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POST-CRISIS FINANCIAL INTERMEDIATION

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Abstract

The recent financial crisis that begun in 2007 in the US, which then swept around the world, has left deep scars on the already wrinkled face of the global economy.

Some national and regional economies, which had money for expensive makeup, or created money[1]*, managed to blur or hide the scars left by the crisis, others are still facing difficulties in overcoming the effects of this.*

The rapacity of banks, their greed and risk ignorance, were the origin of the outbreak of the last major economic and financial crisis but unfortunately those who were responsible or, rather, irresponsible, paid little or nothing at all for the burden of their bad loan portfolio. This cost has been supported by the population, either directly by paying high interest and fees [Mihai I., 2007], or indirectly, through the use of public budgets to cover the losses of banks, most of which had private capital.

In this context, we intend to examine the state of financial intermediation in Romania in the post-crisis period, and to primarily follow: (i) The structure and evolution of the banking system; (ii) Non-government credit situation; (iii) The level of savings; (iiii) Loan-deposit ratio; (v) The degree of financial intermediation and disintegration phenomenon etc., and to articulate some conclusions and suggestions on the matters that have been explored.

Keywords: *financial (dis)intermediation, loans, deposits, banking system, nonperforming loans, interest, inflation, foreign/Romanian capital*

JEL Classification: G_{01}; G_{15}

Developments in the Romanian banking system

The effects of the recent economic and financial crisis made themselves strongly felt on the global and European banking system, states around the world

[1] In 2009-2011, the US Central Bank (FED) printed and injected into the market over 2300 billion USD, the Central Bank of Britain the equivalent of approx. 315 billion USD and the European Central Bank, following the example of the British and the Americans, launched, staring with January 2015, a quantitative relaxation program totalling 1100 billion Euro.

having to face resounding bankruptcies [Lehman Brothers, 2008], important losses of budget revenues as a result of failure to achieve the expected profits of the banks and, in particular, huge public expenses for support and for avoiding chain collapse of banking institutions[2], virtually all of them being private owned.

In Romania, although the government has not directly allocated public money to support banking institutions with majority Romanian capital, the effects of the crisis have been felt by deep cuts, even the freeze of crediting, and failure to collect the expected budget revenue form taxes on the banking system, the banks having faced significant losses determined by a reduced banking intermediation and by the expenses related to the reorganising of bad loans balances.

Structural changes in the Romanian banking system in the post-crisis period are as follows (Table no. 1):

Table no. 1

Structural developments in the Romanian banking system

Indicators	2009	2015 (June)
A. Total credit institutions (1+2) of which:	42	40
1. Majority private capital (1.1+1.2) of these:	40	38
1.1. Majority foreign capital, of which:	35	34
– Branches of foreign banks	10	9
1.2. Romanian majority capital	5	4
2. Majority state capital	2	2
B. Shares of total banking assets (1+2) of which:	100%	100%
1. Banks with majority private capital (1.1+1.2) of these:	92,5%	91,6%
1.1. Banks with majority foreign capital	85,3%	90,2%
1.2. Banks with Romanian majority capital	7,2%	1,4%
2. Banks with majority state capital	7,5%	8,4%

Source: National Bank of Romania – Financial Stability Report, June 2009, ISSN 1843-3235; National Bank of Romania – Financial Stability Report, September 2015, ISSN 1843-3235.

In the analysed post-crisis period (2009-2015) the number of credit institutions operating in Romania decreased from 42 banks to 40 banks, through the exit from the system of:

– Royal Bank of Scotland;

– Volksbank, taken over by Banca Transilvania.

Also in this period, the Romanian branch of Bank of Cyprus closed its operations in Romania.

[2] The financial effort of the USA for saving the banking system amounted to approx. 12600 billion USD.

