the omission of erroneous declaration.

Hence, the significance threshold is rather a limit than a primary qualitative characteristic that information should have in order to be useful [4].

When drawing up the audit plan, the auditor uses an acceptable level of the significance threshold able to detect, from the quantitative viewpoint, significant deviations on time. However, one must consider both the amount (quantity) of these deviations and their nature (quality). The auditor must

consider the significance threshold both at the global level of financial statements and at the level of the balances of individual accounts, depending on the transaction categories and submitting of accurate information. As regards the assessment by the auditor of the significance threshold, as compared to the specific account balances and transaction categories, these help him decide on certain aspects like those relating to the items that need to be assessed or whether or not to use analytical and evidence-collection procedures. These enable the auditor to choose those audit procedures which, combined, are deemed to reduce the audit risk to an acceptably low level.

There is a reversed relation between the significance threshold and the audit risk level, namely: the higher the significance threshold level, the lower the audit risk and vice versa. In order to be able to draw reasonable conclusions to support the audit opinions, the auditor must collect sufficiently adequate audit evidence. *Audit evidence* is represented by all the information used by the auditor to draw a conclusion that supports the audit opinion and includes all the information in the books that the financial statements were based upon. The books generally include: initial records and their supporting documents, as well as checks and records of electronic fund transfers; invoices; contracts; ledger and inventory register, accounting-related records and other alterations to the financial statements that do not appear in the official books; other records like work documents and spread sheets supporting funds allotment, calculations, reconciliations and information presentations. [5].

The degree of sufficiency is the measure of the amount of audit evidence, while the degree of stability is the measure of the quality of the audit evidence; in other words, their relevance and trustworthiness in providing support for the categories of transactions, account balances, information presentations and corresponding assertions, or for the detection of the deviations from their level.

4. Audit approach - "F" section of the current audit file

With regards to the audit approach section, according to the Minimal Standards of Audit of Romania harmonized with the International Standards of Audit, we shall have 4 work sub-sections:

1. F0 – Significance threshold;
2. F1 – Checklist of the general inherent risk;
3. F2 – Checklist of the specific inherent risk;
4. F3 – Specific inherent risks and size of samples.

The significance threshold represents the level of value from which financial-accounting operations are audited operation by operation, while under this value the statistical sampling is used. Please notice that the level of the significance is determined by the auditor by professional reasoning depending on the degree of knowledge of the latter on the audited company and on the evaluated risk level. Under these circumstances, the determination of the significance threshold gets a subjective and sometimes even risky character.

Practically, the determination of the significance threshold is made starting from the completion and the interpretation of the form F0 – *Significance threshold* of figure 1.

Figure 1. Determination of the significance threshold – Section F0

SIGNIFICANCE THRESHOLD — **Sect. F0**

Client	**ABC SA**				Drawn up by	*Initials* **AT**	*Date* **15-Jan-05**
Period	**1/1/2004**	**12/31/2004**			Checked up by	**CR**	**17-Apr-05**

				2004		2003	2002
				Accompl.	Budget		
Total assets (before debts subtraction)				***2700***	***2600***	***2500***	***2400***
Start	1.00%	1.00%	1	27	26	25	24
Ratio	1.00%	2.00%	2	54	52	50	48
Turnover				***125000***	***110000***	***95000***	***87000***
Start	1.00%	1.00%	3	1250	1100	950	870
Ratio	1.00%	2.00%	4	2500	2200	1900	1740
Profit before taxation				***15000***	***11000***	***8500***	***7400***
Start	1.00%	1.00%	5	150	110	85	74
Ratio	0.50%	1.50%	6	225	165	127.5	111

The chosen significance threshold is:	**2500**

Explanations:

Section F0 of figure 1 highlights the following aspects:

- it focuses on the financial year 2004 for the company ABC SA;

- three basic ratios are used, total assets, turnover and profit before tax, but depending on the audited company their number may be increased;
- percentage quotas have been used on each category of ratios, to highlight their degree of sensitivity and the indicators of maximal stability.

After the determination of the significance threshold, two types of audit emerge for each category of patrimonial issue, namely:

1. Over the level of the significance threshold, case in which auditors will audit each and every operation;
2. Under the level of the significance threshold, case in which the audit activity is based on **statistical methods/models of risk evaluation and determination of the samples to be audited** per each category of patrimonial issues.

There are two approaches for the risk evaluation and the determination of the sample size per each category of patrimonial issues in order to audit operations under the value of the significance threshold:

1. *The no-risk statistical method of sampling*, case in which the sub-sections F1 are used (Checklist of the general inherent risk) and F2 (Checklist of the specific inherent risk);
2. *The risk-based statistical method of sampling*, case in which are used F1, F2 and F3 (Specific inherent risks and sample size).

We present in tables 1 and 2 sections F1 and F2 necessary for risk evaluation and the determination of the sample size per categories of patrimonial issues in the case of the no-risk statistical method of sampling.

Table 1. Checklist of the general inherent risk
Sect. F1

				Initials	*Date*
Client:			**Drawn up by**	**GI**	**15-Jan-05**
Period	**1/1/2004**	**12/31/2004**	**Cheked up by**	**CR**	**17-Apr-05**
					YES/NO
1. Management					
(a.) Do managers lack the necessary knowledge and experience to lead the company?					**YES**

					Initials	*Date*
	Client:					
	ABC SA			**Drawn up by**	**GI**	**15-Jan-05**
Period		**1/1/2004**	**12/31/2004**	**Cheked up by**	**CR**	**17-Apr-05**
	(b.) Do managers tend to engage the company in highly risky businesses?					**YES**
	(c.) Were there any managers in key positions replaced during the financial year?					**NO**
	(d.) Are there some requirements concerning the preservation of a certain level of profitability or the accomplishment of certain goals (for instance, meeting some requirements imposed by the creditors)?					**YES**
	(e.) Has the reported result a personal significance for the managers (for instance, profit-related benefits) ?					**NO**
	(f.) Is the administrative and managerial control weak?					**NO**
	(g.) Are there any competitive managerial information systems?					**NO**
	(h.) Are the managers concretely involved in the daily tasks? (This question is relevant only if there is a risk under item (d) or (e) identified)					**NO**
	OVERALL ASSESSMENT OF MANAGEMENT RISKS					
	Very low	Low	Moderate	Hig h		
		The risk is LOW				
	Explanations					
						YES/NO
2. Accounting						
	(a.) Is the accounting function decentralized?					**NO**
	(b.) Do the accounting personnel lack the necessary training and skills to perform their assignments?					**NO**
	(c.) Are there any attitude- or ethics-related issues in the accounting department?					**NO**
	(d.) Is there a risk of an error resulting from the employees working under pressure?					**NO**
	OVERALL ASSESSMENT OF ACCOUNTING RISKS					
	Very low	Low	Moderate	Hig h		
		The risk is VERY LOW				
	Explanations					
						YES/NO

3. Operation of the audited company

(a.) Does the company operate in a highly risky industry?	**YES**
(b.) Is there any creditor-third party with a significant individual importance?	**YES**
(c.) Do certain of the members of the Board of Directors who do not held an executive position have a right of action or vote exceeding 25%?	**NO**
(d.) Is there any prediction of the future sale of the business (or part of it)?	**NO**
(e.) Has the management of the company been taken over by somebody else in the last 12 months?	**YES**
(f.) Is the company insolvent?	**YES**

OVERALL ASSESSMENT OF THE BUSINESS RISKS

Very low Low Moderate Hig h

The risk is HIGH

Explanations

YES/NO

4. Company Audit

(a.) Is this the first time the company audits this client?	**NO**
(b.) Did any of the last two years audit reports contain opinions stating significant reserves?	**YES**
(c.) Would you describe the relations with the client company as being "conflicting" or "deteriorating"?	**YES**
(d.) Are there any fees- or time-related pressures?	**NO**
(e.) Is there a significant number of operations which are "difficult to audit"?	**YES**

OVERALL ASSESSMENT OF AUDIT RISKS

Very low Low Moderate Hig h

The risk is HIGH

Explanations

OVERALL ASSESSMENT OF INHERENT RISKS – Synthesis

Range	Risk	Value
1. Management	LOW	3.5
2. Accounting	VERY LOW	0
3. Business	HIGH	7
4. Audit	HIGH	6.5
Valuation Inherent Risk	LOW	5.875

Explanations: As work modality, the auditor should answer with YES or NO to the questions asked by means of the section F1 - Checklist of the general inherent risk and to appreciate the risk level per each of the 4 levels (management, accounting, business and audit) with one of the qualifying grades *Very low, Low, Medium and High.* Eventually, we take into account a general appreciation that is also the entry into the section F2 – *Checklist of the specific inherent risk* to determine the size of the sample in the case of the application of the no-risk method of sampling.

Table 2. Checklist of the specific inherent risk
Sect. F2

								Initials	*Date*
Client	ABC SA				Drawn up by			AT	15-Jan-05
Period	1/1/2004		31/12/2004		Cheked up by			CR	17-Apr-05
Significiance threshold = 2500 mii RON								Ref.	
General inherent risk= LOW	**I1**	**I2**	**I3**	**I4**	**I5**	**I6**	**Valuation**		**Sample Size**
Tangible and intangible permanent assets	YES		YES		YES	YES	70%		52
Group accounts and investments	YES	YES					50%		48
Stocks and prod in progress - quantities	YES	YES	YES		YES		70%		52
Stocks and prod in progress - assessment	YES	YES	YES	YES			70%		48
Debtors	YES	YES	YES	YES	YES		100%		53
Short-term investments	YES	YES	YES	YES	YES	YES	100%		11
Bank accounts and cash office - payments							50%		48
Bank accounts and cash office - receipts							50%		48
Bank accounts – compared with bank statements	YES	YES		YES		YES	70%		48

Client	ABC SA				Drawn up by			Initials	*Date* 15-Jan-05
Period		1/1/2004	31/12/2004		Cheked up by			CR	17-Apr-05
Creditors						YES	50%		48
Long-term creditors							50%		43
Sales							50%		48
Purchases							50%		48
Expenses							50%		48
Wages and benefits							50%		13
Other audit sections							50%		23
Trial balance and book entries							50%		12
Preliminary financial statements and book entries after the end of the financial year	YES						50%		23

Explanations: Questions I1, I2, I3, I4, I5 and I6 should be answered per each category of audfited issues. If there is no answer, it means NO and only affirmative answers matter. This is what every questions means:

I1 – System exposed to errors/inadequate system/non-automated manual system;

I2 – Incompetent accountant responsible for this field;

I3 – Complex operations;

I4 – Risk of loss/fund embezzlement/fraud;

I5 – Many professional judgements;

I6 – Unusual operations.

Affirmative answers per each audited issue is taken into account. Depending on the number we get and on the *General inherent risk*, in our case LOW, the *Specific inherent risk* will be evaluated based on table no.3.

Example: In the case of *Corporeal fixed assets* we have an affirmative answer (1) and the general inherent risk LOW, which corresponds to a specific inherent risk of 50%.

Table 3. Table of evaluation of the level of specific inherent risk

Bumber of specific risks identificated	General level or inherent risc (from F1)			
	Very low	Low	Moderate	High
0, 1 or 2 risks	23%	50%	70%	100%
3 or 4 risks	50%	70%	100%	100%
5 or 6 risks	70%	100%	100%	100%

To determine the size of the audited sample, it is necessary to know how many operations are in the Journal for the audited item, which is related to a volume of population of more than 400 or under 400 operations. The value of the specific inherent risk is part of a risk band for a volume of the sample to audit. In our case, the inherent specific risk of 50% leads for a volume of population under 400 operations at a number of 400 operations. As in accounting there are only 23 operations, these will be checked all in all. Similarly, we proceed for the other items.

In the case of the application of the risk-based model of sampling, it is necessary to use the Section F3 – *Specific inherent risks and size of sample*. This form shows how necessary it is to evaluate the *Risk of non-detection non-associated with sampling* (RDNE), based on table 4 and Control Risk (RC), based on table 5.

Table 4 – RDNE Evaluation

Analytical examination safety	Values
Non-Existent	100%
Moderate	56%
High	31%

Table 5 – RC Evaluation

Control Safety	Values
Significant	13.5%
Moderate	23%
Limited	56%
Non-Existent	100%

Based on the information of tables 2, 4 and 5, the risk band is determined after having performed the product RI*RDNE*RC, that in relation to the number of operations per each audited item will lead to the determination of the sample size. In table 5, we present an example of risk band determination and sample size determination by completing the section F3.

Table 6. Specific inherent risks and sample size
Sect. F3

				Initials	*Date*
Client	**ABC SA**		Drawn up by	**AT**	**15-Jan-05**
Period	**1/1/2004**	**12/31/2004**	Cheked up by	**CR**	**17-Apr-05**
Signifiance threshold = 2500 mii RON	Risc inherent	Non-detection risk	Control Risk	Risk band	Sample Size
	RI (F2)	**RDNE**	**RC**	**RI*RDNE*RC**	
Tangible and intangible permanent assets	**70%**	**31%**	**14%**	**2.93%**	5
Group accounts and investments	**50%**	**31%**	**14%**	**2.09%**	5
Stocks and prod in progress - quantities	**70%**	**31%**	**14%**	**2.93%**	5
Stocks and prod in progress - assessment	**70%**	**31%**	**14%**	**2.93%**	3
Debtors	**100%**	**31%**	**14%**	**4.19%**	3
Short-term investments	**100%**	**31%**	**14%**	**4.19%**	3
Bank accounts and cash office - payments	**50%**	**31%**	**14%**	**2.09%**	5
Bank accounts and cash office - receipts	**50%**	**31%**	**14%**	**2.09%**	5
Bank accounts – compared with bank statements	**70%**	**31%**	**14%**	**2.93%**	3
Creditors	**50%**	**31%**	**14%**	**2.09%**	5
Long-term creditors	**50%**	**31%**	**14%**	**2.09%**	3
Sales	**50%**	**31%**	**14%**	**2.09%**	5
Purchases	**50%**	**31%**	**14%**	**2.09%**	5
Expenses	**50%**	**31%**	**14%**	**2.09%**	5
Wages and benefits	**50%**	**31%**	**14%**	**2.09%**	3
Other audit sections	**50%**	**31%**	**14%**	**2.09%**	3
Trial balance and book entries	**50%**	**31%**	**14%**	**2.09%**	3
Preliminary financial statements and book entries after the end of the financial year	**50%**	**31%**	**14%**	**2.09%**	3

5. Informatization of the activities run in audit approach

At this time, there are various information solutions for auditing financial statements of economic entities. For instance, the best known products are IDEA and ACL for Windows or even for DOS, to which a serioes of national products are added. Countries like Bulgaria, Italy, Moldova, Romania are not presented as users of such information solutions.

Please find in table 6 a list of users of information solutions in audit at an European level.

Table 6. Users of audit software

Country	Soft & OS
Belgium	ACL - Windows 95 / NT
Croatia	EKOFINA - Win 3.1 Effect Dubrounix CBO
Cyprus	IDEA - DOS
Czech Republic	IDEA - Windows
Denmark	Access - Windows NT/2000
Finland	ACL Windows – Windows
Germany	IDEA V1.2 - Windows
Greece	IDEA - Windows
Grenada	IDEA – DOS
Hungary	IDEA, SAS - Windows 98
Iceland	ACL - Windows
Ireland	ACL - Windows
Israel	Excel, Access, IDEA, SPSS, Wizrule - Windows
Malta	IDEA - Windows
Netherlands	IDEA - Windows
Netherlands Antilles	IDEA – Windows
Norway	IDEA/SPSS - Windows
Poland	ACL - Windows
Puerto Rico	IDEA - Windows
Russia	Oracle Discoverer Application Software - Win NT 4.0/Solaris
Slovenia	IDEA - Windows
Spain	Excel – Windows
Sweden	IDEA – Windows
Switzerland	ACL - Windows 2000

U.K.	IDEA - Windows 2000
Ukraine	SQL - Win NT 4.0, 2000

As you can see from the previous table IDEA for Windows and ACL for Windows prevail on the market of such softwares for the audit of financial statements. The prices of such products surpass in the commercial version USD 5 000, which is a problem for the offices of countries in transition. An addition problem is the fact that the interface is in English.

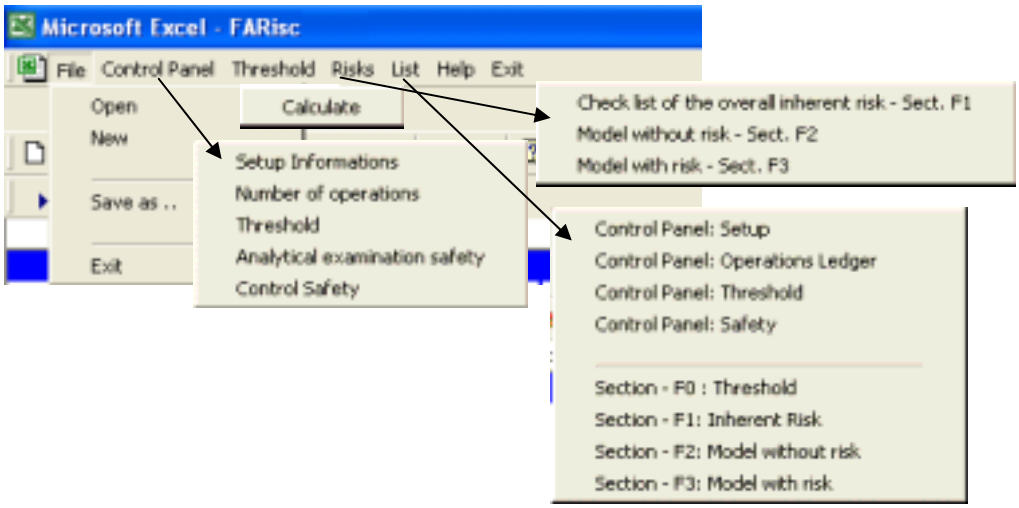
These few reasons made us propose the automated modeling of the activity of financial audit. In this article, we present the module **FARisc** specialised in the section F – Audit approach.

This module is developed under MS Office Excel with VBA support and has a main menu that enables:

1. Files (**Files**);
2. Determination of the work parameters (**Control Panel**);
3. Calculation of the significance threshold (**Threshold**);
4. Determination of risks per various section to audit (**Risks**);
5. Possibility to print audit sheets (F0, F1, F2 and F3) and the data introduced in the control panel (**Lists**).

In figure 2 we are presenting the menu of the application FARisc and the associated options.

Figure 2. The main menu of the FARisc application



The advantages of the FARisc are as follows:

1. It is easy to use;
2. It is conceived according to the minimal standards of audit;
3. It may be easily adapted in any language;
4. It is easy to integrate in a general audit application;
5. It is conceived according to the logic of the end user, in our case the financial statement auditor;
6. It makes available for the user the audit sheets under the format demanded by standards;
7. It helps the auditor in risk evaluation by simply using the models;
8. It may be used as work tool by students,m accountants and even in the activity of training financial auditors;
9. It is easy to update if the process of international harmonization continues;
10. In the commercial version, its price will be very low.

6. Conclusions

As it is used in specialized offices on a large scale of MS Office Word and Excel for preparing the audit files, the apparition of a module developed in MS Office Excel is an important ace in the activity of covering this market segment.

We consider that the main direction for the close future is the integration of the FARisc module in an integrated product of financial audit and its coupling with administrative and accounting software order to ensure the access to accounting databases and to other databases of the company, for their intelligent exploiting.

We should not disregard the fact that is possible to couple FARisc to intelligernt modules of risk evaluation, in order to eliminate bad practice risks.

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[4] *** ISA 320 - Significance Threshold in Audit

[5] *** ISA 500 - Audit Samples

[6] *** ISA 700 - Auditor's Report on Financial Statements

[7] BOTEZ, D, (2004), *Traditions, Updates and Perspectives of the Accounting Profession of Romania*, Sedcom Libris Publishing House, Iaşi.

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UNCERTAINTY MODELS IN FINANCIAL STATEMENT AUDITING

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Abstract

The auditor job is to give his opinion about which of all possible states is the true one. His opinion on the fairness of the financial statements it isn't an absolute guarantee. It is his professional judgment based on the collection and evaluation of sufficient evidence. In this context, to a certain extent, there is a degree of uncertainty in the financial statements auditing. Because of uncertainty it appears the risk that the auditor to give an opinion that does not correspond to the truth. He has to analyze all possibilities and to give the right solution based on his judgment, knowledge and experience. In present in literature there are some models that treat the uncertainty which was adopted for financial statement auditing. One of these models was developed especially for audit, standard model, and it is the most widely used by auditors in their practical work. The rest of them were developed based on mathematical theory and adopted to audit activities. This paper present the most known uncertainty models in financial statement auditing.

Keywords: *audit, uncertainty, financial statement*

1. Introduction

Financial audit represents examination activity, for expressing by financial auditors, of an opinion about financial statements according to audit standards, harmonized with international audit standards and adopted by Financial Auditors Organization from Romania. The objective of a financial audit statement is, according to International Audit Standards, the express of an opinion that financial statements were prepared, on all meaningful aspects, in concordance with general identified framework of financial reporting. Therefore the auditor is uncertain about information fairness and truthfulness presented in financial statements and is his task to express his opinion about that. This uncertain determines the existence of a certain risk as auditor's stated opinion not to be the fair one. Within volume and complexity growing of the accountant work, grows the error risk in data processing and implications of these misinform on users are more and more serious. A relevant example in this case represents the negative impact determined in the last years by disorders in producing and supplying of financial information in some banks which lead to a violation of caution principle and influenced the decisions of many legal and individual entities regarding savings assurance deposed in those companies.

Financial audit have to express an independent opinion over financial statements or over other situations and information intended to protect equally all accounting information users, all participants to economic and social life (shareholders, state, employees, banks, clients, suppliers etc). The auditor has to assure information users, by its position, regarding following aspects:

- observance of general accepted accounting principles and of internal procedures settled by company management
- reflection by accounting and by financial statements of trusty, clear and responsible image of patrimony, financial reports and results acquired by company.

Regarding audit objective is obvious that any other mission implies certain risks and their identification is one of the essential's auditor objectives. We have to see that risk evaluation of an entity is denoted by negative impact which may be avoided through protection policy development and by probability which may be avoided through preventive policy development. For precision information check presented in accounting reports is necessary to collect and check data afferent to a small amount of their components which may possible make some situations more credible

then others. In this context audit confront with certain risk mainly connected to impossibility of checking the entire information generated by activity deployment of an organization and the result of audit has a level of uncertainty.

2. Uncertainty approaches in financial audit

Considering accountancy of an organization can't be entirely analyzed on the occasion of audit performing we must take into consideration the uncertainty degree which the result implies in terms of a partly control. To frame an image of this we present in the following the models which approach uncertainty: probability theory, upper and lower probability models, belief-function theory and possibility theory and their applicability in financial audit.

2.1 Probability Models

From mathematical point of view, probability theory has at its basis probability function. In present are two approaches of it[1]:

- theoretical probability which is computed without experiment effectuation, respectively using only information which is known by physical situation;
- empiric probability determined using an experiment results made by a certain number of times. It is also known as empiric attendance.

Lets be Ω a finite number of possible results of an event, A a finite set of elementary results of event $A \subseteq \Omega$ and ω an elementary event included in A. Probability P of A is given by relation:

$$p: \Omega \rightarrow [0, 1],\ P(A) = \sum_{\omega \in A} p(\omega) \qquad (1)$$

A function P is a probability function if and only if it has the following properties[2]:

a) $0 \leq P(A) \leq 1$; (2)

b) $P(\emptyset) = 0$; (3)

c) $P(\Omega)=1$; (4)

[1] Francis, A., Statistica si matemetica pentru managementul afacerilor, Editura Tehnica, Bucuresti, 2004, pp. 456

[2] Frank, B., Schulz, W., Tietz, W., Warmuth, E., *Compendiu de matematica*, Editura All Educational, Timisoara, 2001, pp. 235

d) $P(A \cup A_1) = P(A) + P(A_1)$, if A and A_1 are incompatible.(5)

In case that events field isn't finite is necessary that:

e) $P(A_1 \cup A_2 \cup \ldots \cup A_n \cup \ldots) = P(A_1) + P(A_2) + \ldots P(A_n) + \ldots$ if events $A_1, A_2 \ldots$ are two by two incompatible, respectively if $A_j \cup A_i = \emptyset$ for $i \neq j$. (6)

If P(A)=0 then A is an impossible event and if P(A)=1 then A is a certain event. One of this theory consequence is that $P(A)+P(\overline{A})=1$, where $\overline{A}$ is complement of A referring to Ω multitude.

Usage of this probability theory was expanded in audit too, especially in literature. From this perspective there are two approaches: audit risk approach (risk models) and audit modeling approach (decision models). The main difference between these two approaches is their purpose. While risk models are oriented to risk modeling in audit and understanding their components for maintaining it at an acceptable level, decision model is used as one of numerous factors regarding decision adopting more orienting itself to audit activity usage maximization.