At the same time, the number of Romanian majority capital banks (private and public) was reduced from seven banks to six banks through foreign takeover of the majority capital of Banca Transilvania.[3]

Banks with majority private capital continue to hold shares in total bank assets of 91.6%, virtually all of them being of foreign majority capital, with 90.2% of share in total banking assets.

The six banks[4] with Romanian majority capital (private and public) have, together, only 9.8% market share, decreasing by approx. 5% compared with 2009, due mainly to the reclassification of Banca Transilvania from Romanian majority capital banks to that of foreign majority capital banks and to the removal of large value bad loans from the balance sheets.

In banks with foreign majority capital, Banca Comercială Română[5] continues to be the leader with a market share of nearly 20%, and between banks with Romanian majority capital, CEC Bank is the leader with a market share of approx. 7%.

The Romanian banking sector, dominated by foreign capital, has "contributed" under the pretext of restructuring, to the disappearance of a important number of territorial banking units (branches and agencies) and numerous jobs (Table no. 2), Romania reaching the last place in the EU in terms of banking units and number of employees in the banking sector compared with the population (Table no. 3).

Table no. 2

Comparison between the number of territorial units and employees in the banking sector

Indicators	Jan. 1st 2009	Dec. 31st 2014	Number differences	Percentage difference
Number of territorial banking units (branches and agencies)	6552	5337	-1215	18,6%
Number of employees in the banking sector	71622	56850	-14772	20,6%

Source: NBR, ARB.

Table no. 3

Banking degree

Indicators	Romania	EU
Number of inhabitants per employee in the banking sector	345	175
Number of inhabitants per banking unit	3760	2450

Source: National Bank of Romania – Financial Stability Report, September 2015, ISSN 1843-3235, p. 73.

[3] The selling by local stockholders of a significant package of shares to International Finance Corporation (IFC).

[4] Romanian majority private banks: Banca Carpatica, Libra Bank, Banca Română pentru Credit și Investiții (founded by the uptake by Romanian investors of ATE Bank, in December 2013), Banca Centrală Cooperatistă Creditcoop, CECBank, Eximbank.

[5] BCR is owned since 2007 by the Austrian group Erstebank.

Banking system contribution to the income of the state budget has been decreased given that the banks have ended recent years with losses[6].

Thus, at the end of 2014, the Romanian banking system as a whole recorded losses amounting to 4.7 billion RON, with the following structure:

– 23 banking companies reported losses amounting to a total of 6.4 billion RON;

– 17 banking companies reported profit amounting to 1.7 billion RON;

Of the units that reported losses, the largest amounts are found in the balance sheets of Banca Comerciala Romana, Volksbank, Bancpost etc. and among banks with a larger profit we mention Raiffeisen Bank, Banca Transilvania, City Bank România etc.

Not knowing the local market and questionable training of top managers appointed by foreign shareholders in the management of banks operating in Romania, materialized in the lack of performance of banking companies led to frequent changes in the top management.

Thus, many banks have had to change three or even more top managers in the post-crisis period.[7]

Table no. 5

Evolution of the inflation rate in the post-crisis period

– % –

Indicators	Annual inflation rate	Target assumed by the NBR
2010	7,96	3,0
2011	3,14	3,0
2012	4,95	3,0
2013	1,55	2,5
2014	0,83	2,5

Source: NBR, annual reports on inflation 2010; 2011; 2012; 2013; 2014.

The share of foreign currency loans in total nongovernmental credit slightly decreased in the analysed period, from 60.1% in December 2009 to 56.2% in December 2014 and still remains at a high level, with negative consequences on the risk of default, due to the unpredictable evolution of the RON exchange rate against major currencies.

In addition, this situation draws an alarming increase in the number of litigations and disputes, both in court and in the street, between customers and banks, due mainly to requests of borrowers in foreign currency that the repayment of loans to be made at the historical exchange rate (at the date of credit contraction).

[6] With the exception of 2013, when the entire banking system recorded a small profit.

[7] Banca Comercială Română: Dominic Bruynseels, Tomas Spurny, Sergiu Manea; Banca Română pentru Dezvoltare – GSG: Patrick Gelin, Guy Poupet, Philippe Lhotte etc.

Saving

It is well known that supporting the lending process is performed to a limited extent on account of the own funds of credit institutions (approx. 10%- 15% of a banks resources are represented by equity), and the bulk of lending activities is based on funds raised by banks from retail and corporate customers (approx. 85%-90% of total resources).

In these circumstances, the saving process is not just „rainy day money" for those who make the effort to save, but also a process with profound implications for a long-term healthy development of the economy.

In the post-crisis period, the volume of savings expressed by deposits of nongovernmental residents (households and firms) evolved as follows (Table no. 6):

Table no. 6

Evolution of bank deposits

– mil. RON –

Indicators	Dec. 31 2009	Dec. 31 2014	%
Total deposits of nongovernmental clients (1+2) of which:	167742,1	231856,0	138,2
1. Deposits in national currency (1.1 + 1.2) of which:	102691,1	154879,8	150,8
1.1 Retail banking clients	59197,2	86165,2	145,6
1.2 Corporate banking clients	43493,9	68714,6	157,9
2. Deposits in currency equivalent in RON (2.1 + 2.2) of which:	65051,0	76976,2	118,3
2.1 Retail banking clients	38107,9	51868,4	136,1
2.2 Corporate banking clients	26943,1	25107,8	93,2

Source: NBR – Monetary indicators 2009; 2014.

With all the difficulties caused by the crisis (cuts in salaries, pensions taxation, unemployment, inflation, etc.), nongovernmental residents (households and firms) continued to save, providing banks with numerous financial resource, which unfortunately, the latter have invested less in lending and more in funding the needs of the state, through the purchase of stocks and bonds.

A questionable issue is the investment of resources derived from customer deposits, which usually have maturities of 1-3 years, in government securities whose maturities are higher, 5-10 years or more, thus infringing one of the golden rules on banks' liquidity management.

The total volume of nongovernmental residents' deposits increased in the analysed period by 38.2%, of which: the ones in RON by 50.8%, while the ones in foreign currency equivalent in RON, by 18.3%.

The process of saving was supported mainly by households, who had suffered most from the crisis (Table no. 7):

Table no. 7

Structure of bank deposit holders

– mil. RON –

Indicators	2009		2014		% 2014/ 2009
	amount	% in total	amount	% in total	
Total nongovernmental resident deposits (1+2) of which:	167742,1	100	231856,0	100	138,2
1. Household deposits (in RON or foreign currency equivalent in RON)	97305,1	58,0	138033,6	59,5	141,9
2. Corporate deposits (in RON or foreign currency equivalent in RON)	70437,0	42,0	93822,4	40,5	133,2

Source: Processed data from the NBR – Monetary indicators 2009; 2014.

The growth of household deposits in the analysed period was 41.9%, an average annual rate of 8.3%, while growth in corporate deposits was 33.2%, with an average annual growth rate of 6.64%.

The populations' behaviour and efforts in the process of saving are more laudable because, during the five years, the trend of interest was strongly decreasing, the NBR relying, through a drastic reduction of the reference interest rate (Table no.8), on a revival of lending, premise that has proven not to function, the mass of credit in nominal terms only slightly increasing over the five years (+5.9%), and in real terms, credit contracted (-12.53%).

Table no. 8

Evolution of the reference interest rate[8]

– % –

Indicators	Reference interest rate	
	Beginning of the year	End of the year
2009	10,25	8,00
2010	8,00	6,25
2011	6,25	6,00
2012	6,75	5,25
2013	5,25	4,00
2014	3,75	2,75
2015	2,50	1,75 (September)

Source: NBR, statistic data.