2.1.1 Risk models

In present there are two models for audit risk approach: Audit Risk Model and Bayesian Risk Model.

A. Audit Risk Model

This model was proposed by Audit International Standards and starts from the following formula for audit risk evaluation:

$$AR = IR \times CR \times DR \quad (7)$$

defined according to Audit International Standards by [3]:

- AR – audit risk, respective the risk that auditor to express a wrong audit opinion when there are significant errors in financial reports;
- IR – inherent risk is defined as „the susceptibility of an account balance or class of transactions to misstatement that could be material...assuming that there are no related internal control";
- CR – control risk is „the risk that misstatements that could occur in an account balance or class of transactions and that could be material...will not prevented or detected on a timely basis by the system of internal control";

[3] *International Standard on Auditing*, http://www.cafr.ro [Accessed 12.06.2005]

- DR – detection risk is defined as „the risk that auditors' substantive procedures will not detect a misstatement that exists in an account balance or class of transactions that could be material..."

This audit risk evaluation model is very simple and intuitive and because is translated as probability is essential to specify that cumulative probability to exist and to get away of control tests and audit is equal with product of marginal probabilities of equation components.[4]

From this equality we get that inherent risk, control risk and undetecting risk are independent which doesn't correspond with practical reality. This risk evaluation model is mainly used in audit work planning for undetecting risk determination as proportion between the others three components of the equation. Generally, audit risk is considered a constant, respectively 5% and control and inherent risk are often evaluated by auditor on the basis of non-statistical evidences through organization activity analysis, of their relationship with the outside, of accountancy etc. Independent audit risk components treatment is also the most important criticism brought to this model because it don't exist a rigorous determination between control risk de control and inherent one, those two categories influencing one each other. Some researches have commented other deficiencies of the audit risk model as: it provides an oversimplification of the tasks (Cushing and Loebbecke), it focuses in the likelihood that audit tests will fail to detect material error when it is preset, but does not consider the risk of incorrect rejection (Kinney). With all that, this proposed model by international standards is the most practically used.

B. Bayesian risk model

Bayesian risk model was introduces in literature starting with 1980 by Canadian Institute of Chartered Accountants' and can be interpreted as a Bayesian version of audit risk model. After that all known models as „Bayesian" in audit dedicated specialty literature are based on Bayes theorem. It handles probability „inverted" provisory probabilities. Is known that provisory probabilities are defined as: P(A|B) = probability of production of event A if event B is already produced. Bayes theorem treats „inverted" problem: finding probability of production of event A (early) if it will produce (ulterior) event B. Generally formulation is[5]:

H = hypothesis („proposition", assertion);

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[4] CARINE VAN DEN ACKER, *Belief-function Theory and its Application to the Modeling of Uncertainty in Financial Statement Auditing*, Katholike Universiteit Leuven, 1996, pp. 71

[5] DINU, O., MIRODOTESCU, B., *Teoria Bayes, Probabilități subiective*, http://www.upg-ploiesti.ro/sescom/pdf/s07/s07-l17-od2.pdf, [Accessed 15.06.2005]

E = event/evidence;

$$P(H_I \mid E) = \frac{P(E \cap H_i)}{\sum_j E \cap E_j} = \frac{P(E \mid H_i) \times P(H_i)}{\sum_j P(E \mid H_i) \times P(H_i)} = \frac{P(E \mid H_i) \times P(H_i)}{P(E)} \quad (8)$$

where:

a) P(H|E) is a subjective probability interpreted as trust degree in H hypothesis, if event E was produced, applicable to systems which contain non-recurring processes.

b) P(H|E)=1 if H hypothesis is true;

c) P(H|E)=0 if H hypothesis is false.

Carine van den Acker proposes the following formulas for Bayes theorem application to define the audit risk and the posterior probability of „error free" by[6]:

$$P(E \mid A) = \frac{P(A \mid E) \times P(E)}{P(A)} \quad (9)$$

with:

P(E) - the prior probability of errors;

P(A|E) - the likelihood of accepting financial statements on the basis of evidence, given that they contain errors (this is the risk of incorrect acceptance);

P(A) – the marginal probability of the evidence that implies acceptance;

P(E|A) – the posterior probability of errors, given that financial statements are accepted on the basis of the evidence (the user's risk of unjustified reliance on accepted financial statements).

$$P(\overline{E} \mid R) = \frac{P(R \mid \overline{E}) \times P(\overline{E})}{P(R)} \quad (10)$$

with:

P($\overline{E}$) - the prior probability of „errors free" financial statements;

[6] CARINE VAN DEN ACKER, Read Works, pp. 73

P(R|$\overline{E}$) - the likelihood the rejecting the financial statements on the basis of evidence, given that they are error-free (this is the risk of incorrect rejection);

P(R) – the marginal probability of the evidence that implies rejection;

P($\overline{E}$|R) - the posterior probability of errors, given that financial statements are rejected on the basis of the evidence (the user's risk of unjustified neglecting of rejected financial statements).

2.1.2 Decision models

Unlike audit risk models which show only how to obtain acceptable level of risk without specifying which is that, decision models get in consideration decisions theory insisting on utility maximizing regarding benefits and loses generated by taking economic decisions in uncertainty conditions. Because of these reason are taking in consideration, in audit risk evaluation, audit procedures cost and efficiency and possible loses happen because wrong decisions. In this models category for audit risk evaluation are included: Bayesian decision models and game theoretic models. In the following is presented only the first model.

Bayesian Decision Models use Bayes theorem for audit risk determining using as parameters economic factors. This was surveyed by many researchers as Kinney (1975), Gwilliam (1987), Steele (1984, 1992). According to this approach trust degree in audit opinion regarding financial statements is determined through trust degree analysis in every elementary component of them and is represented through subjective probabilities.

Those model characteristics may be synthesized hereby:

- financial statements are decomposed in elementary components and is analyzed the credibility of every element. The credibility of financial statements in the whole is determined on the basis of results obtained from the analysis of each elementary component;
- financial statements credibility is continuous updated through new evidences collecting and analyzing for reducing audit risk at an acceptable degree.

For obtaining a specified degree of trust are permanently comparing the relationship between collecting imposed costs of more samples for risk and loses reduction generated in case of wrong opinion. The most important disadvantage of this model usage first comes from difficulty of costs and loses representation through mathematical formulas.

2.2 Belief-function Models

Belief-function formalism isn't new. It was tackled along the time by Shafer (1976), Gabbay & Smets (1998), Shafer & Srivastava (1990), Smets (1998, 1990) etc. and it bases on probability theory as Bayesian formalism.

Lets be Θ a finite number of results θ. Trust degree Bel in a cognitive state A is determined by:

$$Bel(A) = \sum_{b \subseteq A} m(B) \tag{11}$$

A function Bel: $2^{\theta} \rightarrow [0, 1]$ is a belief-function, if and only if are accomplished the following conditions[7]:

a) Bel ($\emptyset$) = 0;

b) Bel (Θ) = 1;

(12)

$\forall A_1, A_2, \ldots, A_n \subseteq \Theta,$

c) $Bel(A_1 \cup A_2 \cup \ldots \cup A_n) \geq \sum_i Bel(A_i) - \sum_{i<j} Bel(A_i \cap A_j) + - \ldots + (-1)^{n-1} Bel(A_{n-1} \cap A_n)$

One of the consequences of these axiom is Bel(A)+Bel($\overline{A}$)≤1.

As we see in probability theory formula and in Belief-function theory formula the last one is a generalization form of the first one.

The idea of belief functions was introduced by Dempster in 1967 and implies three connected representations for certainty representation: the basic probability assignment function (bpa or m), the belief function (Bel) and the plausibility function (Pl).

The basic probability assignment is a primitive form of evidence theory. It is also known as m-function, its values m-values and takes values between 0 and 1. Bpa's value for a set of (m(A)) expresses the proportion of all relevant and available evidence that supports the claim that a particular element of X (the universal set) belong to the set A but to no particular subset of A and may be represented as[8]:

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[7] CARINE VAN DEN ACKER, Read Works, pp. 2

[8] Sentz, K., *Combination of Evidence in Dempster-Shafer Theory,* www.sandia.gov/epistemic/Reports/SAND2002-0835.pdf, [Accessed 20.06.2005]

a) $m : P(X) \to [0,1]$;

b) $m(\text{ø}) = 0$;

c) $\sum_{A \subseteq P(X)} m(A) = 1$; (13)

where P(X) is the power set of X, Ø is the null set and A is a set in the power set.

Belief on a set of elements represents the sum of all basic masses (B) included in A:

$$Bel(A) = \sum_{B|B \subseteq A} m(B), \quad (14)$$

and the plausibility is the sum of all the basic probability assignments of the sets that intersect the set of interest:

$$Pl(A) = \sum_{B|B \cap A \neq \text{ø}} m(B). \quad (15)$$

From these two formulas we obtain the following relation: Pl(A)=1-Bel(~A).

Belief-function models may be used for uncertainty representation resulted from partial ignorance and randomness analysis. The most important studies in this area were realized by Srivastava and Shafer who, on the basis of realized studies made each other a function for risk evaluation at financial statements level, every account level and every audit objective level.

It's argued hereby the usage of belief function in audit achievement[9]:

1. belief function represent ignorance as a separate explicit component of the evaluation, rather than describing it indirectly by assigning some ignorance to each of the possible outcomes;

2. belief function can represent support for an audit objective or account without showing any support against the audit objective or account.

The usage advantages of this model for risk evaluation and representation in audit can be synthesized hereby:

[9] Harrison, K., Srivastava, R.P., Plumlee, R.D., *Auditors' Evaluations of Uncertain Audit Evidence: Belief Functions versus Probabilities*, in Belief Functions in Business Decisions, Physica-Verlag Heidelberg, New York, 2002, pp. 181

- audit risk evaluation is based on plausibility model and an interpretation of its components with belief function makes it more intuitive;
- components representation with assertive, negative and composite values is more favorable;
- representation on different levels of certainty for information which derive from the same source, respectively data from financial statements and are dedicated to different audit objectives is more suitable. For example, it can make distinction between an objective existence and its evaluation.

2.3 Possibility theory

Possibility theory was first introduced by Professor Lotfi Zadeh in 1978 as an extension of his theory regarding fuzzy sets and fuzzy logic. It's a mathematical theory which works with uncertainty types and represents an alternative to probability theory.

A function Π is a possibility function if and only if is achieved the following condition:

$$\forall A, B \subseteq \Theta : \Pi(A \cup B) = \max(\Pi A, \Pi B) \quad (16)$$

where:

a) Θ is a finite set of possibilities;

b) A, B are set of elements included in Θ.

In case of considering θ a set of events and p(θ) possibility that θ to belong to Θ then p(θ) = 0 means that θ is impossible and p(θ) means that θ is certain. If p(θ')>p(θ) then event θ' have bigger chances to be achieved then event θ.

Dubois and Prade drew a consequence of possibility axiom according whom: Π(A)+ Π($\overline{A}$)>1. Starting from those data certainty degree of an event (*C(A)*) is 1- Π($\overline{A}$) and is given by the relation:

$$\forall A, B \subseteq \Theta : C(A \cup B) = \min(C(A), C(B)) \quad (17)$$

The most important difference between possibility theory, probability theory and belief-function is that first one is ordinal and the other two are numerical.

The most important usage of possibility theory is connected to fuzzy sets, the advantage coming from possibility of using insufficient knowledge, these one being the main motivation for using it in audit risk evaluation. The

disadvantage in this case is that this theory can't be used for randomness representation.

2.4 Upper and Lower Probability Models

Upper and Lower Probability is similar with probability theory by difference that some probabilities may be unknown. Let Π be the set of all probability distributions compatible with the available information. Upper and Lower Probability can be interpreted as being the bigger and the smaller frequency which a result A can be obtained with if there are more identical experiments:

$$P: 2^{\Omega} \rightarrow [0,1],\ P_{min}(A) \leq P(A) \leq P_{max}(A),\ \forall P \in \Pi,\ \forall A \subseteq \Omega \quad (18)$$

where $P_{min}(A)$ is the minimum number of experiments with result A and $P_{max}(A)$ is the maximum number of experiments with result A. In case that A obtaining is conditioned by a certain event B Smets[10] proposed in 1994 the following function based on Bayes theory: let Π_B be the resulting set of conditional probability function:

$$\Pi_B = \{P_B : \forall A \subseteq \Omega\ P_B(A) = (A \mid B) = \frac{P(A \cap B)}{P(B)}, P \in \Pi) \quad (19)$$

And the upper and lower conditional probabilities functions proposed by Smets are the upper and lower limits of these conditional probabilities:

$$P_{min}(A|B) = \frac{P_{min}(A \cap B)}{P_{min}(A \cap B) + P_{max}(\overline{A} \cap B)} \quad (20)$$

$$P_{max}(A|B) = \frac{P_{max}(A \cap B)}{P_{max}(A \cap B) + P_{min}(\overline{A} \cap B)} \quad (21)$$

The main reason which may befriend usage of Upper and Lower Probability Models in audit risk evaluation is the possibility of working with unknown probabilities.

3. Conclusion

Evaluation models of uncertainty in financial audit former presented have their peculiarities, have advantages and disadvantages.

[10] SMETS, P., *The transferable Belief Model and other Interpretations of Dempster-Shafer's Model*, Université Libre de Bruxelles, http://www.mat.univie.ac.at/~andrzej/papers/TBM_and_DST.pdf, [Accessed 16.05.2005]

Audit risk model presents audit risk as product of inherent risk, control risk and detection risk. It doesn't take into consideration the connection and dependence between these three specified components. Its usage is mainly recommended in audit planning stage for determining sample size of financial information to whose audit activities will be applied to. This model is simple and intuitive but doesn't offer a real value of audit risk, even is preferred by these domain practitioners.

Decision model, proposed by Steele, evaluates audit risk on the basis of elementary components of financial statements. This is a "real" Bayesian model. The main disadvantage of this model is that it doesn't offer the possibility of verifying the completeness of audit risk activity. An important characteristic of this model is the inclusion of audit costs as a component of audit risk evaluation process.

Belief-function model presented by Srivastava proposes evidence representation and risk aggregation. It decomposes the question of fairness of the financial statements in subquestions related to the fairness of each account and further and achievement of objectives and the fairness of transaction. Variables used in this model have two possible values "fair" and "not fair". It's based on "and" relationship. In this context financial statements are fairness if and only if all their components are fair and an account is fair if and only if all its objectives are accomplished. "And" relationship usage between audit risk components makes them less flexible and financial statements decomposition grows very much the process complexity.

All approach models of uncertainty in audit have advantages and disadvantages like I said and I presented before. In practice, the most used is audit risk model because its simplicity, being also the model proposed by Audit International Standards.

The other models based on probability theory, belief-function etc. are more complex and may reflect better the risks situation the auditor may confront with, being preferred by researchers. Another advantage of the last ones is facilitation of process informatization of audit risk evaluation.

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A FABRICATED CEILING? THE INFORMATION CONTRIBUTION OF BOND RATINGS[1]

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Abstract

We test whether security prices react to an independent, unanticipated and simultaneous change in Moody's bond rating procedure. Moody's eliminated its sovereign ceiling rule on June 7, 2001 allowing a company rating to exceed that of its home country. It placed the long-term foreign currency bonds of 38 companies from 13 different emerging markets, mostly Latin American, on review for an upgrade. We find that the yield spreads of the affected companies fell in a cross-section comparison with control companies on June 8, 2001. However this effect is no longer significant when allowing for a time dimension and not just a limited cross-section comparison on the event date. There is no evidence that companies that a priori would be expected to be more constrained by the sovereign ceiling, react more strongly to the announcement. Finally, there is no stock price reaction, even in a cross-section comparison on the event date.

Keywords: *bond ratings; sovereign ceiling; emerging markets*

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1. Introduction

The purpose of this paper is to investigate whether security prices react to an independent change in the bond rating procedure. This can be on account of one of two factors. First, ratings may contain pricing-relevant information that investors cannot or find too costly to obtain on their own. Second, some investors (such as institutional investors) may be constrained by statuary requirements. So the removal of the sovereign ceiling may serve to increase the potential pool of investors and in the process affect the market price. The literature on credit ratings (and in particular, that on sovereign credit ratings) has been plagued by the difficulty in accurately testing for rating value and causality. The main problem is the presence of joint endogeneity, whereby ratings are rarely changed independent of market or firm news and events. Therefore it is difficult to ascertain whether a company's (or a sovereign's) bond price reacts because of a rating change or whether a rating change coincides with a fundamental (or at least a market-perceived) change in borrowers' risks. In that case, it would be wrong to attribute the bond price reaction to the rating change when in fact it may be on account of the triggering economic event.

Moody's unanticipated announcement on June 7, 2001 provides an ideal natural experiment to test for the independent information effect of rating changes. On that date, Moody's issued a press release in which it stated that it would no longer apply the sovereign ceiling and it would therefore allow a company rating to exceed that of its home country. Thereby it effectively did away with the premise that companies are always riskier than their governments. It concurrently placed the long-term foreign currency bonds of 38 companies from 13 different emerging markets on review for an upgrade. Prior to that date, Moody's did not issue a rating for a company above that of its home country rating[2]. The companies were mostly in the petroleum, telecommunications, and banking sectors. Of the 38 companies, 28 (or 74%) were Latin American and 29 were in banking & finance. Descriptive statistics on the affected companies are presented in Table 1.

This change in Moody's rating policy was not accompanied by any fundamental change in borrowers' risk nor in general emerging market risk,

[2] With the possible exception of a corporate in Panama. In the future, we intend to include in our study the April 1997 decision by Standard & Poor's to upgrade the debt of fourteen Argentinian firms to a rating higher than Argentina's sovereign debt. However it was not interpreted as a wide-spread and permanent change in procedure, especially as it was limited to Argentina.

was not preceded by any announcement[3], and was carried out simultaneously for all 38 bonds. Therefore to the extent that the sovereign ceiling matters in constraining companies' external financing, we would expect there to be a significant economic effect on the security prices of the affected companies in reaction to the rating policy change.

Rating agencies do not reveal their rating methodology and ratings remain non-transparent. It is extremely rare to find a publicly announced change in procedure or to even instrument for it with a change in a rating committee's members. First, this data is confidential. Second (and directly concerning sovereigns), there has been no material change in sovereign rating procedures in the last 15 years and even since the early 1970s, according to a knowledgeable ratings industry insider. Third, there is a lot of persistence in sovereign rating committee composition and small changes occur continuously but this is also not available.

There is only one paper that we are aware of that has investigated a change in rating procedures. Kliger and Sarig (2000) assessed the information value provided by Moody's refinement of issued ratings on April 26, 1982. They emphasize that the rating changes on that date exclusively reflected rating information. Furthermore, they cite Moody's statements confirming that the change to fine ratings was based on the same information that was behind its previous ratings. Prior to that date, Moody's assigned one of ten "coarse" rating classes to issuers' bonds (such as Baa, Ba and so on). On April 26, 1982, Moody's added rating modifiers ranging from 1 to 3, where a "1" was for the best subrating and "3" for the worst subrating. Using cross-section data on 812 bonds and 386 stocks, they find that debt value increases and equity value falls when Moody's announces better than expected ratings, although firm value is not affected. Therefore they favor an asset-substitution explanation, whereby wealth is transferred from shareholders (the residual claimants) to bondholders when there is "good" bond rating news. More importantly, they therefore conclude that the bond rating information has value to investors.

[3] Moody's press release was widely cited and news of it appeared in both The Financial Times and The Wall Street Journal (among others) on June 8, 2001. We carried out a search for Moody's announcement using Lexis-Nexis and all articles mentioned that it was a surprising event and there are no reports prior to June 8, 2001.

Table 1. Descriptive Statistics on the 38 companies affected by the June 7, 2001 Announcement

	N	Bond data[a]	Stock data[a]	Rating [b]	Leverage [c]
LATIN AMERICA	28	17	10		0.768
ARGENTINA	2				
Telefonica de Argentina S.A.		✓	✓	B2	0.519
YPF S.A. (Repsol YPF)		✓	✓	B2	0.342
BRAZIL	16				
Banco ABN Amro Real S.A.		✓		B1	0.829
Banco AGF Braseg S.A.			✓	B1	1.054
Banco Barclays e Galicia S.A.				B1	
Banco Bilbao Vizcaya Brasil S.A.		✓		B1	0.933
Banco Bradesco S.A.		✓		B1	0.881
Banco Citibank S.A.				B1	
Banco de Investimentos CSFB Garantia				B1	
Banco do Brasil S.A.		✓	✓	B1	0.944
Banco Sudameris Brasil, S.A.				B1	
BankBoston Banco Multiplo S.A.				B1	
Lloyds Bank Plc (Brasil)				B1	
Unibanco-Uniao de Banc. Bras		✓	✓	B1	0.896
Banco Safra S.A.		✓		B1	0.984
Banco Votorantim S.A.				B1	
Petroleo Brasileiro S.A.		✓	✓	B1	0.607
Safra Leasing SA Arrendamento Mercantil				B1	
CHILE	3				
Banco Santiago		✓	✓	Baa1	0.932
Banco del Estado de Chile				Baa1	
Banco Sud Americano		✓	✓	Baa1	0.856
MEXICO	6				
Banco Nacional de Mexico		✓		Baa3	0.930
Banco Santander Mexicano, S.A.				Baa3	
BBVA - Bancomer, S.A.		✓		Baa3	0.911
Coca-Cola FEMSA, S.A. de C.V.		✓	✓	Baa3	0.500
Petroleos Mexicanos		✓		Baa3	0.725
Telefonos de Mexico, S.A.		✓	✓	Baa3	0.655
VENEZUELA	1				
Bariven S.A. (guaranteed by PDVSA)		✓		B2	0.332
Rest of the World	10	6	6		0.860
ESTONIA	1				
AS Hansapank			✓	Baa1	0.916
HONG KONG	1				
Hongkong and Shanghai Bank Corp.		✓	✓	A3	0.932
INDIA	1				
ICICI Ltd.		✓	✓	Ba2	0.933
LATVIA	1				
Latvijas Unibanka			✓	Baa2	0.913
LEBANON	3				
Banque Audi		✓	✓	B1	0.934
Byblos Bank			✓	B1	0.933
BLOM Bank		✓		B1	0.940
MALAYSIA	1				
Petroliam Nasional Berhad		✓		Baa2	0.533
SOUTH AFRICA	1				
Telkom SA Ltd.		✓		Baa3	0.703
TURKEY	1				
Turkiye Vakiflar Bankasi TAO				B1	
Total Available		23	16		0.799
By Industry					
Banking & Finance	29	14	11		0.917
Beverages	1	1	1		0.500
Petroleum	5	5	2		0.508
Telecommunications	3	3	2		0.626

a Source of bond and stock data was Datastream and supplemented with Bloomberg and Reuters
b Historical rating data was obtained from Moody's website (http://www.moodys.com)
Note: a rating of Ba1 or below indicates a sub-investment (speculative) grade rating.
c Leverage is defined as the ratio of total debt (liabilities) to total assets. The main data source for accounting data was ISI Emerging Markets Database and it was supplemented with Factiva

We study the reaction of both bond and stock prices to Moody's independent, unanticipated and widespread elimination of the sovereign ceiling rule. We take advantage of the time series and cross-sectional variation in security prices. We find that the yield spreads of the affected companies fell in a cross-section comparison with control companies on June 8, 2001 (as to be expected if ratings have value). However this effect is no longer significant when allowing for a time dimension and not just a cross-section comparison with a limited number of control bonds on the event date. Furthermore, it does not appear that companies that we would a priori expect to be more constrained by the sovereign ceiling, react more strongly to the announcement. Finally, there is no stock price reaction, even in a cross-section comparison on the event date.

That we find little or no security price reaction to Moody's elimination of the sovereign ceiling is a significant result in its own right. The sovereign ceiling rule is important to the extent that rating agencies provide information value in pricing emerging market debt. If the independent elimination of the ceiling rule did not contribute new information, then the rule itself may not have been important. The previous literature has conjectured that rating announcements may have a considerable market effect because many institutional investors are constrained to holding investment-grade instruments (see for example, Kaminsky and Schmukler (2002)). This effect would imply that there should be a significant bond price reaction to Moody's announcement on account of the increase in the potential pool of investors. Previous literature assessing the impact of rating changes on security prices in emerging markets includes Richards and Deddouche (1999). However their study looks at bank rating changes that may have been triggered by bank or market events. Nonetheless, it is interesting that they find that stock prices do not react (for the most part) to the rating change.

A relevant study by Durbin and Ng (1999) find that market participants do not strictly apply the sovereign ceiling. To illustrate their point, they show evidence for several companies with a significantly lower spread than their home country. One of the companies is Telefonica de Argentina, which later was among the 38 companies affected by Moody's announcement. In a comparison of yield spreads on 116 emerging market corporate bonds with those on their home country bonds, they find that a 100 basis-point increase in the spread of the sovereign bond is associated with only a 40 basis-point increase in the spread of the corporate bond and conclude that transfer risk is not 100%. It is interesting that they do not find an increase in the country risk effect on corporate risk during and after the Asian crisis.

2. Change in Rating Practice and the Sovereign Ceiling

On Thursday June 7, 2001, Moody's placed the long-term foreign currency bonds of 38 issuers on review for upgrade; effectively eliminating the sovereign ceiling. Moody's issued a press release explaining the factors behind this explicit change in their long-standing policy to reflect "a new reality". Moody's noted that the recent evidence from country defaults ranging from Russia to Ecaudor indicated that the foreign currency transfer risk from sovereign to resident companies had declined (for example when the home government can tax firms by imposing foreign exchange controls or by appropriating assets). This contrasts with the across-the-board moratoria placed by countries (such as Mexico and Argentina) during their defaults during the 1970s and 1980s. Further, Moody's cited that the role of the private sector has increased considerably in emerging economies and a private sector default would have significantly more negative consequences on the domestic economy[4].

These reasons led Moody's to reconsider their sovereign ceiling rule. They listed three main factors that would allow a company rating to exceed that of its sovereign. First is the creditworthiness of the individual borrower. Second is the probability that there would not be a generalized moratorium in the event of a government default. Third are case-by-case circumstances of the borrower in terms of ease of access to foreign exchange. Moody's noted that it would continue to examine other borrowers in the context of its policy change[5].

The Moody's announcement took the press and market participants by surprise[6], which is an important precondition for our study. Moody's had also traditionally been viewed as being more conservative than other rating agencies. The Financial Times noted in its June 8, 2001 article that the

[4] Nonetheless, the macroeconomic environment in which the firm operates will be affected by the situation of its home country. To the extent that a firm is more responsive to the domestic business cycle, then it should be more affected by sovereign risk, regardless of its size.

[5] However placement on review for upgrade or upgrades after June 7, 2001 are confounded with the standard problem of joint determination with company and/or market news. Therefore only the affected companies on June 7, 2001 can be suitably used to test for the information contribution of the rating procedure change.

[6] In fact, on June 5, 2001, Moody's had confirmed the ratings of 7 Argentinean telecommunications companies (among them Telefonica de Argentina) at B2 with a negative outlook. Furthermore, Vincent Truglia (co-head of Moody's Sovereign Risk Unit) was quoted as saying that "we were not able to talk directly with the individual issuers in light of the sensitivity of the information on the market" (obtained from High Yield Report, June 18 2001).

Moody's announcement may be "controversial because it is so wide-ranging" as it includes purely domestic companies and banks. S&P and Fitch disagreed with Moody's policy relating to banks. On the other hand, Moody's disagreed with S&P's policy of relaxing the sovereign ceiling for dollarized economies. Moody's did not include any Argentinean bank on their review for a possible upgrade[7].

3. Methodology

The central question that we address is whether security prices react to an independent, unanticipated and uncontaminated change in Moody's bond rating procedure. In theory, the paper is in the spirit of an event study. However in practice, we cannot apply standard event study methodology in the presence of perfect clustering on one event date because the covariances between abnormal returns will not necessarily be equal to zero (see Campbell, Lo and MacKinlay (1997) for a good discussion). One way to deal with this problem is to analyze the abnormal returns without aggregating the securities. This is done using a multivariate regression model with dummy variables for the event date among other controls.

We take advantage of the time series and cross-sectional variation in bond and stock prices. The sample of affected companies on June 7, 2001 is arguably small, but from a time series perspective there are many data points available. Therefore the effective sample is quite large. In addition to each bond (or stock) serving as its own control, it is important to control cross-sectionally by including non-affected companies.

We follow the methodology adopted by Kliger and Sarig (2000). They first need to determine a benchmark for the ex ante default risk expectations to assess whether the rating refinement was good, bad or no news for a company. Our study is more simple because the event should have been good news for all the affected companies (for their bonds, more accurately). Therefore while Kliger and Sarig compare the good news relative to the bad news coefficients, it is sufficient for us to compare the affected companies with the controls. They limit their estimation to a cross-section regression of the change in the yield spread using month-end prices of April 1982 compared to March 1982. We begin by estimating the following cross-section on June 8, 2001 using week-end yield spreads. To compute the yield spread for a given bond, we subtract the equal-maturity US Treasury bond yield from the US dollar-denominated company bond[8]. Because it is

[7] The Argentinean crisis.may have vindicated Moody's opinion.

[8] There are a few cases when the company has issued only bonds in euros, and so we subtract an equal-maturity European government bond. We also intend to adjust for relative duration

uncertain whether the press release was issued during trading hours on June 7, 2001 and to allow for the likely possibility that investors received the news on June 8, we estimate weekly yield spreads as of each Friday (therefore comparing June 8, 2001 to June 1, 2001, etc.)

$$\Delta YS_i = \alpha + \beta I_{Affected} + \gamma X_i + \varepsilon_i \,, \qquad (1)$$

where $I_{Affected}$ is a dummy for those bonds affected by the announcement when they were placed on review for possible upgrade. We therefore expect β to be negative if Moody's annoucement contributed new price-relevant information. X refers to all other controls. Because of the limited number of affected companies equation 1 can be extended to a panel regression shown below:

$$\Delta YS_{it} = \alpha + \beta(I_{Event,t} \times I_{Affected,i}) + \gamma I_{Event,t} + \delta I_{Affected,i} + \gamma X_{it} + \alpha_i + \varepsilon_{it} \,, \qquad (2)$$

where I_{Event} takes on the value of 1 on June 7 and June 8, 2001 and 0 otherwise and we again expect β to be negative.

We also study the effect on stock prices using two methods for calculating abnormal returns. The first uses the "mean-adjusted returns" as a benchmark for the expected return. Specifically we calculate the abnormal return of a stock i as

$$AR1_{it} = R_{it} - R_{i,-[80,10]} \,, \qquad (3)$$

where t refers to a daily date, $R_{it}=100\times(P_{it}/P_{it-1}-1)$, and $R_{i,-[80,10]}$ is the average return of the stock in the 80 through 10 trading days prior to June 7, 2001[9]. We also calculate the abnormal return using "market-model-adjusted returns":

$$AR2_{it} = R_{it} - (\alpha_i + \beta_i R_{Mj}), \qquad (4)$$

where the market model uses the overall domestic stock market index of a company's home country, j, for the market return. As for the "mean-

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of the bonds, to account for the coupon structure on the effective maturity of the bond. However, it is worth noting that Durbin and Ng (1999) found no substantially different results when they adjusted for duration.

[9] We follow Kliger and Sarig and use the previous 80 to 10 trading period for the benchmark period. However the results are robust to different estimation periods.

adjusted returns" model, the period of estimation of the market model is over the 80 to 10 trading days prior to the announcement day. We repeat the estimation of equations 1 and 2 but using the abnormal stock return in place of yield spread differences. The coefficient, β, in this case may be of ambiguous sign. If the dominant effect derives from a transfer of wealth from shareholders to bondholders, then abnormal returns for the affected companies should be negative and β should therefore be negative. However, Richards and Deddouche (1999) suggest that the expected reaction of stock prices to positive rating changes should be positive if rating changes reflect improved company operating conditions. Therefore we leave the question to the data to reveal.

3.1 Data

We first collected daily data on all available long-term foreign currency bond yields and stock prices of the 38 affected companies from Datastream and supplemented with the use of Reuters, Bloomberg, and ISI Emerging Markets. After an exhaustive search, we were only able to obtain data on 23 bonds and 16 stocks. In cases of missing data, we contacted the companies directly through email. Several replied that they are not listed (or were not listed in 2001), which helps to explain the scarcity of stocks. However we should have the full 38 bonds, since the Moody announcement pertained to companies with issued bonds at the time. One explanation is that Datastream and Bloomberg often do not keep data for expired bonds (a point also noted by Durbin and Ng (1999)). A few companies replied[10] that their eurobond was traded very infrequently. Therefore if there is any bias in our sample, it would be towards the more liquid sample. Also to avoid including cases of multiple bonds for one company, we use the most recently issued bond or the most liquid one. All these reasons could imply that we are more likely to find a security price reaction to Moody's announcement. Therefore if we do not find a reaction with our sample, it is also likely to be the case with the full sample. Refer to Table 1 for descriptive statistics on the affected companies.

We also collected historical rating data on each of the bonds from Moody's website and supplemented missing data on expired bonds with the help of a contact at Moody's[11]. Accounting data on the companies in question were collected from the ISI Emerging Markets Database and supplemented with data from Factiva. This data was used to calculate company leverage.

[10] For example, Estonia's Hansapank and Lebanon's Byblos Bank.

[11] We acknowledge the help of Mr. Adel Satel at Moody's Cyprus Office.

We collected US Treasury bond yield data and European government bond yield data from Global Financial Database. We also collected country stock price market indices from Global Financial Database. Data on the stripped yield spread of country bonds (JP Morgan's EMBI Global series) was collected from Datastream.

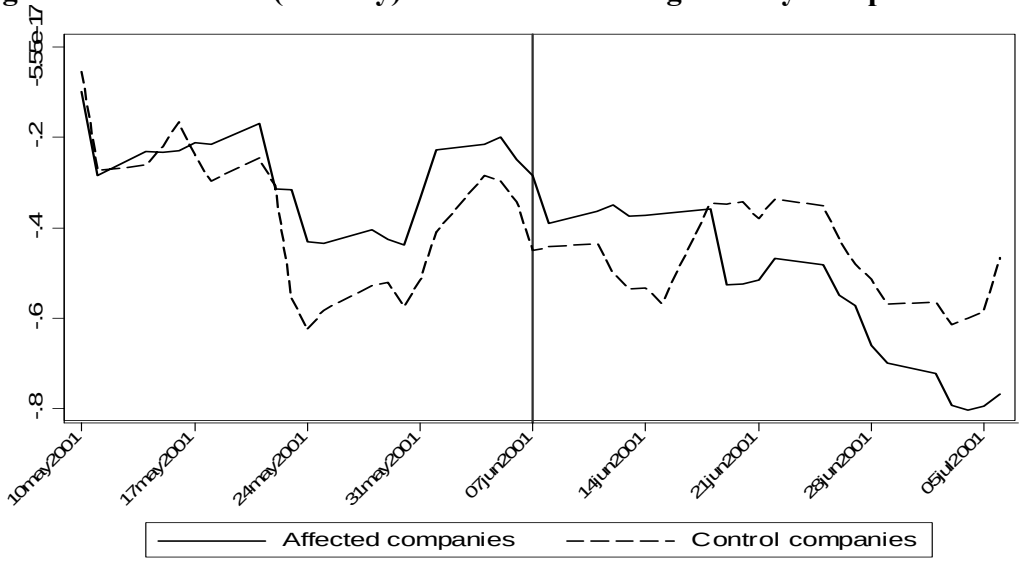
Finally we collected data on control companies that were not placed on review for a possible upgrade on June 7, 2001. Ideally these would be companies chosen from the 13 countries and from the same industries as the affected companies and also rated by Moody's[12]. Although it would be ideal to get data only on similar companies with a Moody's rating, unfortunately there are a number of sectors in various countries where only the affected companies were rated on June 7, 2001 (e.g. the banking sector in Lebanon.)

4. Empirical Results

Before proceeding to the results of the estimations, we present some evidence inspired from the event-study literature. Figure 1 plots the cumulative average difference in yield spread over the -20 to +20 trading day period around the event for the affected and control companies, respectively. This should be interpreted as only illustrative because of perfect clustering. Nonetheless it appears that there was a decline in yield spreads for the affected companies on June 8, 2001. The average yield spread difference on that date was approximately 11 basis points, supporting the anecdotal evidence cited in the press at the time. Formal estimation is necessary to determine if this was an economically significant effect.

[12] We are currently in the process of improving our control sample, and particularly for bonds. We have so far obtained a maximum sample of 17 control bonds and 31 control stocks.

Figure 1. Cumulative (one-day) difference in average bond yield spread



Figures 2 and 3 present the cumulative average abnormal events for stocks using the mean-adjusted and market-model-adjusted abnormal returns. Here the casual evidence is even less clear-cut than for bond spreads. The cumulative average abnormal return appears to be moving with that of the control companies in the immediate window around the event date. That said, Moody's announcement may have been a significant price-relevant event but is simply confounded by other factors that need to be controlled for in the estimations.

Figure 2. Cumulative abnormal stock market return (using mean-adjusted)

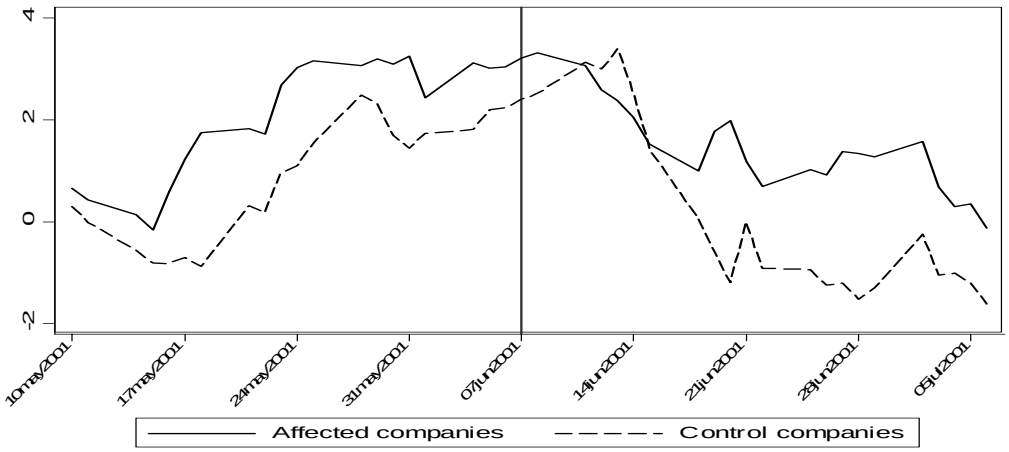
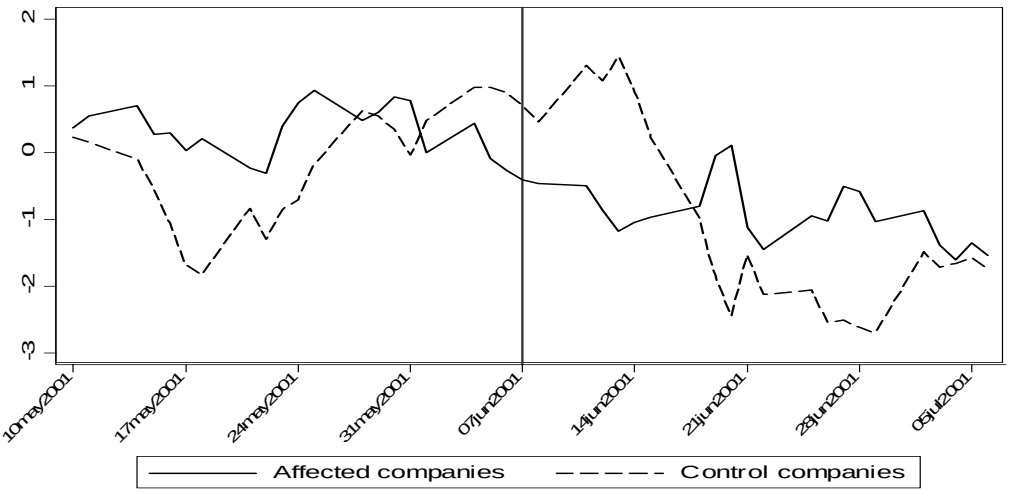


Figure 3. Cumulative abnormal stock market return (using market-model adjusted)



4.1 Bonds

Table 2 presents estimation results for equations 1 and 2, using weekly differences in bond yield spreads as the dependent variable. Column (1) estimates equation 1 on the 31 bonds available on June 8, 2001 and the standard errors are corrected for heteroscedasticity. The estimated β, the

coefficient on the affected dummy is negative and equal to -0.12 (a 12 basis point decline in yield spreads) but is not very statistically significant (only at the 15% level).

When controlling for the company's home country stripped yield spread (using JP Morgan's EMBI Global country index), the estimated β turns more economically significant and is statistically significant at the 10% level (column (2)). Therefore it can be said that Moody's announcement contributed some price-relevant information to the affected companies' bonds[13].

Columns (5) through (8) present estimation output for equation 2 allowing for the time-series of the 20 trading days prior to the event[14]. The main justification for this is the limited number of affected bonds. Therefore by including each bond's time-series as an additional control, the effective sample becomes quite large. This allows us to test whether Moody's announcement had a significant effect in a time-series dimension and not just in a comparison with a limited number of control bonds on the event date. This is arguably a more relevant comparision because it provides information on the relative importance of the announement as placed within the context of the previous trading days for a given bond. We include bond fixed effects in all the regressions to account for bond-specific factors. We also cluster the standard errors by bond. Column (5) reports the results of equation 2. The coefficient of interest is the interaction between the event dummy of June 7 and June 8, 2001 with the dummy for those bonds placed on review for an upgrade. The sign continues to be negative, but interestingly, it is no longer significant.

[13] The results are slightly more significant when including data for 2 bonds missing on June 8 but using the closest available data and therefore increasing the observations to 33.

[14] The results are robust to allowing for time-series variation around the time of the event from May 10 to July 5, 2001 (+20/-20 trading days).

Table 2. The Effect of Moody's Announcement on Bond Yield Spreads, Weekly

Table 2. The Effect of Moody's Announcement on Bond Yield Spreads, Weekly

Dependent: One-week difference (5 trading days) in yield spread (dys)

	Cross-section on June 8, 2001			*FE Panel from May 10 to June 8, 2001*			*FE June 1998 to June 2004*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Affected (dummy)	-0.1233	-0.1578*			0.1175***	0.2600***	0.1178***	0.1568***	0.1392***
	(0.0823)	(0.0852)			(0.0030)	(0.0000)	(0.0048)	(0.0001)	(0.0000)
Event of June 7, 2001				0.0278	0.0666	0.0693	0.0666	0.0488	0.0488
				(0.0256)	(0.0469)	(0.0424)	(0.0469)	(0.0623)	(0.0623)
*Event * Affected*					-0.0559		-0.0589	0.0101	0.0577
					(0.0555)		(0.0669)	(0.0936)	(0.1303)
dembig_country		0.0014							
		(0.0010)							
Country of investment grade (dummy)							0.3023***		-0.0176***
							(0.0048)		(0.0002)
*Event * Affected * Ctry of inv. grade*							0.0068		-0.1110
							(0.0558)		(0.1249)
Leverage			0.3092						
			(0.2372)						
Bank dummy						0.0055			
						(0.0042)			
Petrol dummy						-0.1355***			
						(0.0059)			
Telecomm dummy						-0.3577***			
						(0.0088)			
*Event * Affected is bank*						-0.0514			
						(0.0598)			
*Event * Affected is petrol*						-0.0738			
						(0.0593)			
*Event * Affected is telecomm*						-0.0971			
						(0.0879)			
Constant	-0.0330	0.0557	-0.4024*	-0.1788***	-0.2946***	-0.3001***	-0.2946***	-0.1567***	-0.1392***
	(0.0706)	(0.0873)	(0.1983)	(0.0026)	(0.0000)	(0.0042)	(0.0000)	(0.0000)	(0.0002)
Observations	31	29	23	585	585	585	585	33317	33317
No. of bonds	31	29	23	35	35	35	35	40	40
Affected	21	19	23	23	23	23	23	23	23

Robust standard errors in parentheses (clustered by bond)
** significant at 10%; ** significant at 5%; *** significant at 1%*

Column (6) includes sector controls. As shown in Table 1, of the 38 companies affected by the announcement, 29 were in banking & finance, followed by 5 in petroleum, 3 in telecommunications and 1 in beverages. As noted earlier, the immediate press coverage highlighted the controversy over Moody's inclusion of banks in its press release. Suppose that banks were more constrained by the sovereign ceiling than, for example companies in petroleum. This may be because the latter can avoid the sovereign ceiling by

securitizing their future-flow receivables, as discussed by Ketkar and Ratha (2001). Then if Moody's announcement was price-relevant, we would expect banks to have the strongest reaction to the sovereign ceiling elimination. This does not appear to be the case. Included in the regression is the interaction of the event with affected companies and with the sector of the affected company. While all these interactions are negative, none are significant and if anything the strongest effect appears to have been for telecommunications. This may be on account of the fact that banks are more responsive to the business cycle of their home country and also may hold a lot of government bonds. If investors believed that to be important and discounted Moody's opinion on banks, then this would go against finding a strong effect for banks.

Column (7) estimates equation 2 and is similar to column (5) but allows us to test if it matters whether the sovereign ceiling is investment-grade or speculative grade. We therefore include a dummy that indicates that the country ceiling is investment grade as well as the interaction of the event dummy with those companies affected and with whether they are located in an investment grade country. If the sovereign ceiling constrains external financing, then we would expect the bond price reaction of those companies placed on review for an upgrade from speculative-grade countries to be stronger in response to the announcement. In fact, there is no effect. Columns (8) and (9) repeat columns (5) and (7) but allow for an even larger time-series dimension of 3 years around the event date: from June 1998 to June 2004. The coefficient on the interaction between the event and the affected companies continues to be insignificant.

Finally column (3) controls for company leverage. Kliger and Sarig (2000) find that the more leveraged[15] a firm is, the stronger is its bond-price reaction to the new rating information (although they find no significant effect on stock-price reaction). The prior is that bondholders of a high-leveraged company bear more of the firm's risk than bondholders of a low-leveraged company. As a result, the price reaction should be stronger for the bonds of the high-leveraged company if the rating information has value. We find no evidence of this *within* our set of affected companies as we only have collected accounting data on them so far. The coefficient on the constant is

[15] where they define leverage as [(D ^{Book})/(D ^{Book} +E ^{Market})], and use the March 31, 1982 total market value of equity for E^{Market}, and the book value of the debt at the end of the fiscal quarter preceding April 26, 1982. Our sample is more limited and we use book value for both debt and equity for March 31, 2001 if available. If not, we use 12/31/2000. Accounting data are obtained from ISI Emerging Markets and supplemented with information from the Factiva database. We are in the process of extending the sample to the control companies as well. See Table 1 for descriptive statistics.

negative and significant on June 8, 2001 at the 10% level, supporting the results presented in columns (1) and (2). However, within this group of affected companies, those that are more leveraged appear to have had a *weaker* (though only significant at the 20% level) bond price reaction.

Table 3. The Effect of Moody's Announcement on Bond Yield Spreads, Monthly

Dependent: End-of-month difference in yield spread (dys)

	Cross-section June 2001		**FE Panel from April to June 2001**			**FE June 1998 to June 2004**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Affected (dummy)	-0.2546	-0.3204	0.2699***	2.2956***	-0.0480	-0.6991***	-0.7051***
	(0.2781)	(0.2561)	(0.0776)	(0.4317)	(0.0550)	(0.0135)	(0.0140)
Event of June 2001			-0.1163	-0.0874	-0.1163	-0.1448	-0.1448
			(0.6132)	(0.5793)	(0.6179)	(0.2549)	(0.2550)
*Event * Affected*			-0.0664		0.0700	0.2716	0.6994
			(0.6559)		(0.6395)	(0.4030)	(0.4824)
dembig_country		-0.0086*					
		(0.0048)					
Country of investment grade (dummy)					0.0052		-1.0253***
					(0.2426)		(0.0127)
*Event * Affected * Ctry of inv. grade*					-0.3042		-0.9827
					(0.5006)		(0.5866)
Bank dummy				1.8500***			
				(0.4317)			
Petrol dummy				-0.1901			
				(0.2005)			
Telecomm dummy				1.8134***			
				(0.5461)			
*Event * Affected is bank*				-0.0638			
				(0.6961)			
*Event * Affected is petrol*				-0.1617			
				(0.6014)			
*Event * Affected is telecomm*				-0.2744			
				(0.6630)			
Constant	-0.1134	-0.1415	-0.6477***	-2.4611***	-0.3753***	0.6897***	0.6897***
	(0.2019)	(0.1730)	(0.0000)	(0.5461)	(0.0000)	(0.0127)	(0.0127)
Observations	36	33	107	107	107	1998	1998
No. of bonds	36	33	38	38	38	40	40
Affected	23	21	23	23	23	23	23
Controls	13	12	15	15	15	17	17
R-squared	0.02	0.08	0.12	0.13	0.13	0.04	0.04

Robust standard errors in parentheses (clustered by bond)
** significant at 10%; ** significant at 5%; *** significant at 1%*

Table 3 also reports estimation output for bonds, but using a slightly longer run horizon. The dependent used in Table 2 is the one-week difference in yield spreads. The dependent used in Table 3 is the end-of-

month difference instead. This is the horizon used by Kliger and Sarig (2000) probably because of data constraints. However it is interesting to look at these results as well because they provide insight into whether the Moody announcement had an effect over a slightly longer horizon from end-June 2001 to end-May 2001. It does not appear to have had an effect, even at the cross-sectional level, which was significant when using weekly differences.