[8] According O.G. no. 13 / 24.08.2011, art. 3 (1) published in the Official Gazette, no. 607/29.08.2011, as from 1 September 2011, the NBR reference interest rate is the interest rate monetary policy, which is also the financial and legal interest for operations and for the regulation of certain financial and tax measures.

Some aspects in the development of the loan/deposit ratio

The structure and evolution of the loan/deposit ratio in the analysed period highlights some remarkable aspects and even inequities related to:

- the involvement of shareholders of Romanian banks with foreign capital in finance/lending of the national economy;
- unfair redistribution of resources between those who save and those receiving funding;
- the mainly good use of financial credit for funding budget deficits to the detriment of lending to the economy;
- leakage of national income across the borders through the mechanisms of financing/refinancing and transfer pricing;
- excessive privatization of the banking system etc.

Coverage of loans with deposits collected by local banks, calculated as the ratio of total nongovernmental deposits and loans is as follows (Table no. 9):

Table no. 9

Coverage of loans with deposits

– % –

Indicators	2009	2014
Total coverage, of which (1+2):	83,9	109,5
1. in RON (1.1 + 1.2) of which:	128,8	167,2
1.1 retail	152,5	199,6
1.2 corporate	106,3	132,2
2. in foreign currency equivalent in RON (2.1 + 2.2) Of which:	54,1	64,7
2.1. retail	62,1	83,5
2.2. corporate	45,9	44,1

Source: Processed data from the NBR – Monetary indicators 2009; 2014.

If during the full economic and financial crisis loans were covered by local deposits at a rate of only 83.9%, at the end of 2014 the situation reversed, deposits exceeding the mass of nongovernment credit by 9.5%, the causes being multiple, of which we mention two as being the main ones:

- reduction of loan portfolio by removing bad loans from banks' balance sheets, while freezing credit activity;
- customer behaviour, especially that of the population, which during the crisis, continued to save "rainy day money".

A special situation is that of loans in foreign currency which were covered by foreign currency deposits in proportion of 54.1% in 2009 and 64.7% in 2014, which created difficulties for customers, especially the population, which could

lend foreign currency, taking upon themselves the risk of the exchange rate, with negative consequences in the future repayment capacity.

The evolution of the structure of loans coverage with deposits sows that, in fact, shareholders of foreign banks operating in Romania have reduced to zero their contribution of equity to debt financing of the Romanian economy, as the volume of deposits collected locally exceeds the mass of credit (109.5% at the end of 2014).

Although through the Vienna Agreement[9], the main nine foreign banks with subsidiaries in Romania pledged not to reduce their exposure in our country, in reality, these exposures have been reduced steadily.

In addition, some foreign banks have issued securities directly on the Romanian market in order to attract financial resources.[10]

The structure of the coverage of loans with local deposits also highlights some inequities between customer categories that make efforts to save and those who receive loans (Table no. 10), the disadvantaged ones being the population which contribute with deposits larger by 34.3% than loans which they enjoy, in the favour of companies which had deposits smaller by 13.8% than the loans they contracted, at the end of 2014.

Table no. 10

Coverage of loans with deposits by categories of clients

– % –

Indicators	2009	2014
Total coverage, of which	83,9	109,5
retail	97,1	134,3
corporate	70,7	86,2

Source: Own calculations according to the NBR – Monetary indicators 2009; 2014.

Degree of (dis)intermediation

The degree of financial intermediation represents the level and impact that the financial-banking assets have on the economic development and is calculated as follows:

$$Dfi = \frac{Fa}{GDP} \times 100$$

where: Dfi = degree of financial intermediation
Fa = total financial assets
GDP = Gross Domestic Product

[9] The Vienna Agreement – understanding signed in Vienna in March 2009 by the nine major foreign banks with subsidiaries in Romania, under the auspices of the IMF and EC, through which foreign shareholders of Romanian banks pledged not to reduce exposures to Romania in the coming years.

[10] In the summer-autumn of 2015 Erste Bank Austria launched an issue of subordinated bonds in RON on the Romanian market which amounted to 135 mil. RON with an annual output between 6.50% and 6.75%.

On July 30 2015, the degree of financial intermediation in Romania was 77.4%.

If out of the financial assets only banking assets are taken into account, then the degree of banking intermediation is obtained.

In the post-crisis period, the degree of banking intermediation in Romania has evolved as follows (Table no. 11):

Table no. 11

Evolution of the degree of banking intermediation

– % –

Indicators	2009	2014 (T2)	2015 (T2)	Dif. 2015 (T2)-2009
Degree of banking intermediation	75,0	61,6	60,3	-14,7

Source: Own calculations according to the NBR, Report on financial stability, September 2015, p. 70-80.

Therefore, the degree of financial intermediation and that of banking intermediation, representing 78% of total financial assets, is recording a continuous downward trend, thus occurring the phenomenon of banking disintermediation.

This, while the degree of banking intermediation in Romania is about 5 times less than the average level of banking intermediation recorded in the EU 28

Table no. 12

Degree of banking intermediation in some EU countries

– % –

Indicators	%
EU 28 average	320
Bulgaria	121
Hungary	120
Poland	92
Lithuania	70
France	380
The Netherlands	375
Portugal	302
Austria	295

Source: NBR.

In the post-crisis period we are rather witnessing a phenomenon of financial-banking disintermediation resulting in reducing the share of financial-banking assets relative to the GDP, the trend in Romania being opposite to the situation in the EU 28, for which the share of banking assets in the consolidated GDP is over 320%.

Conclusions and proposals

The study on the evolution of financial intermediation in Romania between 2009 and 2014 highlights some conclusions and proposals, as follows:

- the Romanian banking sector regressed in quantity in the post-crisis period, through the disappearance from the system of some banking institutions and some subsidiaries owned by foreign banks in Romania, and also by the reducing number of territorial banking units (subsidiaries and agencies) and that of workplaces in the banking system;
- the percentage of Romanian capital(private and public) in total banking capital is insignificant (below 10%), and the market share of banks with Romanian private and public capital records a trend of further reduction, with negative consequences on the effectiveness of government policies correlation with financial-banking ones;
- compression of financial intermediation, expressed by the reduction of the mass of loans in real terms by 12.53% during 2009-2014, created difficulties for the recovery of the economy which lacked financial resources, both on the monetary market and on that of capital;
- the further maintenance of a high share of foreign currency loans in total nongovernmental loans (56.2% at the end of 2014), with a negative impact on the reimbursement abilities of clients through the evolution of exchange rates of the national currency in relation with major currencies;
- even with all the adverse effects of the economic-financial crisis, the population continued to save, the growth of bank deposits being higher than that of loans, so that at the end of 2014, bank deposits have exceeded loans' mass by almost 10%;
- distribution, sometimes discriminatory, of loans on customer categories in relation to the structure of deposits, the population being disadvantaged (59.5% of bank deposits were held in late 2014 by the population and only 48.5 of the loans' mass was contracted by it);
- foreign shareholders of the banks operating in Romania have continuously reduced exposure in our country in the post-crisis period, trying to cover additional capital requirements imposed by Basel III, through subordinated loans based on resources collected from the local market.

In order to correct, if possible, the shortcomings that arise from the research, it is necessary, in our opinion, to:

- genuine involvement of banks in financing the economy through the resumption of lending in retail and corporate, based on viable projects by targeting lending resources to such projects, rather than to finance public deficits;
- consolidated supervision of the financial market through a single independent authority, to be framed by professionals in the field;
- ensuring a stronger position of domestic capital (public and private) in total private capital, both through redemption by the State of stakes held by foreign investors in Romanian banks, and also through encouraging domestic capital to establish banking companies or to takeover stakes in existing credit institutions;

- promotion by the authorities of regulations designed to ensure equal opportunities and treatment of customers in relation to banking institutions, particularly with regard to unfair terms in contracts, partnership in taking risks, litigations, etc.