4.2 Stocks

Table 4 tests for a stock price reaction of the affected companies to Moody's announcement. As discussed in the methodology section, we use both the (weekly) mean-adjusted abnormal stock return and the (weekly) market-model-adjusted abnormal stock return as depedent variables. There are less stocks available for the affected companies for reasons discussed in the data section. Nonetheless it is worth testing for an effect. In contrast to the case for bonds, there is no stock price reaction. There is a potentially negative but insignificant stock price reaction to the announcement when allowing for the stocks' time-series in columns (4) through (7).

Table 4. The Effect of Moody's Announcement on Stock Prices

Dependent: One-week Abnormal Stock Return (5 trading days)

AR1 *Mean-adjusted Abnormal Stock Return (previous 80 to 10 trading days)*
AR2 *Market-model-adjusted Abnormal Stock Return*

	Cross-section on June 8, 2001			**FE Panel from May 10 to June 8, 2001**		**FE June 1998 to June 2004**	
	AR1 (1)	*AR1* (2)	*AR2* (3)	*AR1* (4)	*AR2* (5)	*AR1* (6)	*AR2* (7)
Affected (dummy)	0.1618	0.0009	0.0191	4.6680***	2.9923***	-1.6285***	-0.4253***
	(1.3970)	(1.3723)	(1.2800)	(0.1746)	(0.1638)	(0.0038)	(0.0018)
Event of June 7, 2001				-0.0240	-0.4036	-0.4797	-0.3184
				(1.1463)	(1.0615)	(0.7183)	(0.7124)
*Event * Affected*				-0.8849	-0.9330	-0.8469	-1.0759
				(1.6669)	(1.6000)	(1.1999)	(1.1033)
Market Return		0.3474		0.3204*		0.6167***	
		(0.3038)		(0.1711)		(0.0664)	
Constant	0.6146	0.0372	-0.7071	-3.0189***	-1.6056***	1.9710***	0.5198***
	(0.8438)	(1.0051)	(0.7532)	(0.1063)	(0.1117)	(0.0081)	(0.0014)
Observations	44	44	44	935	935	57483	57362
No. of stocks	44	44	44	45	45	46	46
Affected	13	13	13	14	14	15	15
Controls	31	31	31	31	31	31	31
R-squared	0.00	0.03	0.00	0.22	0.14	0.20	0.05

Robust standard errors in parentheses (clustered by stock)
** significant at 10%; ** significant at 5%; *** significant at 1%*

To summarize, bond prices reacted to the independent, unanticipated and uncontaminated change in Moody's bond rating procedure on June 8, 2001 in a comparison with other companies on that date. However this effect is no longer significant when allowing for a time dimension and not just a cross-section comparison against a limited number of control bonds on the event date. Furthermore, it does not appear that companies that we would a priori expect to be more constrained by the sovereign ceiling, react more strongly to the announcement. For example, bond prices for companies from speculative-grade countries do not react more strongly than those from investment-grade countries. In addition, bond prices of affected banks do not react more strongly than those of petroleum and telecommunications companies (which have more easily engaged in structured finance deals and escaped the sovereign ceiling prior to 2001). Leveraged companies do not appear to have a stronger bond price reaction. Finally there is no stock price reaction.

5. Conclusions

Our paper has tested for whether purely independent rating changes contribute price-relevant information to the market. If that prior were true, then we would expect significant security price reaction. The rating change in question is Moody's elimination of the sovereign ceiling rule on June 7, 2001, which was not accompanied by any fundamental change in borrowers' risk nor in general emerging market risk, was fully unanticipated, and was widespread affecting 38 companies in 13 countries. The sovereign ceiling rule is important to the extent that rating agencies contribute value to the pricing of emerging market securities. If the independent elimination of the ceiling rule is found not to contribute new information, then the rule itself may not have been important.

Emerging market bonds have become the main source of emerging market financing. For example, figures from Euromoney's Bondware (and as cited in Durbin and Ng (1999)) show that from 1991 to 1996, the dollar amount of long-term bonds issued in emerging markets jumped from $12.4 billion to $93.9 billion. By comparision new equity issues increased from $5.6 to $16.4 billion and syndicated loan commitments (the traditional method of financing during the 1980s) increased from $50.7 to $79.7 billion.

It is therefore important to distinguish between whether investors perceive company credit risk as "de jure" credit risk and therefore rely on rating agencies or whether they perceive it as a "de facto" company-specific risk and are therefore not sensitive to rating assessments. Ratings may

contribute value on account of possibly two factors. First, ratings may contain pricing-relevant information that investors cannot or find too costly to obtain on their own. Second, some investors (such as institutional investors) may be constrained by statuary requirements. So the removal of the sovereign ceiling may serve to increase the potential pool of investors and in the process affect the market price.

We study the reaction of both bond and stock prices to Moody's elimination of the sovereign ceiling rule. We take advantage of the time series and cross-sectional variation in security prices. We find that the yield spreads of the affected companies fell when compared to control companies in a cross-section on June 8, 2001 (as to be expected if ratings have value). However this effect is no longer significant when allowing for a time dimension and not just a cross-section comparison against a limited number of control bonds on the event date. Furthermore, it does not appear that companies that we would a priori expect to be more constrained by the sovereign ceiling, react more strongly to the announcement. For example, bond prices for companies from speculative-grade countries do not react more strongly than those from investment-grade countries. In addition, bond prices of affected banks do not react more strongly than those of petroleum and telecommunications companies (which have more easily engaged in structured finance deals and escaped the sovereign ceiling prior to 2001). Affected companies that are more leveraged do not appear to have a stronger bond price reaction. Finally, there is no stock price reaction, even in a cross-section comparison on the event date. Although the cross-sectional sample is not large, the effective sample is quite large on account of daily time series for each security. Therefore given that we find no effect most likely means that there is no effect. Our findings are therefore closer to that of a fund manager who is quoted as saying that "I don't care about [the sovereign ceiling]. We don't pay any attention to it. The agencies should rate the companies for their own creditworthiness, not based on the sovereign's creditworthiness."[16] A contrasting view asks "but are you going to open up the floodgates and allow a lot of other companies that should be constrained by their sovereigns into that group?"[17]

How can we reconcile our results with those of Kliger and Sarig (2000) who find that bond rating changes contain pricing-relevant information? Aside from timing and sampling issues, one explanation is that their study examines a new system that provides information in a strictly

[16] Rodrigo Briones of Deutsche Morgan Grenfell in New York, quoted in LatinFinance May 1997.
[17] Walter Molano, senior managing director at BCP Securities, who focuses on Latin American markets, as quoted in The Financial Times June 8, 2001.

finer partition than the coarse system, but both systems are based on the *same* rating procedure (and information). In contrast, Moody's rating procedure itself changed on June 7, 2001. One possibility is therefore that the market was ahead of the rating agencies in discounting transfer risk and generally more sophisticated in assessing individual company risk than that implied by the (former) Moody policy. Therefore the event was no news and just a confirmation. Alternatively, the market may have disagreed with Moody's *change* in rating procedure and investors continued to rely on their own assessments of risk.

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THE IT IMPACT ON THE AUDIT PROCESS

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Abstract

With this subject we intend to discuss about the IT impact on the audit process. Even when the client's use of IT leads to a better control of the internal mechanisms, the creation of the economical systems based on such technology supposes the existence of new risks that are not usually found in the traditional systems. The well administrated companies admit the existence of these new risks and react to them by instituting (in the IT system) some new general and applied controls with the aim of reducing the impact of these risks upon the financial market. The auditor must be informed about the risks and he must gain an understanding of the general and applied controls of the client in order to plan (in a better way) the audit. One part of the tests of the control mechanisms that the auditor makes can be executed with the help of computers, this solution allowing the creation of some more efficient audits. The reference to the general and applied controls with the aim of reducing the risk can be modified when the clients use microcomputers, administrative database systems and centers for external IT service instead of using the centralized informational technology system.

Keywords: *audit process, IT, control, technology systems.*

1. Introduction

The use of informational technologies could improve the internal control by adding new control procedures, executed by computer, and by replacing the manual control devices, liable to the risk of human error. Despite the fact that it improves the internal control, the addiction to informational technologies could also generate new risks that the client could administrate through setting up new control devices that are specific to environments based on such technologies.

The paper highlights the risks specific to the environments based on informational technologies, identifies the control devices that can be set up in order to administrate those risks and emphasizes the way in which the control devices connected to informational technologies affect the audit process.

Before accepting as being reliable any result generated by computer, the auditors must firmly evaluate the internal control in the cases in which clients have a book-keeping system based on modern technologies. However, too often we trust computer generated data, without testing their accuracy, because auditors forget the fact that a computer does what it is programmed to do. Auditors must understand and test the computerized control devices before concluding that information produced by informational system is reliable.

2. How do Informational Technologies Improve the Internal Control?

Most entities, including small, familial enterprises, are based on informational technologies to register and process the economic operations. As a result of the impressive progresses in this field, even those societies with a relatively simple activity use personal computers with informational programs for their accounting systems that are inefficient and less effective. As they grow and evaluated, enterprises are often improving the informational technologies systems in order to respond to the growing need of information. Nowadays using some complex network environments and some centralized informational technologies functions is wide spread in enterprises.

Among the improvements of internal controls a result of the integration of informational technologies in accounting systems we enumerate:

- **Informational control devices that replace the manual ones.** The obvious benefits of informational technologies, like the possibility of profitable administration of impressive volumes of complex economic operations, determine organizations to resort to such technologies in the process of financial reference. One of the advantages of informational technologies consists of the possibility of improving the internal control through the incorporation of computer executed control devices in daily activities of operation processing. Replacing manual procedures with programmed control devices, that applies tests and calculates balances for each processed operation, could reduce human errors that could appear in traditional manual environments. A well-checked IT system offers a bigger potential in reducing errors, because computers process information in a consistent and uniform manner. Among the examples of internal control procedures that are executed nowadays by computers and that were in the past the employees business we enumerate: the comparison of the client's and product's code to the systematic files or the comparison of selling operations' sums to the established credit limits.

- **Higher quality information is available.** After the management is convinced of the reliability of the informational technologies data, the use of such information offers an additional potential to the improvement of managerial decisions. First of all, the complex IT environments are, usually, administrated effectively, because complexity requires organization, procedures and efficient documentation. Secondly, IT systems usually offer to management a bigger quantity of quality information that is available faster than in most manual systems.

3. The evaluation of risks related to informational technologies

Though informational technologies could improve the internal control of a company, they could also affect the general control risk of the company. Numerous manual systems related risks are diminished and, in many cases, even eliminated. Still, there appear new risks that are specific to IT environments, and these could lead to substantial loss if ignored. For example, the impossibility to recover important information due to an informational system blockage or to the use of incorrect information based on such technologies could paralyze an organization. These risks increase the

probability of the appearance of significantly erroneous presentations in financial situations, fact which should be taken into consideration by managers and auditors. These are the key-risks, specific to environments base don informational technologies:

- **The addiction to functional abilities of informational equipments and programs**; without an adequate physical protection, informational equipments and programs might not work. Eventually, it is vital to ensure a physical protection of equipments, programs or data against physical degradation that might be the result of inappropriate use, sabotage or certain natural conditions (like fires, high temperatures, humidity or floods);

- **The visibility of the audit tack.** As the greatest amount of information is directly introduced in the computer, the use of informational technologies reduces or even often eliminates the explanatory documents and the source book-keeping that allow any organization to remark the itinerary of the accounting information. These documents and accounting evidences are called „audit track". Doe to the loss of audit track, there must be introduced other control devices in order to replace the traditional possibility to compare the resulting information to data written on physical support.

- **The reduction of human factor implication.** Inside numerous environments based on IT, employees who deal with the initial process of operations never see final results. Therefore, they have a smaller possibility to identify the processing errors. Even though these employees see the final result, errors are often difficult to detect, because data is, mostly very synthetic. Also, the employees tend to consider information generated by use of modern technologies as being „correct" as it was produced by computer.

- **Systematic errors versus incidental errors**. As organizations replace manual procedures with procedures base don modern technologies, the risk of some incidental errors decreases. Still, the risk of systematic errors increases as a result of the uniform character of computer executed operations. After a procedure set is programmed in informational applications, the computer processes information in a consistent manner and also in a uniform procedure for all operations, until the moment of modifying the programmed procedures. Unfortunately, the gaps in the applications programming and the modifications brought to those applications affect the reliability of the computer executed operations, having as a result numerous risks. The risk is even bigger if the system is not programmed so as to recognize the unusual operations or the situations in which the audit tracks of the operations are inadequate.

- **Unauthorized permission**. Accounting systems base don informational technologies often allow permission in real time to data in

systematic files and other evidences kept on electronic support. As the access in real time can be made from numerous access points, situate at distance, there appears a risk of making unpermitted, illegal access. If there are no adequate restrictions regarding the access in real time, such as passwords or identification codes of users, through computer there can be made unauthorized activities, having as a result inadequate modifications of informational applications and of systematic files. More over, in this way there can be obtained in illegal manner confidential information.

- **Loss of data**. The majority of fundamental data in an environment base don IT is stocked on centralized electronic files. When data is centralized, the risk of loss or degradation of entire data files with important ramifications grows. It appears an elaboration potential of some erroneous financial situations and, in certain cases; the organization can undertake serious interruptions of activity.

- **The reduction of separating tasks**. As the organizations pass from manual processes to the informatics ones, the computers execute more and ore tasks that were traditionally separated, such as authorizing operations and keeping accounting situations. Eventually, mixing the activities of different parts of organization into one function of international technologies centralizes the responsibilities that were separated in the past. The staff of the informational technologies department, which has access to applications and to systematic files, could embezzle assets if the key tasks are not properly distributed among employees of the informational technologies function.

- **The absence of traditional authorization**. In very modern IT system it is used for certain types of operations to be initiated automatically by computer. Among examples, we enumerate the calculation of interests in the deposit accounts and the initiation of provisioning commands when it is reached a predefined level of stocks. Eventually the adequate authorization depends upon the procedures included in the informational application and upon the accuracy of the systematic files used in taking the authorization decision.

- **Need of experience in IT domain**. Even when companies purchase relatively simple informational systems, which include configured programs, it is essential to exist staff with experience and knowledge necessary for installation, keeping and use of the system. As the use of IT systems spreads inside organizations, most of the times it also grows the need of qualified specialists in informational technologies domain. Numerous companies set up a function or a whole department of specialized staff in IT domain, in which we include programmers, operators, network administrators, data library administrators, employees who introduce data

inside the system, specialists in ensuring the quality and data basis administrators. The reliability of an IT system and of information generated by it often depends upon the ability of the organization to hire staff or consultants with experience and suitable Knowledge in IT domain.

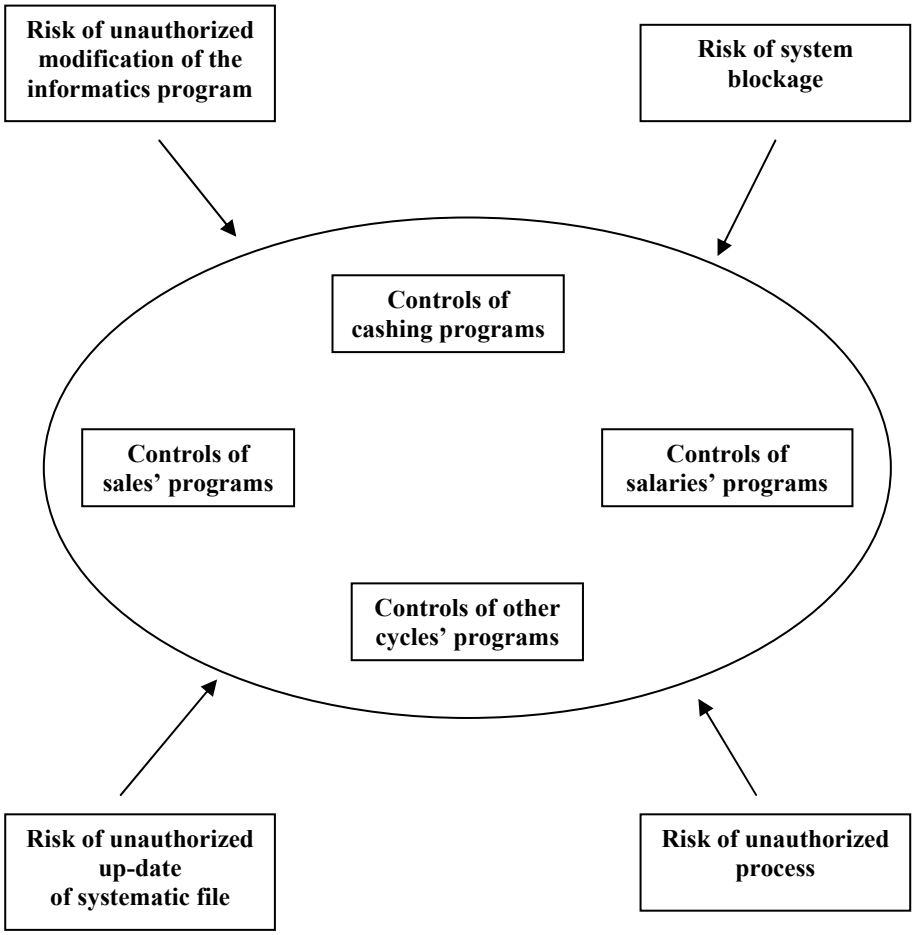
4. Internal Control Devices that are Specific to Informational Technologies

Frequently, in order to face the numerous risks connected to the growing addiction of informational technologies, organizations set up control devices that are specific for the IT function. Audit standards describe two main categories of control devices concerning systems base don informational technologies, namely: general controls and application controls.

General control refer to all the aspects about the IT function, including systems' administration, acquisition and maintenance of informational programs, physical security and electronic (logic) access security to equipments, programs and data associated to them, planification of making back-up copies in case of unpredicted events and conception of control devices integrated in informational equipments.

Application controls are practiced over processing individual operation such as the control sales or cashing process. Eventually, application controls are specific to certain informational programs and, usually, do not affect all functions that use informational technologies. Out of this reason, process controls must be evaluated for each segment of the audit (account or category of operations) affected by a informational application, in which the auditor plans to reduce the estimated control risk.. As shown in the next graph, general controls are projected in order to protect all application controls, to ensure their efficiency. Solid general controls reduce those types of risks identified in the box outside the oval containing general controls in this figure **(figure 1.).**

Figure 1 Connections between general controls and application controls



Source: *Arens Loebbecke, Auditing.*

More the addiction of informational technologies in the economic environment grows; the administration of the IT function becomes more important. The management must distribute sufficient resources in order to support the technologies.

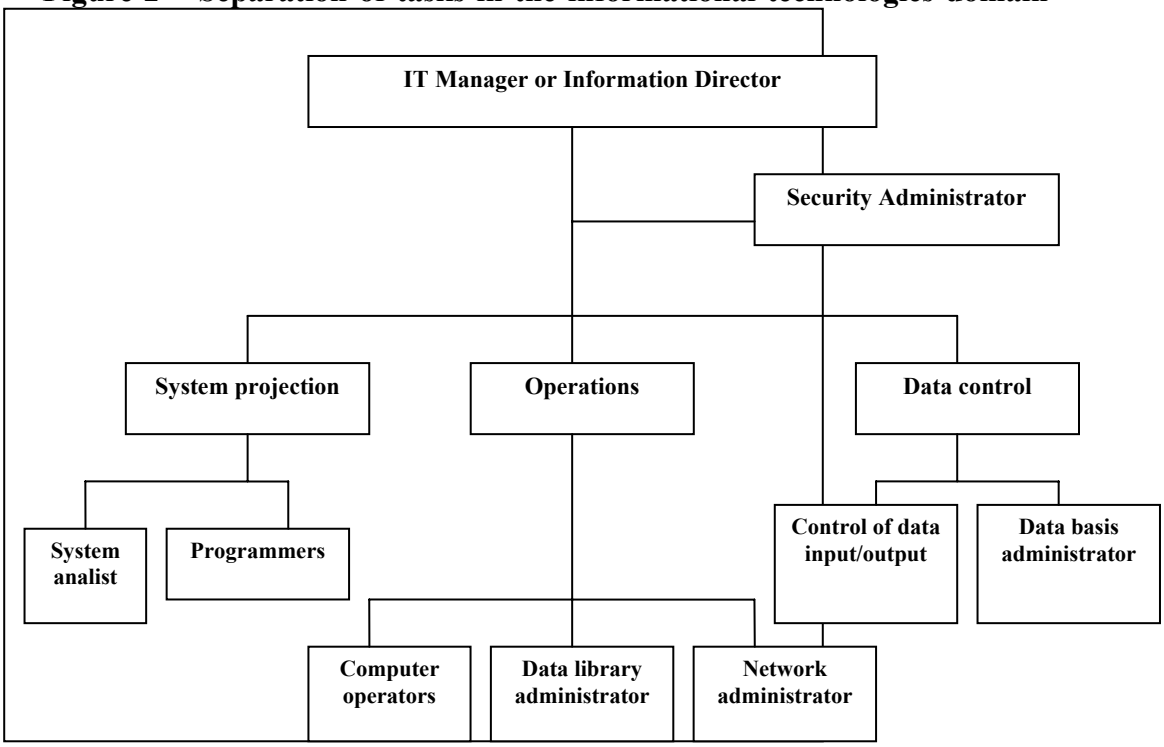
The attitude towards the importance of informational technologies inside an organization is often determined by the position adopted by the board of directors and by the top management. The supervision, the distribution of resources and the implication of this factor in the key-decision regarding informational technologies consists in a powerful clue about the

importance of this function inside the company. In the complex environments, the management often creates internal committees to contribute to the supervision of the technological needs of the entity. Inside less complex organizations, the board of directors could rely on periodical reports concerning informational technologies, elaborated by an Information Director (ID) or by another top manager, in order to maintain the management up to date.

In comparison to such situations, in the case in which functions connected to technologies are exclusively commissioned to employees from lower hierarchical levels or external consultants, it is being transmitted the implicit message that the informational technologies might not be a priority of the company. Often, it results an IT function with insufficient staff, insufficient resources and inadequate control.

To respond to these concerns, the programming, the computerized operations (including security of physical and logical access to equipments, programs of data and over production of result should be separated such as the model in the figure 2.

Figure 2 – Separation of tasks in the informational technologies domain



Source: *Arens Loebbecke, Auditing.*

In an ideal situation, responsibilities connected to IT management, system projection, operation execution and data control should separate as it follows:

- **IT Management.** Supervision of informational technologies function generally regards the responsibility of Information Director (ID), or IT Manager. This person is responsible for the supervision of all functions connected to the informational technologies, in order to ensure that activities go in accordance with the strategy plan regarding informational technologies. Besides an ID, a security administrator supervises also the physical access and the logic one to equipments, programs and data files and executes the necessary investigation procedures after detecting some breaches or gaps inside the security system.

- **System projection.** The projection and the modification of IT system are, usually, coordinated by a system analyst who is responsible for the general projection of each system application and who represents the connection person between IT department employees, application programming managers and employees outside IT function, who would be the main users of the system (such as the staff responsible for the evidence of credit-clients). Programmers elaborate sequential diagrams that are special for each application, also elaborate informational instruction, test programs and gather evidence of results on the basis of recommendations given by the system analyst. Programmers should not have access to the introduction of data or to the computerized operations as the well knowledge of a program might be used in personal interests. The access to programs' back-up, that is effectively used for information production and the access to data basis should be limited, so that programmers could not make modifications in the informational applications without a suitable authorization. In exchange, programmers should work only with test back-up of programs and data.

- **Operations.** Daily effectuation of computerized operations concerns PC operators who should fulfill their tasks according to the work schedule elaborated by ID and follow the appearance on their electronic consoles of any messages regarding program working or computer trouble. The librarian is responsible for keeping informational programs, operation files or other evidences or important electronic documents. The librarian controls these programs and evidences by offering them to operators, only in the indicated conditions of the work schedule. He puts to programmers' disposal a test back-up only with the approval of the top management. Inside environments consisted of networks, the network administrator is the one responsible for planning, functioning and keeping of a server network, that makes the connection between users, different applications and data files.

- **Data control.** Employees responsible for the control of data inputs and outputs independently check the quality of the introduced data and the reasonable character of the produced information or extracted from system information. In the case of organizations that use data basis to stock information which is used, in common, by book-keeping and other functions, the administrators of data basis are responsible for the security operation and common data basis access.

Of course, the proportion of task separation depends upon the volume and the complexity of an organization. Inside numerous small companies it is not practical to separate tasks in the manner described above.

The existence of some solid physical controls of computers and the limitation of real-time access to applications and to associated data files reduce the risk of operating some unauthorized modifications inside informational programs and data files. Security plans should be elaborated in a written form and their application should be permanently supervised. It follows a short presentation of a typical physical control and of a real-time access control.

- **Physical controls.** Physical controls of informational equipments starts with the limitation of the access to equipments, programs and safe back-up of data files kept on magnetic bands or disks, CD and disks. Among the examples of limitation modalities of unauthorized use of equipments are: use of electronic locks, installation of systems based on magnetic cards access, use of security video cameras and hiring security staff. For a higher level of security, the physical and logical access is allowed only after reading employee's fingerprints or scanning employee's retinas, which are later compared to an approved data basis. Among other physical controls we enumerate the supervision of conditioned air system and of humidity of equipments. The immediate access to the prevention and fighting against fires system reduces the potential loss caused by fires.

- **Real-time access control.** The adequate use and existence of some identification codes of users and some access passwords to programs and associated data files reduce the probability of operating some unauthorized modifications in the informational applications and data files. Operating systems of most computers offer the possibility to define some identification codes of users and some access passwords. In modern IT systems there can be installed a package of additional programs in order to improve security.

Accidents like interruption of electricity, fires, heat or excessive humidity, floods or even sabotages can cause serious consequences for the companies that use informational technologies. To face this kind of risks,

organizations elaborate plans concerning the creation of some safe back-up and concerning the reaction to unpredicted events. One of the success back-up of informational programs and of data files are made and stocked outside the headquarters of the company. Often, in order to stock this safe back-up there are being used underground strong boxes that are being used underground strong boxes that are resistant to fire and explosions. Moreover, this kind of plans should identify the alternative physical equipments that might be used for processing the company data.

For smaller IT systems, there can be purchased computers and server for replacement, which can be used along with the safe back-up of the informational programs and data files. In the case of more complex systems, organizations install inside the company's premises safe batteries and diesel oil generators to face the temporary interruptions of electricity and they can even sign alternative agreements for providing basic services in case of emergency.

Control devices that are integrated in informational equipments by their producer and that concern detection and raportation of flaws are called personal controls of equipment**.** Independent auditors are rather interested in the methods used by clients in order to administrate the computer identified errors than in the adequate character of personal control of equipments in the system. No matter what the quality of personal controls of equipments is, the information produced by the system will not be corrected only if the client's organization has foreseen administration measures for the equipment generated errors.

Application controls are projected for each informational application and their target is to help the company respond to the six audit objectives concerning operations that were discussed in the previous chapters. Although, one part of application controls do not affect more than one or very few audit objectives connected to operations, most controls forestall or detect several types of errors. Despite the fact that the control objectives in the introduction, processing and extraction of data domain are identical, the procedures used to realize these objectives are totally different. These three types of application controls will be presented in the following paragraphs.

The control devices created by organizations in order to ensure that all computer processed information is authorized, accurate and complete are called controls of data input. Controls of data input are critical as a large amount of IT system errors result from errors produced when introducing data. Errors in data input process lead to errors in given results, no matter what the quality of information processing is. Typical control devices in manual operated system keep their importance. Among the examples there

can be mentioned: written authorization of operation given by the management, elaboration of explanatory documents for data input and for hiring qualified staff. Other controls are specific to IT systems. Examples are: suitable projection of information input displays, menus with lists of available program options and validation tests for the precision of the introduced data, executed by computer, such as the validation by comparing the client's number to the client's systematic files. Moreover, the immediate error correction procedure and error collection procedure in a separate file that would later be analyzed by the responsible staff permit an early detection and correction of errors produced during the process of data input,

The control devices that forestall and detect errors produced during data processing operations are called controls of data processing. Although solid general controls, especially those connected to the projection and security of systems, offer some of the best control devices to minimize the risk of error appearance, controls of application processing are often integrated in the informational programs in order to prevent, detect and correct the processing errors.

An auditor must know these control devices because he takes all the responsibility of obtaining an internal control agreement, including general and application controls, no matter if the informational technologies use by client is simple or complex. Also, knowledge connected to general controls consolidate the ability of the auditor to rely on efficient application controls in order to reduce the control risk of audit objectives connected to operations.

Most auditors evaluate the efficiency of general controls before evaluating the application controls. In the case in which general controls are inefficient, it appears the probability of producing some significant errors in each informational application in book-keeping, no matter what the application controls' quality is. For example, if the tasks are not properly separated, PC operators being also programmers and having access to programs and informational files, the auditor must be programs and informational files, the auditor must be interested in false operation registering or unauthorized data registering and also in emission in accounts such as sales purchases and salaries. In dike manner, if he notices that data files are not adequately protected, the auditor could conclude that there is a significant risk of data loss, because general controls affect each informational application. In this kind of situations, audit tests concerning the confirmation of exhaustivity objective should be spread in certain fields, such as cashing, payments and sales.

On the contrary, if there are solid general controls, the possibility to attribute a higher level of reliability to application controls increases.

Thus, the auditors can test the operational efficiency of some application controls and they can rely the results of these tests in order to reduce the quantity of substantial tests. This use of efficiency of the audit.

Still, there is a challenge in IT environments which refers to the effect of modifications operated in informational programs about the trust that the audit can have concerning control devices. When the client modifies the applications, the auditor must determine whether it is necessary to use additional tests. In the case in which general controls are efficient, the auditor could easily identify the program operated modifications. In environments where general controls are inefficient however, the probability of the appearance of some unidentified modifications increases. As a result, the auditors must foresee the effectuation of periodical tests concerning the operational efficiency of application controls during a whole year when general controls are weak.

Usually, the auditors receive information about general and application controls using the following techniques: questioning the staff and the key-users of informational technologies, examination of system documents, such as sequential diagrams, user books, requests of program modifications, test results, and the analysis of detailed questionnaires completed by the informational technologies department staff. In most cases, it's best to use more methods to understand the internal control, as each of them offers different information. The interview with the informational department manager and with the system analysts offers useful information concerning the operation of the whole informational technologies function, the proportion of the projection process of informational applications and the modifications operated in the key-accounting applications, and also a panoramic view over the planned changes. The analysis of the program modification requests and of system tests results is useful for the identification of programming modifications in informational application. The questionnaires are useful to identify the specific internal control devices.

Of course, the auditors do not correlate the qualities and the flaws of general controls with the specific audit objectives connected to operations. Like the control environment, general controls affect the audit objectives connected to operations in more cycles. In the case in which general controls are inefficient, the possibility of the auditor to rely on application controls in order to diminish the control risk is reduced. On the contrary, when general controls are efficient, the ability of the auditors to rely on application controls in order to reduce the control risk increases.

Auditors identify both manual application controls and computer executed ones, and also the system flaws for each audit objective connected

to operations, using a matrix of the control risk. For example, the computer comparison of staff identification number that were introduced manually to the systematic file data could reduce the control risk regarding the objective of expenses existence for salaries, through the fact it stops making payments to fictitious employees.

Most organizations use informational technologies in order to process operations and they project their systems so that them explanatory documents could be restored in legible form and easily followed in the accounting system until the final resulting data. In such situations, organizations keep most traditional explanatory documents like the clients' purchasing commands, the delivery and the reception dockets, sales invoices and supply invoices. The accounting informational program also generates printed versions of journals and books which allow the auditor to remark the itinerary of the individual operations through all accounting evidences. Moreover, the internal control devices often include a comparison by the client of the computer generated evidences to the explanatory documents.

In this kind of situations, using informational technologies has no significant impact on the audit track. Usually the auditor obtains an agreement of the internal control and makes control devices tests, substantial tests of operations and verifying procedures of account balances. The auditor has also obligation to understand the general and application controls executed by computers, because this kind of knowledge will be useful in identifying the risks that might affect the financial situations. However, usually the auditor doesn't make tests of controls effectuated by computer. This audit method is often called audit around computer as the auditor doesn't use computerized controls in order to reduce the estimated control risk. In exchange, the auditor uses control devices outside the informational technologies to justify the adequate assessment of the control risk.

As the use of informational technologies by organizations spreads, internal control devices are often integrated into applications and became visible only in electronic form. When traditional explanatory documents, such as invoices, provisioning commands, invoice registers and accounting books, such as sales journals, stock evaluation lists and analytic registers of credit-clients, are available only in electronic form and not on paper support, the auditor must change the audit method. This audit method is often called audit by computer.

There are three categories of testing strategies that can be used in the audit by computer: test-data method, parallel simulation method and modulus of integrated audit method.

Test-Data Method. Test data method is about processing a set of test-data of the auditor using the computerized system and informational applications of client in order to determine whether the control procedures executed by computer ensure the correct process of test-data. As the auditor is the one who defines the test-data, he can identify the testing elements that should be can accepted or rejected by the client's system.

When using the test-data method, the auditor must take into consideration three fundamental aspects, namely:

1.Test-data should include all relevant conditions that the auditor wants to test. The auditor should project the test-data so that he could test the main computerized control devices that he intends to rely on in order to reduce the control risk. The auditor's test-data should contain realistic elements that might be part of the normal processes made by client, including valid operations and inadequate operations.

2.Informational programs verified by the auditor's test-data should be identical to the ones used by client along the accounting exercise. One of the methods would consist in processing the test-data by surprise, possibly at aleatory moments of the year, though this solution is expensive and takes a lot of time.

3.Another method consist in relying on general controls of the client that were carried out by the responsible employees for the administration of the informational library and system projection, in order to ensure that the tested program is the same used in the current data process.

Test-Data should be eliminated from the client's evidences. If testing informational programs of a client supposes processing test-data in parallel with processing client's real operation, the auditor must eliminate all test-data from the client's systematic files after he finishes testing. It is not allowed to permanently keep some fictions operations in the client's systematic files. To remove the fictitious operations, the auditor must introduce additional data to invert the effect of those operations.

Paralle Simulation Method. There are numerous informational applications that help the auditors to evaluate the efficiency of the informational control devices and to obtain proofs concerning available balances of accounts in electronic form. The auditor uses programs that are controlled by him in order to execute operations parallel to the client's application, using the same data files. Who matter if the tests control devices or final balances of accounts, the auditor compares his own output data to data generated by applications used by clients, whit a view to test the efficiency the client's informational programs. The absence of difference in

the resulting data indicates a correct working of the client's programs, while the existence of some deviations indicates potential flaws of the client's system. Since the auditor's applications are projected to effectuate in parallel (to imitate) an operation processed by the client's applications, this testing strategy is called parallel simulation.

Frequently used instruments by auditors to effectuate the tests of parallel simulation are generic applications of audit (GAA), namely informational applications projected to be utilized by auditors. These informational programs can be already-made purchased and are, usually, compatible with Windows system, being easily installed in the office computer or laptop of an auditor.

Generic applications of audit present two advantages. First of all, it is relatively easy to train the audit staff haw to use them, even if there are involved persons with no preliminary preparation in the field of informational technologies that are applied in audit. Secondly, generic applications of audit can be applied to a large variety of clients, with a minimum effort of adaptation and personalization.

Modulus of Integrated Audit Method. When being used the modulus of integrated audit method, the auditor inserts a modulus of audit in the system applications of the clients in order to extract those operations having characters that the auditor is interested in. For example, the auditor could extract all the purchases that exceed a determined economic value, so that he could examine all the sizable operations that have crossed the cycle of purchase and payment.

Auditors can use either only one method (test-data, parallel simulation or modulus of integrated audit) or a combination of them. Usually, auditors use test-data in order to test the control devices and to make the substantial tests of the operations. Parallel simulation is often used for the substantial tests, such as the fresh calculation of operation sums and the overall of the analytic evidences of account balances included in the systematic files. Auditors use the modulus of integrated auditing method to identify unusual operations in order to effectuate substantial tests.

Microcomputers are widely utilized in most companies, no matter what their sizes are. Usually, they have even in small societies an important role in processing or analyzing accounting data by using accounting programs or tabular calculations that were ready-mode purchased or especially created for the company.

Usually, in small companies general controls are less efficient than in more complex IT environments. Often, there is no qualified staff in

informational technologies or the client relies on the periodical implication of consultants for support in installing and keeping equipments or informational programs. Also, the responsibility connected to IT functions is often attributed to the utilizing departments inside which physical equipments are placed. Still, even in these IT environments, purchase controls of informational programs, physical security, real-time access security and planning of safe back-up are important.

Often, client's auditors who use microcomputers in environments withy less sophisticated general controls make the biggest part of their audit "around the computer". These systems often produce sufficient audit tracks which allow the auditor to correlate the explanatory documents of data input whit data output.

Still, even in less sophisticated IT environments, there are situations in which the auditor can rely on controlled procedures executed by computer. For example informational program from microcomputers can be installed on the hard disk of the computer so that the client's staff could not modify them. The risk of unauthorized modifications in informational applications is, consequently, diminished. Before making reference to integrated control devices in those applications, the auditor must be convinced of the informational program, namely in what concerns the quality.

A problem that appears in environments based on microcomputer is the access of some unauthorized persons to the systematic files. For example, the utility of comparing the client's sales commands and of credit-clients balances to the systematic files of credit limitation depends upon the accuracy of the established credit limits. Unlike the sophisticated IT environments, often, microcomputers do no contain protection of data files by means of access password. Without such protection, any user could introduce a modification which cancels the utility of a control device. An example is the increase of a client's credit limit which is sufficient to avoid the rejection of the operation by the system. In alike situation, it is critical an adequate separation of the staff's tasks, staff who has access to the systematic files, by the data processing responsibility. Moreover, a periodical check by the owner-administrator of out put data connected to operations consolidates the internal control.

Another risk related to the use a microcomputers is the data and program loss due to informational viruses, which can infect other programs or even the whole system. Certain viruses can deteriorate disk files or block a whole network of computers. The existence of some protection programs against viruses, which should permanently scan the system to detect possible viruses improves the internal control.

The spectacular intensification of use of networks connecting equipments as microcomputers, average size computers, extremely powerful computers, data input terminals, servers and printers has changed the IT function in numerous companies. Local Area Networks (LAN) connect equipments from one building or a small group of buildings and are used only for operation inside companies. A typical use of LANs consists in data and program transfers from one computer or terminal to another, using programs for the network system which allow all the equipments to work together. Wide Area Networks(WAN) connect equipments from larger geographical regions, permitting even operation at an international scale.

In environments based on networks, the informational applications and data files used for processing operations are stocked on servers, which are equipments used for data administration. The access to the respective operations from microcomputers or terminals is administrated by the programs for network systems. Often, companies have several servers. In the case of many ample network environments, there are applied most general controls because the support given by informational technologies and the implication of users are centralized. In other companies, the use of a network medium often leads to modifications of control devices, which the auditor must analyze during audit planning. Numerous organizations decentralize the network servers, fact that often increases the control risk as it lacks security and whole supervision of network operations by the management. Also, numerous network environments have no equipments and standardized procedures. Organizations which need fast communications and easy access to data often create network outside the control sphere of the informational technologies function. The responsibility concerning the purchase, maintenance, administration and physical security of equipments and informational programs is frequently incumbent upon the key-groups of users and not upon a centralized IT function, fact which often leads to an absence of adequate control devices. Also, sometimes, network informational programs do not include the necessary options to ensure security, including for task separation (devices which are usually available in centralized environments), because there are numerous users having easy access to data and programs.

When clients have book-keeping applications that work in a network environment, the understanding of the internal control by the auditor should contain accumulation of data regarding the network configuration, including the servers' location, the terminals' and the computers' connection, as well as accumulation of some data concerning the network program used for the system administration. Also, the auditors should be informed about the

control devices for the access and modification of international applications and data files stocked on servers.

Controls are better when data is centralized into an administration system of data basis, by the fact that it eliminates the redundant data files. However, administration systems of data files can also create risks connected to the internal control. For example, there are risks related to the fact that numerous users, among whom we enumerate persons outside the book-keeping department, can access and update data files. Without a suitable administration of data basis and without an access control, the risks of appearing some unauthorized, inaccurate and incomplete data files increase. Also, centralizing data into one single file increases the importance of the insurance of a safe data back-up, which should be proper and regularly created.

Clients' auditors who use administration systems of a data basis should understand planning, organizing, politics and procedures of the clients in order to determine how well these systems are administrated.

To cover a part or all their needs of informational technologies, many clients prefer to resort to independent informational service centre sooner than to set up an internal department of informational technologies. Numerous smaller companies subcontract the administration function of salaries, because this is not enough similar between companies and because there are reliable suppliers of salary administration services. Like in any other subcontract decision, companies determine whether it is worth to subcontract the IT function on the basis of a cost-advantages analysis.

When activities are subcontracted to an informational service centre, the client delivers the input data, and the service centre processes them for a certain price and then delivers the client the convenient output data and the original input data. In the case of salaries, the company presents the service centre the check sheets and the daily rates.

It would be more difficult for the auditor to understand the internal control of the client in such situations, as a large amount of control devices works at the service centre level and the auditor can not start from the hypothesis that these devices are suitable only because it concerns an independent services supplier. Audit standards require the auditor to analyze the need to understand and test the control devices of the service centre in the cases in which applications used by the respective centre involves the process of some significant financial data.

The decision concerning the proportion of understanding and testing the control devices of the service centre used by the client should rely on the

same criteria the auditor takes into consideration when evaluating the internal control devices of a client. The depth of understanding would depends upon the complexity of the system and upon the level in which the auditor intends to reduce the estimated control risk in order to diminish the quantity of substantial audit tests, if the auditor concludes that the active implication at the level of the service centre is the only manner to effectuate the audit, it could be necessary an agreement of the internal control inside the service centre and a testing of the control devices, using test-data and other testing methods.

5. Conclusion

In the last few years, it has become more and more frequent the practice through which an independent auditor understands and tests the internal control devices of the service centre, in the interest of all the centre' s clients and of their independent auditors. The aim of this independent evaluation consists in offering the service centre' s clients a reasonable level of insurance concerning the adequate character of the general and application controls used in the service centre and in eliminating the need of redundant audits made by the auditors of the centre' s clients. If the service centre has numerous clients and each one demands an understanding of the centre's internal control by his own independent auditor, the perturbation of activities and the costs supported by the service centre could be substantial. the moment after the independent auditor of the service centre concludes devices, it is being elaborated a special report, indicating the perimeter of the audit proceedings and the auditor's responsibility to decide over the measure in which he is willing to rely on the audit report of the service centre.

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THE EFFECTS OF INTERNATIONAL OFF-SITE SURVEILLANCE ON THE BANK RATING CHANGES [1]

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Abstract

This article explores the determinants for off-site surveillance of the short-term and long-term bank rating changes for rated banks in Asia and the differences between them. Application of an ordered logit model reveals that the CAMEL criteria of asset quality and capital adequacy as well as non-financial variables such as asset size and mergers and acquisitions play an important role to influence both the short-term and long-term bank ratings. Notably, it is found that higher capital to loan ratio, greater liquid asset ratio, and lower capital to asset ratio are likely to improve the probability of long-term creditworthiness, while higher impaired loans ratio are less likely to improve the short-term bank ratings. Results of the marginal effect suggest that the dividable scale helps to improve long-term creditworthiness through cross-selling tactics, synergy gains and a better capability for fund raising.

Keywords: *bank rating; CAMEL; off-site surveillance*

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1. Introduction

Numerous studies have documented that the banking system in developed countries had became a highly regulated procedure by the early 1980s. (Johnson and Lindley, 1993; Benink and Llewellyn, 1994; Warf and Cox, 1995) By this point the regulatory environment consisting of controls on interest rates, credit and capital acted as a protection in the banking industry. The existence of restrictive practices and high entry barriers into the banking sector not only provided excess capacity, but also formed monopolistic profits in response to low degrees of competition. Subsequently, the banking system experienced a period of profound crisis due to the rapid process of financial liberalization associated with mismanagement, deregulation, and depressed economies that intensified competition among banks. Consequently, many banks collapsed and faced financial insolvency because the substantial rise in bank lending and eroded credit rationing raised markedly the proportion of nonperforming loans in the early 1990s. A number of studies have examined the effect of bank-specific variables on predicting bank failures. Abrams and Huang (1987), Pantalone and Platt (1987), Randall (1993), Estrella, Park, and Peristiani (2000), and Brewer, et al. (2003) suggested that bank failures are influenced by both financial performance and supervisory assessments associated with CAMEL criteria and other ratings aimed at maintaining bank safety and soundness.

Much previous research has used the probit and logit models to investigate the relationship between the financial performance and the risk of domestic bank failures, rather than a linear cardinal approach. The empirical evidence so far suggests that bank-specific variables such as asset size, nonperforming loans, and capital to asset ratio, together with loans and monetary policies such as regulation Q and Federal Deposit Insurance play important roles in influencing the probability of bank failure.[2] However, little information has been available to policymakers to discuss how to apply the off-site surveillance on a comparison of nations for banks because the differences in the surveillance procedures of nations can affect how the probability of bank risks reflecting their ratings are determined. This study adds to the existing academic evidence but differs by exploring whether and how CAMEL criteria and non-financial factors are related to how bank's off-site surveillance reflects the bank's rating changes.

In this paper we test whether the financial variables followed CAMEL criteria, with non-financial variable including bank size and dummy variables

[2] Under the approval of Regulation Q, the Federal Reserve permitted commercial banks to provide the maximum explicit interest rates to be paid on savings and time deposit liabilities (Cebula and Saltz, 1994).

such as financial holding company, mergers and acquisitions, and geographic differences responding to the off-site surveillance of bank rating refinements. This paper uses an ordered logit model with maximum likelihood estimation and the sample is comprised of bank rating changes for 151 banks in Asia during 1996 to 2002. We probe deeper using a comprehensive investigation to determine if there are inherent differences between the long-term and short-term bank rating changes in order better understand off-site surveillance of banks worldwide.

Our results indicate that CAMEL criteria and non-financial variables do exist and influence the rating agencies' behavior for evaluating bank ratings. Generally, we found that a small net loan to total asset ratio, lower expenses to asset ratio, higher return on assets, and larger bank size enhanced the creditworthiness of short-term and long-term bank ratings, which may increase asset quality, management efficiency, extra funds and earnings. It was also be found that mergers and acquisitions lead to lower probability of upgrading bank ratings due to improper managerial performance and financial difficulties of acquired banks. Geographic differences seem to be caused by the vulnerability of the banking sector and sovereign risks that rated banks faced. The results suggest that a higher capital to loan ratio, greater liquid asset ratio, and lower capital to asset ratio are likely to increase the probability of the long-term bank ratings. In addition, the positive coefficient for financial holding company supports the notion that rated banks belonging to a financial holding company may benefit from a better financial environment to improve their portfolio performance and obtain extra funds, leading to improved long-term creditworthiness. In particular, we found evidence to support the view that a higher impaired loans ratio was associated with lowered asset quality and profitability, making rating agencies less likely to upgrade the short-term bank ratings. Overall, the marginal effect results revealed that rated banks may incorporate the dividable scale of the investment-grade and speculative-grade of long-term bank ratings to rebuild creditworthiness by utilizing cross-selling tactics, enhancing synergy gains and assessing extra funds properly.

The remainder of this paper is organized as follows. Section 2 presents a literature review of bank failures. Section 3 presents the empirical model used in this study. Section 3 reports the data and some testable hypotheses. Section 4 presents the empirical results and Section 5 summarizes the findings.

2. Literature Review

A considerable volume of empirical studies on bank failures have explained the role of financial performance and supplement supervisory assessments (e.g., Abrams and Huang, 1987; Pantalone and Platt, 1987; Randall, 1993; Estrella, Park, and Peristiani, 2000; and Brewer et al., 2003). In two influential papers Abrams and Huang (1987) and Khorassani (2000) found that a lower probability of failure occurred when banks were larger or were affiliated with holding companies. Abrams and Huang found empirical evidence that U.S. banks which depend heavily on large certificate deposits and loan portfolio have a higher probability of failing. Randall (1993) and Warf and Cox (1995) analyzed U.S. banks that had profound crisis and failed during a period of 1980s -1990s. Their results generally supported Abrams and Huang's findings that an overbuilt commercial real estate market, which had markedly increased the proportion of nonperforming loans at higher risk exposures, was the dominant factor in bank failures. Consistent with these findings, Brenda, Ceyla, and Robert (1997) confirmed that a higher share of nonperforming loans to total loans decreased the survival time for Mexican banks that experienced the Mexican financial crisis during the early 90s. They indicated that banks with smaller size and capital asset ratios seem to be more likely to obtain liquidity support. Likewise, Wheelock and Wilson (1994) also indicated that an increase in ratios of capital to assets reduced the likelihood to failing. In other study, Henebry (1997) used the CAMEL rating system areas of capital, asset quality, earnings and liquidity to test the stability of bank failure prediction. He found that the ratios of primary capital to total assets and of nonperforming loans to total loans both have strong power in predicting bank failure.