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THE TRANSPOSITION OF THE BALANCE SHEET TO FINANCIAL AND FUNCTIONAL BALANCE SHEET. RESEARCH AND DEVELOPMENT

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Abstract

As the title suggests, through this paper we want to highlight the necessity of treating again the content and the form of the balance sheet in order to adapt it to a more efficient analysis, this way surpassing the informational valences of the classic balance sheet.

The functional and the financial balance sheet will be taken into account. These models of balance sheet permit the complex analyses regarding the solvability or the bankruptcy risk of an enterprise to take place, and also other analyses, like the analysis of the structure and the financial/ functional equilibrium, the analysis of the company on operating cycles and their role in the functioning of the company. Through the particularities offered by each of these two models of balance sheet, we want to present the advantages of a superior informing. This content of this material is based on a vast investigation of the specialized literature.

Keywords: *the balance sheet, the financial balance sheet, the functional balance sheet, the liquidity – exigibility criteria, the functional criteria*

JEL Classification: M_{40}, M_{41}

Introduction

The balance sheet is draw up based on some accounting recommendations and national laws. Therefore, the content and the presentation of the balance sheet are normalized and fixed. When this document is examined in terms of exigibility and solvability, but also from a functional point of view, certain retreats of its context and form are required.

We emphasis the fact that it is not necessary to limit the analysis only to the level of the indicators presented in the balance sheet, according to the law. This conclusion can be sustained by two situations:

■ Some companies can use certain techniques to change the situation presented in the balance sheet. For example, a company that wishes to keep the appearance of a good liquidity can use a long term credit undertaken at the end of the year, which will increase the level of cash, by creating this way an apparent state of liquidity, very useful for the investors. At the beginning of the following year, the company could repay the credit in advance, returning this way to the

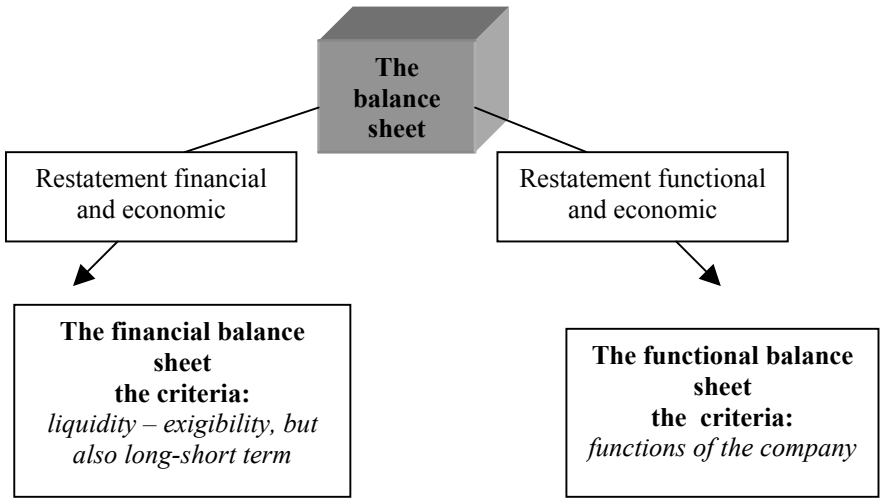
initial situation. In these circumstances, an extern investor will not know the real situation of the company.

■ Especially the companies with seasonal activity (hotelier societies, some fabrics from the textile industry, the agricultural companies). This seasonal character influences significantly the balance sheet, the situations of indicators presented at the end of the financial year, stop being relevant in the analysis.

Therefore, in order to trace these types of situations which describe the economical financial reality of a company, the informational valances must be overfulfilled, using previous retreats of the balance sheet, the most important out of them being the analysis of the balance sheet in terms of liquidity and exigibility, and the functional analysis. *In order to present a valuable situation regarding the equilibrium, the financial position* of a company *we will use the financial analysis* based on the balance sheet, *taking into account two types of balance sheet*: *the functional* and *the financial balance sheet*.