Previous studies have identified possible links between capital ratio requirements and the risk of subsequent bank failures.[3] These ratios are especially for the development of early warning systems for predicting the likelihood of bank closings and they play a crucial role in prompt supervisory action for bank regulators. As pointed out by Khorassani (2000), the capital adequacy requirements to assess safety and soundness for the banking industry can be significant predictors of bank failure. Estrella, Park, and Peristiani (2000) evaluated three types of capital ratios, risk-weighted, leverage, and gross revenue ratios. They found that the risk-weighted ratio

[3] A comprehensive international approach to capital adequacy was recently developed by the Basel Accord to Banking Supervision in 1988 (Estrella, Park, and Peristiani, 2000). To emphasize capital regulation and promote safety and soundness, the new framework has been expanded to the three pillars-minimum capital requirements, supervisory review, and market discipline (Gunther and Levonian, 2001).

tend to perform relatively in predicting bank failure over long time horizons, while the leverage and gross revenue ratios can play an important role of prediction over the shorter time periods.

To build an effective early warning model of bank failure to identify banks taking excessive risks, Pantalone and Platt (1987) used Logit regression analysis to discriminate between healthy and failure-prone commercial banks in U.S. They reported that adopting a risky management strategy that inadequately diversified away from loans or having insufficient controls to prevent fraud would jeopardize a bank's survival if a major stress in the economy occurred. They also showed that an increase in bank lending has affected bank failures because the rapid process of deregulation has increased the competitive environment among financial institutions. In support of this position, Benink and Llewellyn (1994) provided empirical evidence based on Tobit estimates for pooled banking data of Norway, Sweden and Finland, suggesting that rising credit losses may speed up banking crises due to intensified competition from substantial deregulation.

A number of studies argued that changes in the risk of bank debt may not be the sole cause of bank failures. Johnson and Lindley (1993) and Cebula and Saltz (1994) examined the pattern of the bank failure rate in the U.S. in response to the monetary policy changes over last two decades. They found that regulation Q for the U.S. Federal Reserve policy appeared to play a crucial role in contributing to bank failures.

In addition, Cebula (1993), Wheelock and Wilson (1994), and Laeven (2002) have provided convincing evidence indicating the connection between deposit insurance and bank failure. In this regard, they pointed out that the Federal Deposit Insurance (FDIC) has probably been the most criticized monetary policy related to the proximate cause of the rapid growth of banks and the Savings and Loan (S&L) failures during the 1980s. Cebula (1993) and Wheelock and Wilson (1994) found that banks and S&L institutions that carried FDIC were more risky, and hence had an increased failure rate. They suggested that the regulators may consider an increase in the cost of deposit insurance proportionately with risk in order to discourage the risk taking behavior of banks for lending. However, Laeven (2002) showed that private banks or other financial institutions with the highest cost of deposit insurance tend to take greatest risks.

The comprehensive studied of on-site inspections and examinations by Flannery and Houston (1999) and by Gilber, Meyer, and Vaughan (2002) attempted to assess and control the regulatory risk exposures associated with deposit insurance and lending activities which affected bank's market value. Flannery and Houston (1999) provided a notable result in that surprise

examinations were more likely to have a significantly negative effect on well-capitalized banks.

To evaluate the off-site surveillance at the bank level for scheduling on-site exams, Cole and Gunther (1998), Gunther (2002), and Gilber, Meyer, and Vaughan (2002) used both CAMEL and CAMELS ratings to predict bank failure.[4] Gunther and Levonian (2001) summarized the usefulness of the BOPEC rating as a benchmark for banking organizations' financial safety and soundness.[5] These results indicate that stock price information was useful in predicting financial conditions that affected BOPEC ratings to supplement supervisory assessments. Moreover, Elmer and Fissel (2001) and Brewer et al. (2003) indicated that equity market information can help forecast downgrades in the supervisory ratings and responded unfavorably to bank failures. Among previous studies that used stock returns or prices to examine the supervisory ratings, Gilber, Meyer, and Vaughan (2002) found that the CAMELS downgrade ratings performed slightly better than the SEER (the System for Estimating Examination) Ratings. This indicates that the CAMELS ratings models have a little contribution to off-site surveillance. Gunther (2002) evaluated the potential trade-off between credit enhancement objective of the Community Reinvestment Act (CRA) and the risk-constraining objectives of safety and soundness used in assigning CAMEL ratings.[6] However, the limited evidence revealed that aggressive banking strategies to expand credits and low managing capital were both associated with favorable CRA ratings, but they conflict with safety and soundness ratings so that losses may occur at a high level of risk.

To the best of our knowledge, the current paper extending previous empirical work on bank rating changes is the first attempt to test off-site surveillance among banks across different nations in Asia. While a limited number of studies have examined the impacts of off-site surveillance on the probability of domestic bank failure, these papers have not attempted make

[4] To assess supervisory information, both composite CAMEL and CAMELS ratings were obtained from examinations of five/six components aimed at maintaining bank safety and soundness including capital protection (C), asset quality (A), management competence (M), earnings strength (E), liquidity risk exposure (L) and market risk sensitivity (S) (Gilber, Meyer, and Vaughan, 2002).

[5] BOPEC rating was obtained from financial performance of five factors: Bank subsidiaries (B), other (non-bank) subsidiaries (O), the parent company (P), consolidated earnings (E), and consolidated capital (C) (Gunther and Levonian, 2001).

[6] Since July 1990, the Community Reinvestment Act (CRA) has legislated that Federal regulators were to encourage financial institutions to meet local credit needs in a bank's service area (Gunther, 2002). The CRA ratings can be classified to four levels: outstanding, satisfactory, needs to improve, and substantial noncompliance.

an international comparison linking bank ratings in reflecting bank's insolvency associated with leverage risk, credit risk, and liquidity risk.

3. Ordered Logit Analysis of Bank Ratings in the Banking Sector

An ordered logit models with the random effects fitted by maximum likelihood are now well established in the economic and financial research literature of bond ratings and credit ratings (e.g., Kamstra, Keenedy and Suan, 2001; Badu and Daniels, 1997; Blume, Lim and McKinlay, 1998; Chen, 2003). It is to be noted that Walker and Duncan (1967) originally developed an ordered logit models for pooled data. Greene (1993) revealed that the standardized logistic probability distribution functions are available to constrain the estimated probabilities for an ordered logit models. In principle, the random effect estimates of both models use maximum likelihood functions and asymptotic standard errors to assess the parameters that were formed to similar statistical characteristics.

To capture the relations between discrete-valued dependent variables and continuous-valued independent variables, we consider the following specification for an ordered logit models with the random effects:

$$Y_{it}^{*} = \beta' x_{it} + \varepsilon_{it} + \varpi_i, \tag{1}$$

$$Y_{it} = 0, \quad \text{if } Y_{\text{it}}^{*} \le \text{z}_1,$$
$$Y_{it} = 1, \quad \text{if } z_2 < Y_{it}^{*} \le z_3,$$
$$Y_{it} = 2, \quad \text{if } z_3 < Y_{it}^{*} \le z_4,$$
$$\text{.....}$$
$$Y_{it} = M, \quad \text{if } Y_{\text{it}}^{*} > z_M,$$
$$Var\ [\varepsilon_{it} + \varpi_i] = Var\ [\nu_{it}] = \sigma_{\varepsilon}^{2} + \sigma_{\varpi}^{2},$$
$$Cov\ [\nu_{it}, \nu_{is}] = \sigma_{\varpi}^{2},$$
$$Corr\ [\nu_{it}, \nu_{is}] = \rho = \frac{\sigma_{\varpi}^{2}}{\sigma_{\varepsilon}^{2} + \sigma_{\varpi}^{2}},$$

where Y_{it}^{*} represents an approximation of the unobserved measure of bank ratings and Y_{it} refers to the observed variable. The values of a matrix of the independent variables x_{it} can be observed for the bank *i* at time *t*. Note that *z* is the unknown "threshold" parameter which can be defined as the range of the set of observed value, Y_{it}, to be estimated in combination with a vector of

the estimated coefficient β'. Let ε have a standard logistic distribution and its underlying cumulated distribution function can be expressed as $\frac{\exp(z)}{1+\exp(z)} = \Lambda(z)$ and ϖ_i represents the group specific term which is distributed as $N(o, \sigma^2)$. We consider M categories ordered from lowest to highest as $0<z_1<z_2<...<z_M$. A maximization of the log likelihood function associated with the threshold values z can be formed as follows:

$$L(\beta, z) = \sum_{i=1}^{N}\sum_{j=0}^{M} \log\left(\Pr ob(Y_{it} = j \mid x_{it}, \beta, z)\right) \cdot \ell(Y_{it} = j) \qquad (2)$$

where $\ell(.)$ is an indicator function which takes on the value 1 if the argument is true, and 0 otherwise. In this study we use an ordered logit to combining the marginal effects in order to obtain the impact of change in the covariates of each independent variable on the cell M probabilities**:**

$$\frac{\partial \text{Prob}(cell\ \text{M})}{\partial x_i} = [f(z_{M-1} - \beta' x_i) - f(z_M - \beta' x_i)] \cdot \beta, \qquad (3)$$

where $f(.)$ is the appropriate logistic density function, $\Lambda(z)[1 - \Lambda(z)]$ (Greene, 2002).

We measured the β coefficients to reflect the importance of each of the independent variables on the probability of bank rating changes. The marginal effect was implemented by holding β and the unknown "threshold" parameter z constant. The effect of an additional unit increase in the independent variable x shifts the probability of the logistic distribution of bank ratings to the right. Therefore, the unchanged signs of the marginal effects for the probability of bank rating changes at the highest ordered level will be the same compared to the β signs. However, the opposite signs related to β signs for the probability of bank rating changes at the lowest ordered level will occur. To capture a better interpretation of the marginal effect, we need to further examine the signs of the changes in other probability of bank rating changes levels because these signs are indeterminate in either direction (Greene, 1993).

4. Data

This study considers the impact of ratings changes from 1996 to 2002 for both short-term and long-term bank ratings to measure a bank's intrinsic safety and soundness. The sample was well dispersed regionally over the cross section of 151 banks in Asia. The regional dispersion is quite important to our analysis due to the differences in the regulations of on-site inspections and examinations to provide supervisors that affected bank's valuation by certain nations (Gunther and Levonian, 2001).

To identify the effects of off-site surveillance, we used the cross-section and time series of bank ratings based on an ordered logit with the random effect model as follows:

$$\begin{aligned} RATING^{*}_{i,t} &= \alpha_1 + \alpha_2 \cdot ADE_{i,t} + \alpha_3 \cdot CAP_{i,t} + \alpha_4 \cdot LOAN_{i,t} + \\ &\alpha_5 \cdot IMP_{i,t} + \alpha_6 \cdot EXP_{i,t} + \alpha_7 \cdot ROA_{i,t} + \alpha_8 \cdot LIQ_{i,t} + \alpha_9 \cdot SIZE_{i,t} + \\ &\alpha_{10} \cdot FHC_{i,t} + \alpha_{11} \cdot M\&A_{i,t} + \alpha_{12} \cdot GRE_{i} + \alpha_{13} \cdot SOUTH_{i} + \varepsilon_{i,t} + \psi_i, \end{aligned} \tag{4}$$

where $RATING^{*}_{i,t}$ represents some unobserved measure of bank ratings. It was assumed that $\varepsilon_{i,t}$ and ψ_i are the white-noise residual and group specific term, respectively. The two dependent variables of the short-term and long-term ratings are a linear cardinal measure of bank ratings, which consist of the following five or six values of the dependent variable of $RATING^{*}_{i,t}$, respectively:

$$ST_{i,t} = \begin{cases} 0 \ if \ \ RATING^{*}_{i,t} \le C \\ 1 \ if \ \ C < RATING^{*}_{i,t} \le B \\ 2 \ if \ B < RATING^{*}_{i,t} \le A3 \\ 3 \ if \ A3 < RATING^{*}_{i,t} \le A2 \\ 4 \ if \ \ RATING^{*}_{i,t} > A2 \end{cases}$$ for the short-term

bank ratings; or

$$LT_{i,t} = \begin{cases} 0 \ if \ \ RATING^{*}_{i,t} \le CCC \\ 1 \ if \ \ CCC < RATING^{*}_{i,t} \le B \\ 2 \ if \ B < RATING^{*}_{i,t} \le BB \\ 3 \ if \ BB < RATING^{*}_{i,t} \le BBB \\ 4 \ if \ BBB < RATING^{*}_{i,t} \le A \\ 5 \ if \ \ RATING^{*}_{i,t} > A \end{cases}$$ for the long-term bank ratings.

The independent variables for the short-term and long-term bank ratings model include a set of financial and non-financial ratios to capture the impact of leverage, credit, and liquidity risks that have consistently caused financial insolvency in the banking sector. The short-term bank ratings were defined as having a threshold value ranging from 0 to 4 in order to represent ascending ratings of no rating or C below, B, A3, A2, and A1. Likewise, the threshold values ranging from 0 to 5 symbolize an ascending rating of CCC or below, B, BB, BBB, A, and AA for long-term bank ratings, respectively. This article uses the CAMEL criteria (e.g. capital adequacy, asset quality, management quality, earnings ability, and liquidity) to identify potential financial performance variables for the models. The non-financial ratios include bank size, mergers and acquisitions, financial holding company and geographic difference factors based on previously published articles. Table 1 shows the definition and notation of bank ratings as the dependant variable, and the impacts of other independent variables are described below.

This article uses the ratio of equity capital to total loans (ADE) and capital-asset ratio as a measure of capital adequacy. Persons (1999) examined the behavior of banks in response to the potential of unanticipated losses, pointing out that adequate capital must be maintained at a higher level to reflect unanticipated losses in order to reduce the likelihood of bank risk. Banks with higher ratio are assumed to be in stronger financial condition, which tends to increase probability of higher bank ratings. Moreover, the bank ratings model captures the impact of the ratio of capital to total asset (CAP) which is the most commonly used measure of leverage risk. Khorassani (2000) and Gilbert, Meyer and Vaughan (2002) found that a negative relationship between capital-asset ratio and bank risks. These findings are consistent with our view that lower levels of capital-asset ratio increased leverage risk to render a bank insolvent will enlarge the likelihood of bank ratings downgrades.

Table 1: List of variables

Variable	*Notation*	*Definition*
Bank Ratings	RATING	The dependent variable: [1] 1. Short-term bank ratings (ST): 0=no effect or below C; 1=B; 2=A3; 3=A2; 4=A1. 2. Long-term bank ratings (LT): 0= no effect or below CCC; 1=B; 2=BB; 3=BBB; 4=A; 5=AA.
Capital to Loan Ratio	ADE	The ratio of equity capital to total loans. Unit=% [1]
Capital to Asset Ratio	CAP	The ratio of capital to total asset. Unit=% [1]
Net Loan to Asset Ratio	LOAN	The net loans to total assets ratio. Unit=% [1]
Impaired Loans Ratio	IMP	The ratio of impaired loans to total loans. Unit=% [1]
Expenses to Asset Ratio	EXP	The ratio of overhead to total assets. Unit=% [1]
Return on Asset	ROA	The ratio of net income to total assets. Unit=% [1]
Liquid Asset Ratio	LIQ	The ratio of liquid assets to total assets. Unit=% [1]
Bank Size	SIZE	Natural log of total assets. Unit= billion $ [1]
Financial Holding Co.	FHC	A dummy variable for financial holding company. If FHC=1, the bank was a subsidiary company affiliated with a holding company. Otherwise, FHC=0. [2]
Merger and Acquisition	M&A	A dummy variable for mergers and acquisitions. If M&A=1, a rated bank made a major mergers and acquisitions of targeting banks. Otherwise, M&A=0. [2]
Greater China Region	GRE	A dummy variable for Greater China Region. If GRE=1, a country locates in Greater China Region. Otherwise, GRE=0.
Southeast Asia	SOUTH	A dummy variable for Southeast Asia Countries. If SOUTH=1, a country locates in Southeast Asia. Otherwise, SOUTH=0.
Northeast Asia	NORTH	A dummy variable for Northeast Asia Countries. If SOUTH=1, a country locates in Northeast Asia. Otherwise, SOUTH=0.

Source: Bankscope, Bureau Van Dijk Electronic Publishing Inc., 1995-2002. The Banker, Financial Times, 1995-2002.

To capture the strength of lending activity for asset quality, this article used the net loans to total assets ratio (LOAN) as a proxy variable to measure asset efficiency. Persons (1999) contended that LOAN has a positive impact on the probability of failure. His findings reflected that the deterioration of asset quality augmented bank risks. A high ratio means poorer asset quality and it should decrease the likelihood of bank ratings. We used the ratio of impaired loans to total loans ratio (IMP) which served as credit risk to control for the lending quality of a bank's assets. We expect that the credit risk measures of IMP have a negative relationship with the bank ratings. If borrowers failed to make promised interest or to repay principal, credit losses increase the likelihood of bank failures and insolvencies caused by reducing net earning, anticipating a larger write-off of bad loans and lost capital. Benink and Llewellyn (1994), Brenda, Ceyla, and Robert (1997), and Khorassani (2000) revealed that the coefficients of the Nonperforming Loan Ratio turn out to be positive and statistically significant related to bank fragility.

This current article uses the ratio of overhead to total assets (EXP) as a proxy variable to measure the quality of management. Persons (1999) also used a similar measure for the quality of management. This ratio helps to determining a managerial efficiency of bank's overall performance that involved qualitative issues related to the risk-taking preferences, regulatory compliance, and internal control to maintain safety and soundness. It is reasonable to expect that a higher ratio reflects lower management quality and higher probability of bank risk that downgraded bank ratings to insolvency.

The next variable is a measure of earnings ability, that is defined as the ratio of net income to total assets (or, return on assets, ROA). Abrams and Huang (1987) and Khorassani (2000) found that a negative relationship may exist between profitability and the bank failure. Brenda, Ceyla and Robert (1997), and Gilbert, Andrew and Vaughan (2002) provided evidence that high levels of profitability enable a bank to increase its additional capital through accumulated retained earnings, thus improving its viability to overcome economic shocks. We expect that higher ROA increases the probability of bank risk for the bank ratings upgrade.

With regard to measuring sufficient liquidity for banks to meet the demand for unexpected deposit withdrawals, we include the ratio of liquid assets to total assets (LIQ) which plays an important role in depository financial institution risk. Brenda, Ceyla and Robert (1997) reported that an increase in liquid assets would allow a bank to deal with unexpected deposit withdrawals and hence reduce the likelihood of failure. Thus, a positive coefficient of LIQ is hypothesized for the bank ratings.

To capture the impact of asset size, Abrams and Huang (1987), Persons (1999), Khorassani (2000), and Gilbert, Meyer and Vaughan (2002) linked a non-financial variable -size variable (SIZE) (natural log of total assets) influenced the probability of bank failure. They suggested that SIZE reduces the probability of failure because larger asset size may influence bank performance by diversifying away risks by means of providing more financial products, accessing extra funds, and expanding geographic regions. Thus, banks with larger asset size should have lower probability of bank rating downgrades.

We included the financial holding company (FHC) as another non-financial variable to examine the bank's capability of fund raisings. FHC was a dummy variable that equals 1 if the bank was a subsidiary company affiliated with a holding company, zero otherwise. Abrams and Huang (1987) and Khorassani (2000) found that a dummy variable for financial holding company was negatively associated with the probability of bank failure. We used FHC as a measure of cross-selling gains to achieve better portfolio performance and to raise addition capital more easily than unaffiliated banks, thus lowering the probability of decreased bank ratings due to reduced credit risk.

We also examine to see if there is any empirical evidence that activities of Mergers and Acquisitions (M&A) in the banking sector affect bank ratings. Healy, Palepu and Ruback (1992), Cebenoyan, Papaioannuo and Travlos (1992), and Lyroudi, Lazaridis and Subeniotis (1999) have examined the post-merge performance of acquirers. They found a strong positive relation between increases in shareholder wealth of the targeting firms after merger and abnormal returns around the acquisition announcement date. The results showed that financial markets were likely to expect an improvement of equity revaluations of acquirers. Thus, a dummy variable of M&A would be expected to have a significant positive influence on the probability of upgrading bank ratings due to a financial enhancement caused by gains of synergy.

Geographic differences among regional economies may also partially account for regional variations in bank ratings attributing to geographically diversified cash flow, guaranteed external support, and sound financial regulations. To account for these differences, the analysis included three regional dummy variables to capture the effect of any systematic differences by regions due to the difference in economics, finance and the regulatory environment on bank risks. We specified Northeast Asia (NORTH) as the reference dummy. We employ dummy variables for Southeast Asia (SOUTH) and Greater China Region (GRE) to determine whether geographic

differences in short-term and long-term bank ratings exist relative to NORTH.

Table 2 contains the recent history of Capital Intelligence ratings and Standard & Poor's ratings for the short-term and long-term bank rating changes, respectively.[7] In general, most rated banks in Japan, Hong Kong, Korea, Taiwan and Singapore had a rating of BBB or higher, whereas rated banks in Indonesia, China, Malaysia, Philippine and Thailand were mostly in the range of BBB or lower for the long-term bank rating changes. In addition, many rated banks in China, Hong Kong, Korea, Malaysia, Singapore and Taiwan obtained a rating of A3 or higher, while rated banks in Indonesia, Philippine and Thailand were generally in the range of A3 or lower for short-term bank rating changes. Rated banks in China, Taiwan and Thailand have been upgraded for long-term bank ratings since 1996, and most of them remained in the same category for short-term bank ratings. Some rated banks in Korea and Japan were downgraded to lower levels. Shizuoka Bank in 1996 and Bank of Taiwan in 1999 have received the higher ratings (i.e., A1+ or AA-), while Panin Bank in 1998 and Philippine National Bank in 1996 received lower ratings (i.e., CCC or C) for the short-term and long-term bank ratings.

We compared the definitions for the entire set of credit ratings assigned by Standard and Poor's Rating Service (S&P) and Capital Intelligence Rating Service (CI), as shown in Table 3. Note that the addition of rating modifiers (+ or -) which indicated slightly greater or lesser standing within each category were ignored to simplify rating categories. Generally, S&P and CI rating agencies issued Credit Ratings and Financial Strength Ratings for banks that were expressed in terms of default risk, and periodically assessed and correct ratings to renew the issuer's credit positions.

[7] We neglected S&P short-term bank ratings and Capital Intelligence long-term bank ratings due to a variety of missing observations. Thus, 78 rated banks remained in our analysis.

Table 2: Recent history of bank rating changes

Bank	*Long-Term Ratings*	*Short-Term Ratings*	*Bank*	*Long-Term Ratings*	*Short-Term Ratings*
Indonesia			**Philippines**		
Panin Bank	CCC (1998)	C (1999)	*Bank of the Philippine Islands*	BB (1998)	B (1999)
China			*China Banking Corp*	Nil	B (1999)
Bank of China	BB+ (1996); BBB- (1999)	A2 (1996)	*Equibable Banking Corp*	B (1998)	B (1998)
Agricultural Bank of China	Nil	A2 (1999)	*Philippine National Bank*	CCC (1996); BB (2001)	C (1996)
Bank of Communications	BB (1996); BB+ (2000)	A2 (1996)	*Rizal Commercial Banking Co.*	B (1996)	B (1999)
China Construction Bank	BB+ (1996); BBB- (2000)	A2 (1996)	*Security Bank Corp*	B (1998)	Nil
Ind. & Comm. Bank of China	BB+ (1996); BBB- (2000)	A2 (1999)	*United Coconut Planters Bank*	Nil	B (1999)
Hong Kong			**Singapore**		
Bank of East Asia	BBB+ (2001)	A1 (1999)	*Oversea-Chinese Banking Co.*	A (1996)	A1 (1999)
Dah Sing Financial Holdings	BBB (1997)	A2 (1999)	*United Oversea Bank*	A+ (1996); A (2001)	A1 (1999)
ShangHai Commercial Bank	BBB (1997)	A2 (1999)	**Taiwan**		
Wing Lung Bank	BBB (1997)	A2 (1999)	*Bank of Taiwan*	A+ (1996); AA- (1999)	A1 (1996); A1+(1999)
Korea			*Bank SinoPac*	BBB+ (1999)	A2 (1999)
Industrial Bank of Korea	BBB (1996); BBB+(2002)	A2 (1999); A3 (2002)	*Chang Hwa Bank*	BB 1996; BBB (2002)	A2 (1999)
Kookmin Bank	BBB+ (1996); BBB- (2002)	A3 (1996); B (2001)	*Chiao Tung Bank*	Nil	A2 (1999)
Korea Exchange Bank	BB (1996); BB- (2002)	A3 (1996); B (2002)	*Chinatrust Commercial Bank*	BBB (1999)	A2 (1999)
Shinhan Bank	BBB+ (1996); BBB (2002)	A3 (1996); B (2002)	*Farmer Bank of China*	BB+ (1996); BBB- (2002)	B (1996)
Malaysia			*First Commercial Bank*	BBB (1997)	A2 (1999)
Hong Leong Bank	BB (1999)	Nil	*Fubon Commercial Bank*	Nil	A3 (1999)
Public Bank	BBB (1998)	A2 (1996)	*Grand Commercial Bank*	BB (1996); BB+ (2002)	A3 (1996); B (2002)
Southern Bank Berhad	BB (1997)	A3 (2000)	*Int. Comm. Bank of China*	A (1996); A+ (2002)	A1 (1999)
Allied Banking Corporation	Nil	B (1999)	*Land Bank of Taiwan*	Nil	A1 (1996); A2 (1999)

Table 2: (continue)

Bank	*Long-Term Ratings*	*Short-Term Ratings*	*Bank*	*Long-Term Ratings*	*Short-Term Ratings*
Shanghai Comm. & Saving	Nil	A2 (1999)	*Fukuoka City Bank*	B (1996); BB (2002)	Nil
Taipeibank	BBB+ (2000)	A2 (1999)	*Gunma Bank*	A- (1996); BBB+ (2001)	Nil
Taiwan Business Bank	Nil	A3 (1996); A2 (2002)	*Hiroshima Bank*	BBB (1998)	Nil
Taiwan Cooperative Bank	BBB (1999)	A2 (1996)	*Hokkoku Bank*	BBB (1998)	Nil
Union Bank of Taiwan	Nil	A3 (1999)	*Hyakugo Bank*	A (1996); A- (2002)	Nil
Utd. World Chinese Bank	BBB (1996)	A1 (1996); A2 (2002)	*Hyakujushi Bank*	BBB (1996)	Nil
Thailand			*Iyo Bank*	BBB (1996)	Nil
Bangkok Bank	BB (1996); BB+ (1998)	A3 (1999)	*Joyo Bank*	A- (1996); BBB+ (2001)	Nil
Bank of Ayudhya	BB (1998)	B (1999)	*Juroku Bank*	BBB (1997)	Nil
Krung Thai Bank	Nil	B (1996); A3 (2001)	*Keiyo Bank*	BBB (1998)	Nil
Siam Commercial Bank	BB- (1996); B+ (1998)	A3 (1999)	*Kiyo Bank*	BB (1996)	Nil
Japan			*Nanto Bank*	BBB (1996)	Nil
77 Bank	A (1996); BBB (2002)	Nil	*Ogaki Kyoritsu Bank*	BBB (1998)	Nil
Akita Bank	A (1996); BBB (2002)	Nil	*Oita Bank*	BBB (1998)	Nil
Bank of Fukuoka	BBB (1998)	Nil	*San-In Godo Bank*	BBB (1998)	Nil
Bank of Kyoto	BBB (1997)	Nil	*Shizuoka Bank*	AA- (1996); A+ (2001)	Nil
Bank of Nagoya	BBB (1998)	Nil	*Sumitomo Trust & Banking*	A- (1996); BBB (1998)	Nil
Bank of Yokohama	BBB (1996)	Nil	*Toho Bank*	A- (1996); BBB+ (1999)	Nil
Chiba Bank	BBB+ (1996); A- (1998)	Nil	*Tokyo Tomin Bank*	BB (1998)	Nil
Chugoku Bank	A (1997)	Nil	*Yamaguchi Bank*	BBB (1998)	Nil
Daishi Bank	BBB (1998)	Nil	*Yamanashi Chuo Bank*	A (1998)	Nil

Note: There were missing values of Capital Intelligence short-term bank rating for banks in Japan.

Table 3: The definitions of standard & Poor's (S&P) and Capital Intelligence (CI) ratings

S&P Long-Term	*Definitions*	*CI Short-Term*	*Definitions*
Investment Grade			
AAA	Extremely Strong Capacity to meet its financial commitments.	*A1+*	Superior credit quality. Highest capacity for timely repayment of short-term financial obligations that is extremely unlikely to be affected by unexpected adversities. Institutions with a particularly strong credit profile have a "+" affixed to the rating.
AA	Very strong capacity to meet its financial commitments.	*A1*	
A	Strong (satisfactory) capacity to meet its financial commitments but is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than debt in higher-rated categories.	*A2*	Very strong capacity for timely repayment but may be affected slightly by unexpected adversities.
Speculative Grade			
BBB	Adequate capacity to meet its financial commitment, but adverse economic and financial conditions more likely to weaken capacity. Lowest investment-grade rating.	*A3*	Strong capacity for timely repayment that may be affected by unexpected adversities.
BB	Debt has less near-term vulnerability to default than other speculative issues. However, it faces major ongoing uncertainties and exposure to adverse business, financial, or economic conditions that could lead to inadequate capacity.	*B*	Adequate capacity for timely repayment that could be seriously affected by unexpected adversities.
B	Greater vulnerability to default but still has the capacity to meet its financial commitments.		
CCC	An obligor is currently vulnerable, and is dependent upon favourable business, financial, and economic conditions to meet its financial commitments.	*C*	Inadequate capacity for timely repayment if unexpected adversities are encountered in the short term.

Note: S&P and Capital Intelligence used the addition of a plus or minus sign from "AA" to "CCC" and from "A1" to "C" to indicate relative slightly greater or less standing within similarly rating categories.
Source: Bank Rating Guide, Standard & Poor's Service, 2004, www2.standardandpoors.com and Capital Intelligence, 2004 www.ciratings.com.

Rating agencies provide not only an opinion of a bank's inherent financial soundness and risk profile, but also consider the quality of banking regulation and supervision within stability of the financial and legal systems. Rated banks with extremely strong capacity to meet their financial commitments on interest payment and principal in accordance with the terms of the obligation will be rated as AAA for long-term rating. Likewise, agencies assigned a rating of A+ to indicate that rated banks have the highest quality in a timely manner for repayment of short-term financial obligations. Banks with superior credit quality tend to be less impacted by unexpected difficulties. For a comparable assessment purpose, rating agencies classify bank ratings into two major categories, investment-grade rating and speculative-grade rating. The investment-grade rating is restricted to a bank's creditworthiness graded at least BBB for long-term and B for short-term and above by the rating agencies. Banks ranked investment-graded rating are suitable for investment by financial institutions. The speculative-grade rating is designated as BB or below for long-term and graded B or below for short-term ratings, indicating a bank reduced ability to meet financial obligation. Ogden (1987) and Cheung (1996) pointed out that investing in a speculative grade in any form of securities with higher yields or returns was prohibited by many financial institutions to avoid default risks.

5. Empirical Results

We began our empirical analysis using LIMDEP software to estimate an ordered logit model of bank rating changes by the maximum likelihood. The empirical results of four alternative models are shown in Table 4. We also compared short-term and long-term bank ratings to evaluate off-site surveillance. The results of short-term bank ratings are in columns (1) and (2), while long-term bank ratings are in columns (3) and (4) with different specifications, respectively. The analysis utilized a Likelihood Ratio (LR) test to examine the group specific heterogeneity, and the test results are presented in Table 4. We find that the values of the LR test statistics are greater than the critical value of χ^2 (0.01, 1) = 6.64. This suggests that we are able to accept the random effect for better estimation rather than a fixed constant in the logistic function under the null hypothesis. Note that in-sample predictions of correct rating classifications was correctly predicted at 81.52 percent for short-term bank ratings in column (1), comparing other predictions which were below 60 percent in columns (2)~(4). The results of the threshold values, such as B, A3, A2, and A1 for short-term and B revealed that B^-~B^+, BB^-~BB^+, BBB^-~BBB^+, and A^-~A^+ for long-term bank ratings, are all statistically significant. This finding reveals that categorizing

bank ratings were clearly definable and appropriate for uneven spacing intervals.

Table 4: An ordered logit model for bank ratings

Regressor	***Short-Term Bank Rating***				***Long-Term Bank Rating***			
	(1)		***(2)***		***(3)***		***(4)***	
Constant	32.11	(6.20)**	10.06	(5.02)**	6.38	(2.87)**	4.60	(2.29)**
Capital to Loan Ratio	0.03	(0.43)	-0.06	(-1.54)	-0.03	(-0.65)	0.11	(2.28)**
Capital to Asset Ratio	0.03	(0.46)	-0.01	(-0.01)	-0.08	(-3.02)**	0.08	(1.13)
Net Loan to Asset Ratio	-0.16	(-2.44)**	-0.06	(-2.31)**	-0.07	(-2.91)**	-0.04	(-1.88)*
Impaired Loans Ratio	-0.76	(-6.77)**			-0.01	(-1.01)		
Expenses to Asset Ratio	-0.08	(-4.09)**	-0.01	(-1.19)	-0.01	(-3.35)**	-0.01	(-1.76)*
Return on Asset	0.10	(1.86)*	0.07	(1.46)	0.08	(1.52)	0.09	(1.69)*
Liquid Asset Ratio	-0.01	(-0.55)	0.01	(0.47)	0.01	(2.10)**	0.01	(0.28)
Bank Size	7.55	(6.32)**	0.06	(0.98)	2.38	(8. 85)**	1.62	(7.83)**
Financial Holding Co.	-2.10	(-1.64)*	1.24	(1.37)*	-0.05	(-0.07)	1.13	(1.79)*
Merger and Acquisition	2.50	(0.75)	-1.01	(-1.85)*	-2.57	(-4.23)**	-1.58	(-2.91)**
Great China region			-0.05	(-0.01)			-3.83	(-5.67)**
Southeast Asia			-2.16	(-4.47)**			-3.27	(-6.70)**
Thresholds								
B	27.27	(9.28)**	2.94	(11.52)**				
A3	32.54	(11.44)	3.96	(17.64)				
A2	41.43	(11.98)**	6.97	(22.43)**				
$B^{-} \sim B^{+}$					3.70	(9.72)**	3.39	(10.04)**
$BB^{-} \sim BB^{+}$					5.84	(19.90)**	5.85	(24.17)**
$BBB^{-} \sim BBB^{+}$					9.97	(2.43)**	9.60	(36.58)**
$A^{-} \sim A^{+}$					13.79	(18.77)**	12.24	(28.08)**
Measure of Fit								
Likelihood Ratio Test	203.13**		89.04**		150.53**		207.09**	
Per cent Correctly Predicted	81.52%		50.64%		59.47%		52.45%	

*Note: t-statistics in parentheses, * and ** indicate significance at the 10 per cent and 5 per cent levels of the two-tail test, respectively.*
Source: Author's calculation

The estimated coefficient on the ratio of equity capital to total loans is positive and significant in column (4), similar to the finding of Persons (1999). Higher adequate capital level has great impact on financial performance improvements to lessen unanticipated losses and bank risks that upgraded long-term bank ratings, whereas other types of specifications do not. The coefficient for the ratio of capital to total assets is positive and statistically significant for long-term bank ratings in column (3), indicating that higher levels of capital that lowered leverage risks tended to upgrade bank ratings.

It should be noted that all four of the estimated coefficients of net loans to total asset exhibit the expected signs and are significant. These results are consistent with the earlier findings of Abrams and Huang (1987) and Persons (1999), that rating agencies take a higher net loans to total asset ratio as more accurately reflecting lower asset quality and larger loans default, which significantly contribute to downgrade short-term and long-term bank ratings.

The results strongly suggest that the ratio of impaired loans to total loans ratio (IMP) has a negative and statistically significant impact on the probability of short-term bank ratings in column (1). This implies an inverse relationship between downgrade probability and credit risk due to the deterioration in asset quality and profitability.

The estimated coefficients on the ratio of expenses to assets are negative and statistically significant although they are insignificant in column (2). This indicates that higher operating expenses to total assets makes the rated bank's management inefficient due to overpayment of its personnel and highly leverage that incurred greater risks would indicate poorer financial position and hence downgrade the bank's ratings.

The significant positive coefficients on return on assets (ROA) in columns (1) and (4) provide further evidence that an increase in ROA, which indicates higher earnings ability and relatively lower exposure to default risk, may raise the probability of bank ratings upgrade on off-site surveillance.

As for the effects of liquidity risk of rated banks, the results reveal a positive and statistically significant impact of the ratio of liquid assets to total assets (LIQ) on long-term bank ratings in column (3). We find that higher LIQ improves the long-term bank ratings since there is sufficient liquidity to meet the demand of large withdrawals for long-term certificates deposit but

not in short-term bank ratings. One reason for this may be that rated banks are required to maintain reserve requirements regulated by the central bank to meet their demand deposits.

Generally, bank size carries a positive and significant sign. This is consistent with a priori theory because larger-sized banks may be more successful in raising extra funds and diversifying away risks, thus increasing the probability of better short-term and long-term bank ratings.

The effects of association with a financial holding company (FHC) are somewhat mixed for short-term bank ratings, and this variable did have statistically significant effects on bank ratings. These results echo the finding of Khorassani (2000) that financial holding companies may decide to hasten the bank closure rather than provide subsidies under the pressure of ensuring the survival of other associated banks. On the other hand, ratings agencies may upgrade short-term bank ratings for associated banks of financial holding companies because they may easily hire capable personnel who can raise more capital and improve management quality to reduce bank risks. In addition, this finding also supports our expectation that rated banks that belong to financial holding companies do receive a greater probability of better long-term bank ratings by rating agencies. Financial holding companies provide a better environment for commercial banks to achieve portfolio performance, obtain addition capital and diminish their inherent risks by increasing their cross-selling gains.

Inconsistent with a priori hypothesis, the findings show that mergers and acquisitions (M&A) have a negative and statistically significant effect on short-term and long-term bank ratings. This suggests that rated banks whose growth strategy involves takeovers have a lower probability of upgrading ratings. Wansley, Elayan and Maris (1990) and Goh and Ederington (1993) reported a significant negative reaction in stock returns for downgrading credit quality when a rating agency notes a firm's financial difficulty and lower earnings. Additionally, Ghosh and Lee (2000) and Kohers and Kohers (2001) concluded that acquirers may not obtain an increase in long-term post-merger performance due to a high premium deal, a low book-to-market ratio, a severe agency problem, and disciplinary actions[1] when there was managerial performance of the targeting firms performed improperly.

To control for geographic differences in the responses of short-term and long-term bank ratings across ten countries, Southeast Asia and the Greater China Region are included in the model. Generally, the results seem

[1] Palepu (1986) and Cudd and Duggal (2000) pointed out that the acquirers may use disciplinary actions to whip on the inefficient managers of the targeting firms prior to the acquisition in order to benefit the shareholders' wealth.

to indicate that rated banks located on Southeast Asia and the Greater China Region are less likely to obtain creditworthiness on short-term and long-term bank ratings than rated banks in Northeast Asia.

To better evaluate the probability of observing a particular rating, the estimation of the marginal effect for an ordered logit model is also shown in Table 5. The estimated marginal effects for the set of CAMEL variables, including capital to loan Ratio, capital to asset ratio, net loan to asset ratio, expenses to asset ratio, returns on asset, liquid asset ratio and impaired loans ratio are all close to zero. Thus, small changes of these variables may have a negligible impact on the probability of short-term and long-term bank rating changes. The results of other factors such as bank size, financial holding company, and mergers and acquisitions in explaining short-term and long-term bank ratings are unique. This study clearly reveals that a larger bank size reflecting less default risks and easier fund raising may improve the likelihood of better short-term and long-term bank ratings, especially for the investment-grade rating at BBB or above, and it reduces the probability of the speculative-grade rating at BB or below.

Overall, we found that association with a financial holding company increases the likelihood of receiving long-term investment-grade bank ratings of a BBB or above. This result suggests that rated banks belonging to a financial holding company with many subsidiaries seem to have better financial performance, lower inherent risks, more professional workers and greater cross-selling gains. However, association with a financial holding company not only decreases the likelihood of receiving a BB or below for the long-term speculative-grade, but also downgraded the short-term bank ratings. This would imply that certain policies that regulate the financial holding companies may accelerate the bank closure process rather than rebuild the creditworthiness of rated banks. Most importantly, M&A activities will decrease the likelihood of observing a BB or below for the long-term speculative-grade and short-term bank ratings but increase the likelihood of observing a BBB or above for the long-term investment-grade bank ratings. This implies that the dividable scale of the investment-grade and speculative-grade ratings provided useful information for banks to improve their creditworthiness efficiently and strengthened some principles of mergers and acquisitions behavior.

6. Conclusion

This study used an ordered logit model with random effect to examine the proposition that bank rating changes related off-site surveillance for 151 banks' safety and soundness were determined by financial and non-financial

factors during 1996 to 2002. We attempt to emphasize the marginal effect of the mean value change for the financial variables such as capital to loan ratio, capital to asset ratio, loan to asset ratio, impaired loan ratio, expenses to asset ratio, return on assets, and liquid asset ratio. We also examine the marginal effect for non-financial variables such as bank size and dummy variables of financial holding company, mergers and acquisitions, and regional factors on the different probabilities of bank ratings.

Our findings indicate that a rated bank with smaller net loans to total assets ratio, lower expenses to assets ratio, higher return on assets, and larger bank size was more likely to experience improvements in creditworthiness than other banks. This suggests that rated banks associated with short-term and long-term bank ratings act to certify increased asset quality, improved management efficiency, strengthened fund raising and enhanced earnings ability to investors in order to diversify risks. It was found that a mergers and acquisitions strategy has a lower probability of upgrading bank ratings, because a rated bank faced improper managerial performance, financial difficulty and lower earnings of the targeting firms. Geographic differences are also evident among rated banks in Asia. A rated banks located in Southeast Asia and the Greater China Region were weaker than those in Northeast Asia, possibly due to the vulnerability of the banking sector caused by the financial crisis of 1997 and sovereign risks.

The short-term and long-term bank ratings from an international analysis highlight differences in off-site surveillance of rating agencies. One result from this paper is that the benefits from association with a financial holding company are more likely to accrue to rated banks for the long-term bank rating upgrade. As expected, the results indicated that capital to loan ratio, capital to asset ratio and liquid asset ratio all contributed to the changes in long-term bank ratings. This shows that higher adequate capital level, lower leverage risks, and greater liquidity are associated with upgraded creditworthiness of rated banks, possibly due to better financial performance, fewer unanticipated losses, and larger bank reserve to meet demand for unexpected deposit withdrawals. In particular, the impaired loans ratio is negatively related to the probability of short-term bank ratings due to lower asset quality and profitability. A brief analysis of the marginal effect seems to indicate that rated banks were able to incorporate the dividable scale of the investment-grade and speculative-grade of long-term bank ratings. This provided useful off-site surveillance to improve creditworthiness, enhance synergy and strengthened the mergers and acquisitions activities on the basis of a rated bank's inherent risks. In addition, the advantage of financial holding company structures and mergers and acquisitions activities did not take place, whereas a larger bank size can assess fund raising, apparently

upgrading short-term bank ratings. To the best of our knowledge, the impact of bank ratings changes on off-site surveillance in the pre- and post-M&A period for banks has not been thoroughly examined in related literature. This would be significant topic for further study, providing a useful means by which regulators can assess changes of creditworthiness in the banking sector.

Table 5: Marginal effects of variables on the short-term and long-term bank ratings

Regressor	***Short-Term Bank Rating***				***Long-Term Bank Rating***				
	ST=B	***ST=A3***	***ST=A2***	***ST=A1***	***LT=B***	***LT=BB***	***LT=BBB***	***LT=A***	***LT=AA***
Capital to Loan Ratio	0.0060	0.0001	0.0002	0.0000	-0.0036	-0.0066	0.0041	0.0066	0.0006
Capital to Asset Ratio	0.0017	0.0000	0.0000	0.0000	0.0009	0.0015	-0.0010	-0.0017	-0.0001
Net Loan to Asset Ratio	-0.0076	-0.0002	-0.0002	0.0000	-0.0013	-0.0022	0.0015	0.0024	0.0002
Impaired Loans Ratio	-0.0119	-0.0003	-0.0003	0.0000	0.0016	0.0026	-0.0017	-0.0029	-0.0003
Expenses to Asset Ratio	-0.0018	0.0000	0.0000	0.0000	0.0002	0.0003	-0.0002	-0.0003	0.0000
Return on Asset	0.0100	0.0002	0.0003	0.0000	0.0007	0.0012	-0.0008	-0.0013	-0.0001
Liquid Asset Ratio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Bank Size	0.3581	0.0077	0.0095	0.0003	-0.0960	-0.1604	0.1080	0.1766	0.0159
Financial Holding Co.	-0.0822	-0.0016	-0.0020	-0.0001	-0.0122	-0.0217	0.0123	0.0249	0.0023
Mergers and Acquisitions	-0.1630	-0.0031	-0.0037	-0.0001	-0.0166	-0.0298	0.0159	0.0347	0.0033

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RECENT ACCOUNTING DEVELOPMENT IN ROMANIA ON THE WAY TO THE EUROPEAN AND GLOBAL HARMONIZATION

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Abstract

Integration of each state into the world economic flows requires certain adjustments in different fields of economic life. One of the fields where coordination and harmony are necessary is the field of financialreporting. The worldwide financial community recognizes the need for one set of accounting standards,with added transparency and comparability. A desire of all who prepare, audit or use financial statements is one set of high quality accounting standards used globally by all private or public entities. Having a single set of standards helps to ensure consistency of accounting and reporting among all countries, which results in better and more efficient financial analyses of entities. This will result in more efficient flows of capital because investors will not have to assign risk premiums to entities operating in countries with inconsistent or low quality accounting standards. Finally, it will reduce costs because accountants, auditors, financial analysts, investors, and regulators will no longer be converting or reconciling financial statements from one set of standards to another. International Financial Reporting Standards makes significant progress toward global recognition. For private sector, IASB issued IAS/IFRS and for public sector IFAC issued IPSAS/IPSFRS.

Keywords: *accounting; international regulations, private sector, public sector*

1. Introduction

It is now over 15 years since the beginning for many countries in the CEE region of the transition from a command economy to a market economy. As transitional economies seek to adapt to, or join, the international community there have been moves to adopt or adapt international accounting standards (IAS) either for a part or all of the country's enterprises. Local accountancy profession have developed either drawing upon institutions pre 1989 or created de novo as in Romania.

In the same time, the importance of private sector in economy increase, a lot of domestic new companies appeared in Romanian business environment, result of privatization process, or, of private sector investment. Now there is a significant number of large private companies which operate in Romania, beside the public entities.

For all type of entities (private or public) the transition to free market economy brings new challenges to accounting field, especially regarding the information quality and financial reporting.

The aim of this research is to analyze the steps made by Romanian accountancy on the way to the European and Global Harmonization both for private and public sector.

The research was carried out on the basis of the available sources and research methods (historical analyses, benchmarking with international references, s.e.)

2. A single set of accounting standards: an Esperanto business language

2.1. The need of a common language

Accounting, perceived as business language, becomes a socio-economic necessity of the international business community.

The worldwide financial community recognizes the need for one set of accounting standards, with added transparency and comparability. A desire of all who prepare, audit or use financial statements is one set of high quality accounting standards used globally by all private or public entities.[1]

Having a single set of standards helps to ensure consistency of accounting and reporting among all countries, which results in better and more efficient financial analyses of entities. This will result in more efficient flows of capital because investors will not have to assign risk premiums to entities operating in countries with inconsistent or low quality accounting

standards. Finally, it will reduce costs because accountants, auditors, financial analysts, investors, and regulators will no longer be converting or reconciling financial statements from one set of standards to another. International Financial Reporting Standards makes significant progress toward global recognition.

Till now, for private sector International Accounting Standards Board issued IASs/IFRSs and for public sector International Federation of Accountants Committee issued IPSASs/IPSFRSs.

IPSAS are based on the International Accounting Standards (IASs) issued by the International Accounting Standards Board (formerly known as IASC). Some accounting issues in the public sector are not fully addressed in the IASs. Similarly, accounting for a number of complex issues will be addressed in IASs currently under development.

We must recognizes the significant benefits of achieving consistent and comparable financial information across jurisdictions and we believe that the use of a single set of standards will play a key role in enabling these benefits to be realized.

The adoption of standards by public and private entities will improve both the quality and comparability of financial information reported by entities around the world.

2.2. About the single set of standards: concepts and aims

If the international economic community will agree the use of a single set of accounting standards, these will represent a *single set* of high quality, understandable and enforceable standards, *transparent* and *comparable* information, *convergence* of national and international standards, *principles-based* standards.

Transparency Financial statements should represent faithfully events and transactions that imply to represent and report volatility when it happens, not when management chooses to report it.

Comparability Financial statements should account for like transactions and events in a like way and account for different transactions and events differently.

The aim of the unique set of standards is to contain clear statement of underlying principles, deal with almost all events, transactions and structures that arise in practice, allow entities and their auditors to use professional judgment in applying the principles to other events, transactions and structures.

2.3.The benefits brought by the single set of standards

The single set of standards offer important and positive implications for organizations and individuals that adopt them, such should be:

- reduces cost of capital and the ease of using one consistent reporting standard from subsidiaries in many different countries - for entities

- offer better information for decision making, leading to broader investment opportunities - for investors, creditors

- offer better information for market participants in a disclosure-based system.

Undeniable, the standards provide higher quality information, more transparency and consistency, so the entities financial statement will be comparable both in time and space. Financial statement will look alike everywhere, in any country. The entities will report their financial statements according the standards by presenting the same thing, without any selection or options to reconsider. We have to underline that the benefits of improved financial information does not only serve to entities' externals. Management itself, working within an entity, should be able to see more clearly the economic reality of the entity's activity, and take better management decisions.

3. Romanian accounting system before 1998 – an overview

Under the communist regime, socialist accounting system was characterized by 'operating' in the absence of the real and effective price mechanisms. The objective of the system was to record immediate effects of the activities of the state enterprises in monetary terms but deriving from the pre-determined prices. As prices were controlled and contrived records generated by the system lacked an economic substance. Driven by the communist ideology, it was intended to render accounting information unusable for guiding economic performance. In effect, accounting was neutralised. Accounting records were much more important than financial statements.

The Romanian accounting system with its German and French roots was overlaid by a version of the Soviet based system. The Chart of Accounts were issued for different economic sectors (industry, agriculture, services) by the Ministry of Finance, together with very well defined sets of rules regarding the registration and processing of data, and financial reporting.

Annual statements included explanatory notes with information regarding completion of the financial plan, difficulties leading to failures in

the fulfillment, and predictions on the completion of the plan. Operating results were less important. Profit or loss statement was included as an appendix to the balance sheet. These statements were not publicly available but directed to the Ministry of Finance and regional statistical offices.

4. Steps made by the Romanian accountancy regulation on the way of harmonization with European and international standards

4.1. 1990- 1994 – the beginning of transition to the market economy

A necessity to transform the socialist accounting system was, in large, determined by structural changes in a functioning of the economy [2]. As the means of production became incorporated in private ownership, the state created new legal frameworks in which economic activity was supposed to be responsive to stimulated market forces.

The transition processes, from the centralized economy to the market based economy represent a set of complex reforms of which the key issue involve privatisation, labour market reform, the development of capital markets, currency convertibility, price liberalisation, macro-economic stabilisation and welfare reform.

A transformation of the socialist accounting system into a market-based system comprises a number of intermediary stages, in which the transition system gradually becomes more compatible with the principles and practices of the market accounting system. Transformation processes need to be supported with specific measures, including the development of an appropriate institutional framework, education of the accounting professionals, legal enforcement, as well as the development of professional best practices.

In 1991 was issued Accounting Law no. 82 and the Regulations for the implementation of Accounting Law GO 704 by which was introduced of market driven accounting principles.

The above mentioned regulations cover the following subjects: entities subject to accountancy regulations, accounting operations, language and currency used for accounting purposes, corporate accounting, accounting ledgers, financial statements.[3]

1. *Entities subject to accountancy regulations* are: regies autonomes; national companies; commercial companies; national research and

development institutions; public institutions; cooperative enterprises; associations and other legal persons;

2. *Accounting operations* consist in chronological and systematic recording, processing, publication of information regarding the financial status and economic filed of the above-mentioned entities, as well as their business relations with shareholders, clients, suppliers, banks, fiscal authorities, other legal and natural persons.

3. *Language and currency used for accounting purposes* The accounts must be kept in Romanian language and expressed in the national currency (ROL). Accounting operations evidencing foreign currency transactions must be kept both in ROL and in foreign currency.

4. *Corporate accounting* Corporate entities must keep and manage accounting records by distinct departments, led by the business director, by the chief accountant or by any other person empowered to do so. These persons must have graduated a certified business school. Accounting records can also be kept by authorized legal persons or individuals who are expert accountants or chartered accountants. For companies where accounting records are not organized in distinct departments, which do not employ qualified staff under with the law or have not accountancy services, the Ministry of Finance establishes externalized turnover thresholds, beyond which authorized or certified accountancy services become applicable. The responsibility for the accounting lies with the director or any other person in charge with the entity's management.

5. *Accounting ledgers* are: *Journal - Ledger* (recording all company operations, payments received or made, as well as amounts used for shareholders/associates' personal expenses when allowed by the Articles of Incorporation, kept in chronological order), *Inventory - Ledger* (recording all real estate and movable assets, commercial and civil debenture and receivables, pursuant to an inventory), *General Ledger* (serving as a summary of the journal - ledger, –offering a synthetic view of the corporate status).

6. *Annual financial statement.* comprise the balance sheet, the profit and loss account accompanied by accounting policies and explanatory notes, and for the large companies are added: capital movements statement, cash flow stastement. Data in the financial statement must be consistent with data recorded in accounting books and to the assets and liabilities inventory and any set-off between accounts, as well as between income and expenses in the profit and loss account are prohibited. The annual financial statements must be kept for 50 years.

In 1991 was issued an another important law, the Company Law no. 31/1990, where there are presented some aspects regarding the accounting:

- The financial statements must be discussed, approved and amended by the General Meeting of the Shareholders, whereby the dividends are based on the earned profit;

- The company directors cannot approve the balance sheet and the profit and loss account except if they own at least half of share capital and legal majority cannot be attained without their vote;

- Corporate auditors check: balance sheet; profit and loss account; accounting books and draw up a detailed report regarding the balance sheet and the profits, relied on by the Shareholders' General Meeting when approving the balance sheet.

- The balance sheet, profit and loss account and directors' and auditors' reports must be submitted at least 15 days prior to the Shareholders' General Meeting. Within at most 15 days after the General Meeting, directors must file a copy of the balance sheet with the fiscal authorities and following its endorsement file it with the Register of Commerce.

In this period, an importance was given to the construction of the accounting record. Hence, provisions for proper and authorized documentation, the compilation of the accounting entries, and the maintenance of proper accounting records were introduced. An emphasis was placed upon the evidential nature of the accounting record. The implicit assumption was made that provided the accounting record was properly compiled, the financial statements would be necessarily correct [4], as was the case in the socialist economy context.

Accounting reform also encompassed a re-adoption of the regulation of the pre-communist era, these provisions have been revived by ministerial decrees and other legal documents, as well as existing accounting norms (authorised practices) were amended to form accounting standards.

In Romania, like in other CEE countries, The Ministry of Finance acts as a regulator of accounting. Hence, state, not the profession, has acquired a dominant position in reforming the systems. Now accounting, previously seen as an instrument of direct administrative control over state enterprises, becomes an instrument of indirect control and surveillance over privatised, and in a process of privatisation enterprises.

The Accounting Law promote the use of accrual basis accounting, but only the private sector entities applied fully accrual basis accounting. The public sector entities continued to apply the cash basis accounting so there are important differences between private and public sector accounting. One

of main difference regards the financial statements. When the accrual basis of accounting underlies the preparation of the financial statements, the financial statements will include the statement of financial position, the statement of financial performance, the cash flow statement and the statement of changes in net assets/equity. When the cash basis of accounting underlies the preparation of the financial statements, the primary financial statement is the cash flow statement. For these reason we will present the follow stage of acconting harmonization separatelly for private sector and for public sector.

4.2. The private sector accounting harmonization process

4.2.1. 1994-1997 pre-harmonization period

External pressures (primarily from the Western Europe) have caused accounting reforms to be placed upon political agendas. Romania have retained compulsory national charts of accounts, but reformed them by abandoning the old-Soviet style charts for the charts based on the French model [5].

In 1994 a system of accounting, based on the French system and incorporating a revised "chart of accounts" was introduced. The Romanian accounting system is codified and rule driven, being based to a large extent on the French model, with a chart of accounts consisting of some 100 obligatory accounts, each with its account name and number defined by law. For each new activity (see the case of leasing, merger, provisions) the Ministry of Public Finances issued a methodological guideline, with accounts, accounts correspondence and registration flows, obligatory to follow.

This was in part influence by the mutual interest; Romanian accountants were interested in strengthening their influence with French help and French accountants were interested in strengthening economic interests in Romania [6].

The main caracteristics of Romanian Accounting System before the harmonisation with IAS and EU regulations are: [7]

- *main user groups* Historically, accounting in Romania was directed towards providing information to two user groups, the Tax Authorities and the Government. This led to the financial statements that were being prepared according to regulations that allowed very little scope for judgmental accounting entries, provided limited disclosure, and as a result were of very limited use to other users (shareholders and management).

-*profit and loss structure* It should be noted that Romanian expense accounts are categorized by nature rather than destination, thus these include

accounts such as "Wages and Salaries", "Depreciation of Fixed Assets", etc., rather than cost of sales, marketing costs, etc. however, with a reasonably good, preferably data-based driven accounting system, it is not too difficult to meet both Romanian statutory reporting needs and management and group reporting requirements. Although the standard chart of accounts includes a couple of dozen of provision accounts, it is very unusual to see any of these used.

- *strog connection between taxation and accounting* While the new system allowed for a degree of judgment in recording accounting entries, in practice those which did not have any tax consequences were rarely made, reflecting the unwillingness of most accountants to record entries other than those that wee required to calculate taxable profit.

- *financial year* starts on January 1 and concludes on December 31, with the exception of the first year of activity when it begins on the date of formation. All Romanian companies have to have a December 31 year-end. If a romanian company is a subsidiary of an international companies group, and the group has a different year-end, the romanian company must prepare two separate closures, two financial statements, one under romanian regulations at December 31 and the other obne at the group year –end.

- *period basis* Profit and losses are registered in the accounting records on a monthly basis.

- *allocation of profit* The allocation of profit is recorded in different parts of the book accounts, depending on its destination according to the law.

4.2.2. 1997- 2000 first harmonisation period

As candidate to the European Union membership, Romania undergoes intensive accession programs. One of key conditions for the accession is harmonization of the financial reporting systems (incorporating practice of accounting, audit and taxation) with the European Directives and with the International Accounting Standards (hereafter IAS) framework (the 2002 EU regulation), under condition that the latter are not in opposition with the European Directives (The British Know How Fund, 1999). The application of the IAS is believed to provide the platform for increased foreign investment and foreign trade [8].

So, from 1996, an UK based project was rolled, designed to help Romanian accounting to evolve in a direction closer to the capital-market style of accounting in the Anglo-American context [9].

As a result of this process, IAS has effectively started to be rolled out in Romania, with 197 Companies being required to apply IAS for the first

time in respect of the year ended 31 December 2000. The number of Companies required implementing IAS increased constantlly. It should be noted that departures from IAS are still permitted in the new standards, but such departures would normally result in the accompanying audit opinion being qualified.

For these aim was issued the Order no. 94/2001 of the Ministry of Public Finances on accounting regulations harmonized with the 4th Directive of the European Communities and with the International Accounting Standards.

Under the terms of Order Nr 94 of January 29, 2001, Romanian Accounting Law is being harmonized with the IV th Directive of the European Union and with International Accounting Standards. All quoted companies, state corporations and all companies working in the capital markets must apply the new Romanian Accounting Standards starting with the year 2000. These new standards will progressively become compulsory for other largish companies based on total assets, turnover and number of employees for the previous year, as follows:

Year ending	**Turnover (Million Euro)**	**Total assets (Million Euro)**	**Employees**
December 31, 2002	8	4.0	200
December 31, 2003	7	3.5	150
December 31, 2004	6	3.0	100
December 31, 2005	5	2.5	50

Companies meeting these criteria must be audited, under the provisions of the Government Emergency Ordinance Nr 75 of 1999.

Smaller companies may opt to apply the new rules if they have obtained an approval from the Romanian Ministry of Finance.

Starting with the 2006 year-end, small and medium enterprises (as defined by the existing legislation at that time) only will be left outside the scope of the regs. These enterprises apply the provisions of the republished accounting law 82/1991 and the Regulations 306/2002, wich are the simplified version of Order Nr 94 of January 29, 2001. Where the financial statements are fully complying with Order 94/2001, but do not comply in total with the provisions concerning inflation and/or consolidation, the audit report has to make specific references to that.

Legal persons that do not have to comply yet with the harmonized European accounting rules, the annual financial statements comprise the balance sheet, the profit and loss account accompanied by, if case, accounting

policies and explanatory notes. Legal persons subject to the harmonized European accountancy rules, annual financial statements must comprise the balance sheet, the profit and loss account, capital movements statement, cash flow stastement, accounting policies and explanatory notes.

The introduction of MoF Order 94/2001 has seen an increase in the level of disclosure of information in notes and adding additional reporting requirements (including introduction of cash-flow statements and statements of changes in shareholders equity) and an increasing emphasis on provisioning and accruals considerations, although there is still, in some cases, an inclination to limit the differences between accounting and taxation profit.

4.2.2. 2001- 2006 harmonisation period

MoF Order 94/2001 and subsequent regulations have imposed some non-compliance with International Financial Reporting Standards (IFRS) and is based on the application of International Accounting Standards in effect as of 1 January 2000, being the date when a Romanian authorised translation of International Accounting Standards (as they were then named) were issued. No subsequent Romanian translation of IFRSs has occurred. A number of changes have occurred and are intended in IFRS, as the moves are taken to apply the Standards throughout the European Union and to give them an increasingly prominent position internationally.

Legislation issued in 2004 (MoF 1775/2004) has indicated that the European Union 4th Directive (on financial reporting) and the 7th Directive (on consolidated accounts) is to be applied for financial reporting from 1 January 2006. To follow relevant Directives, implies compliance in full for certain entities with International Financial Reporting Standards. Such compliance would also imply that 31 December 2005 financial statements would be prepared in accordance with International Financial Reporting Standards to provide for 2006 comparatives. This is an area where further clarification is likely to occur for some entities.

MoF Order 94/2001 reporting up to 31 December 2004 has excluded for reporting to the Ministry of Finance and as the basis for the financials to be used for profit distribution purposes hyperinflation accounting (IAS 29) and preparation of consolidated financial statements (IAS 27). The same situation is expected to apply for 31 December 2005 reporting, with reporting for 31 December 2006 to be fully compliant with IFRS for entities in accordance with the EU 4th Directive.

Consolidated financial statements for a company and its subsidiaries, are currently not required by the legislation relating to completion of

statutory financial statements for MoF Order 94/2001 compliant companies. Law 82/1991 (republished in January 2005) requires that the standards in the International Financial Reporting Standards relating to consolidation should be applied commencing with the year ending 31 December 2006.

It has been indicated that the EU 4th Directive will be fully applied for the year ending 31 December 2006 for Romanian entities. This is likely to mean full IFRS application for certain entities. For 2005, MoF 94/2001 reporting is considered to apply international standards that were inforce for years commencing on 1 January 2000, with subsequent changes to IFRS not being specifically acquired, although early adoption of IFRSs can occur. For years commencing on or after 1 January 2005, IFRS has had substantial changes that are not considered to be compulsory for MoF 94/2001 reporting, although early adoption of IFRSs are allowed. For banking entities reporting under MoF 1982, IFRS reporting requirements are considered to be followed.

4.3. The public sector accounting harmonization process

Until 2000 the accounting system for the public sector applied in Romania was characterized as being an accounting system based on cash .

For Romania, in the context of European integration, the achievement of the public sector accounting reform has become an urgent necessity. The key-element that confirm the need of reform in public sector accounting is the informational gaps of the actual system based on cash accounting.

An example is the extreme case of local governments from villages which are strictly in the limits of pure cash accounting, by the overlapping of the expenses notion with the payment notion, of the income notion with cashing-in, low-training level of the staff, over standardization of activity, low technical endowment or even the lack of it.

The harmonization process of Romanian Budgetary accounting suppose some main adjustments of current system, regarding:

1. **Accrual systems, for inventories, receivables (taxes, social contributions and interests) and payables**: these are necessary for the recognition of expenditures (and receipts) made in financial periods other than those in which the costs were actually incurred.

2. **Recognition of full depreciation of fixed assets**: to ensure full incorporation into the costs of activities of the consumption, use and deterioration of fixed assets. This is often a significant cost component of capital-intensive public sector activities.

3. **Assessment of normal profits as "costs of capital":** will recognize the return on investment implicit in the use of the funding of fixed and working capital by owners or by other funding sources in addition to loans.

4. **Revaluation of fixed assets to allow for inflation**: will result in recognition of ***current*** fixed asset values and the related ***current costs*** of depreciation. It also affects the proper recognition of the return on investment, when expressed as a percentage of the real (opportunity) costs of capital.

In action plan for Governmental Program for the year 2000 and 2001-2004 period for implementing Romania's medium term economic strategy, regarding the fiscal policy area and more exactly enhancing fiscal transparency and improving operational and a locative efficiency of budgetary expenditures, the planned actions were restructuring the budgetary accounting by: improving the budgetary classifications, re-setting economic classification in a privileged position against functional and institutional classifications, supplementing accounting on a cash basis with accounting on an accrual basis.

For comply with ESA 95 methodology, the Ministry of Public Finance promised to introduce the accrual accounting system for public institutions, starting with 2003. In August 2001, the Government Ordinance no. 61/2001 for completing and amending the Accounting Law no. 82/1991 was adopted in order to establish the general implementation framework. One important requirement regard the compulsory use of double entry accounting for all entities.

By the fourth quarter of 2002, the following methodological norms were promised to be prepared: norms regarding the accounting of budget provisions, norms regarding the organization and management of the assets accounting for public institutions, the Accounts' List for public institutions as well as the norms regarding the accounting of the main operations.

In order to take over the communitary aquis chapter 11 Economic and monetary union and chapter 29 Financial and budgetary expenses Romania has started rather shyly than transition process towards accrual accounting, which will require additional capacity and resources. The accounting rules, which will be adopted, will be based on the European Directives no.4 and no.7 and the European accounts system (ESA 95). There are also considered the accounting and information presentation requirements according to International accounting standards for the public sector (IPSAS). Through the position document regarding the negotiation of chapter 11 Romania engaged to report to EC according to ESA 95 requirements European standard

Accounts regarding public accounting and debt. By introducing the new budgetary classification (July 2005) applicable starting with 2006 an important step was achieved in harmonizing the accounting system for the public sector with the European and international regulations.

In order to make the Romanian accounting specialists know the best international accounting practices for the public sector The Chartered accountants Body from Romania translated into Romanian in april 2005 the International accounting Standards for the public sector, issued by the International federation of accountants, January 2005 issue .

With the intention of harmonizing the public sector accounting system with the European and international regulations, in the last 5 year a few reform elements have been introduced which aim at:

-The induction, liquidation, ordering and payment of public institutions expenses (OMFP 1792/2002), the four stages of the budget execution of expenses are carried out by all public institutions no matter their subordination and the way of financing expenses with compulsory pre-observance of procedures. Public institutions are also compelled to organize, lead the record and report the budgetary and legal arrangements starting with 2003.

- The re-evaluation and depreciation of fixed assets that are in the patrimony of public institutions (OG no.81/2003 and OMFP no.1487/2003) are introduced for the first time in the history of public administration in Romania. By introducing re-evaluation it was wished to bring at the current cost or the entrance value actualised in correlation with the utility of goods and their market value and by introducing the depreciation it was wished to reflect the real value of goods and the presentation through financial statements of a real image of the patrimony.

-The organization and leading of budgetary incomes accounting (OMFP no.520/2003), according to the Accounting law, that stipulates the compulsoriness of registering in accounting the rights and obligations of the public institutions when they are acknowledged, in this sense there had been until that moment a major contradiction between the national regulation in accounting and the regulations applicable to public institutions.

-The introduction of a new budgetary classification (OMFP no.1025/2005) applicable starting with 2006 according to ESA 95 requirements concerning accounting and public debt has contributed to making an important step in the harmonization of the public sector accounting with the European and international regulations.

With all the reform elements, the present accounting system in the Romanian public sector has a lot of faults especially concerning the quality of information provided both to managers and third party institutions.

The passage to accrual accounting in the public sector in order to take over the communitary acquis will be applied in Romania the latest in 2007.

If until now the public sector accounting has had a secondary role in comparison with the budget, a limited role in patrimony reflection, the cashed incomes and the expenses, by passing to accrual accounting, the accounting system, through the information that it will provide, will regain its deserved place.

Ministry of Public Finance issued some versions of a project of new budgetary accounting harmonized with international accounting standards but without publishing or disseminating.

This reform of public accounting has impact on all public institutions but especially the communes which are currently using another type of accounting and have a limited number of personnel with multiple responsibilities and limited access at training.

Some international consultancy teams in finallising the new accounting system for public Romanian sector help the Finance Ministery. By PHARE: Twinning Project contracted by the European Union, the consultants are involved in providing advice and consultancy with a view to providing financial management controls necessary to implement accruals accounting within the Romanian government. Another project regards the introduction of consolidated accruals accounting into the government of Romanian.

5. Conclusion

5.1. Regarding the private sector accounting harmonization process

The evolution of accounting system is envisaged as driven by the political, economic and social conditions within the country. These include in particular a stringent need of attracting foreign direct investment and requirements to harmonise the accounting practices with the EU Directives and the IAS, in order to fulfil the necessary standards for integration with the European and International Organisations (EU, IFAC, OECD).[10]

New romanian accounting legislation and regulations have been largely based on International Financial Reporting Standards (which include International Accounting Standards) in relation to fundamental concepts to be followed and applied for private and public sector.

The Romanian development process implied a proper application of the new adopted accounting rules and principles as well as the setting of a time scale within which these were gradually be phased-in.

Facilitating the development of business reporting and emphasising the importance of transparency, accountability and comparability in disclosure, the national accounting system may influence the speed of sociopolitical transition and economic reforms. It also may have a significant impact upon processes of attracting foreign investment, desperately required in this part of the world.

However, with the explosion in cross-border transactions and placements of debt and equity, there is a great need for transparency and comparability of financial statements between countries. As a result, the financial community worldwide - national standard setting boards and securities regulators, multinational companies, international audit firms, and investors - is committed to the goal of one set of high quality accounting standards.

5.2. Regarding the public sector accounting harmonization process

The use of accrual accounting in the public sector is a relatively recent phenomenon and the balance between costs and benefits is still the subject of substantial debates both for academics and practitioners. The countries which decide to pass from cash accounting to accrual accounting are warned (*IFAC, 2000)* to analyze very carefully the validity and the benefits expected from this reform taking into account the conditions, the priorities and the local characteristics.

About the new accounting system for public sector there are opinion that emphasize the benefits *(Horobeanu S., Alecu G. 2003)* but also more reserved opinions *(McKendrick 2003, SIGMA 2001).* Thus in some people's opinion (*McKendrick 2003)* as long as the transition towards accrual accounting is valid for developping countries it's possible that this not necessarily good for less developped countries or with a transition economy. And in Sigma's opinion (organization that provides assistance to central European countries which are preparing for UE adheration) : both the efficiency of the reform in the countries where it was implemented and the viability for the economies in transition remains a debatable subject both for academics and practitioners.

A change in mind is also needed, which implies a redesign of the personal value system. This means to overcome the past reluctance of prepares of financial information to disclose more than was absolutely

necessary, in particular in relation to contingent liabilities (including liabilities to State organizations), related parties identification, and disclosure of certain segmental information.

5.3. Regarding the Romanian accounting harmonization process

The Romanian accounting system (RAS), being adapted from a system originally designed for a planned economy, is particularly unsuited to decision making in a market economy. Thus poor economic decisions are made and wealth is wasted. But if users were provided with relevant information, scarce capital would be more efficiently invested and more correctly priced, to the very great benefit not only of the enterprises but to everyone. It is very rare for a technical matter of this kind to be so beneficial to society as a whole.

From 1990, it has taken some time for financial reporting in Romania to develop, as for much of the past period it has been directed to the provision of information to the State authorities and has not had as a major focus the provision of information to investors (current and prospective owners), management, financial institutions and other common users of financial reports in an international context. Financial reporting (and accounting in general) in Romania has tended to be more about "form" than about "substance",

The Romanian financial reporting requirements are continuing to undergo change and progression to move toward application of standards comparable with the European Union.

We understand that the reform of accounting system in both private and public sector is influenced by the accounting tradition (pre-communist and communist history and tradition of accounting systems). On the other hand, globalization of markets will also shape this transformation. Romania must find the equilibrium between internal and external influences, between past and future conditions, negotiating a fine balance between local culture and global pressures.

The importance of this development does not lie only in the standardization of the world's accounting system, important through that is. It lies, even more, in the fact that the standards adopted (IAS/IFRS) are aimed at transparency and at reporting economic reality, thereby allowing users of enterprise reports to make the correct economic decisions

We consider that if effectively implemented and supported, the transition accounting system can influence the speed of transition and economic transformation, the country's regional and international integration and facilitate societal changes.

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