We present the connection between the accounting balance sheet and other two models:

Figure no. 1. *The connection between the accounting balance sheet and other two models*



The drawing up and the informational valances of a financial balance sheet

Thus**, the financial balance sheet** is use to initially evaluate a company, regarding the sale, the solvability estimation, the structure and financial equilibrium analysis and so on. This type of balance sheet *is very important for creditors and shareholders.*

To accomplish the objectives presented above, the financial balance sheet *regroups ascendancy the postulates of active after their liquidity* (the possibility of converting the actives in cash), and *regroups ascendancy the postulates of* passive

after their exigibility (ability of the company to pay its obligations at maturity), helping to the liquidity – solvability analysis.

In other words, the financial balance sheet has a positive influence on the notion of debt, because it permits to verify the company's capacity to face their debts with the actives [Mironiuc, M., 2006]. The credit institutions are very interested in the company's solvability (the ability of the firm to face their failing due obligations).

The drawing up of the financial balance sheet involves taking into account a series of recommendations (which will be presented below), *recommendations that are the result of investigating the specialized literature*:

- the actives evaluation is at their *real value*, respectively at their actual value (meaning their *just value*), taking into account that the analysis of the company's ability to face its obligations is based on this model of balance sheet. The differences resulting out of re-evaluation are recorded in the balance sheet by correcting the value of the re-evaluated actives or capitals. The plus from the capitals is considered by some authors a violation of the prudence principles [Marion, A., 2004];
- the assets purchase through operational leasing are included in the tangible category of assets, while the long or short term debts are increasing;
- the discount effects that aren't yet failing out increase the value of the claims, and are included in the category of short term debts;
- the premiums of obligations are diminished or included in the intangible assets;
- the net result of the financial year must be distributed;
- the latent fiscal debts concerning some elements of capital must be included in the category of one year longer debts;
- the risks and expenses provisions are redistributed to capitals, long, medium and short term debts, according to their objective and the probable date of use.

Some active or passive postulates must be treated again, in order to present a situation as real as it can, especially when the use of accounting principles or the use of some certain fiscal rules lead to dissimulations of the economic reality.

Taking into account the correlation presented above, the structure of the financial balance sheet can be as follows:

Table no. 1

The structure of the financial balance sheet

Corrected assets	Corrected permanent capitals
Intangible immobilizations – Expenses used when the company starts + Premium obligations + Expenses distributed on several financial exercises *Tangible assets* + Assets purchased through operational leasing for the annuities remained to cover *Financial assets* – Financial assets < 1 year + Claims > 1 year	*Personal Capitals* *(after the distribution of the result)* – The value of the expenses used when a company starts *Provisions for risks and expenses (> 1 year)* *Debts (>1 year)* + The uncovered annuities of the assets purchased through operational leasing, annuities > 1 year

Corrected circulating active	Corrected short term debts
Stocks *Claims* *– Claims >1 year* + Discount effects whose value is still due *Short term financial investments* + Financial assets < 1 year *Cash* *Expenses registered in advance*	*Debts smaller than 1 year* (including the annuities < 1 year) + The value of discount effect *Provision for risks and expenses* *(lower than one year)* *Revenues registered in advance*

Source: adaptation Moroşan, J., 2009:154

The postulates from the balance sheet can be separated according to *the liquidity – exigibility criteria* and *their length of time can be one year or lower*. This type of structure highlights on the first level of the balance sheet, the assets and the permanent capitals and at the second level the short term debts and the circulating assets. This type of structure has a high homogeneity.

The financial balance sheet, drawn up this way, permits *complex analysis regarding the solvability or the risk bankruptcy of a company, or the analysis of structure and financial equilibrium, whose results are important for the creditors to take place.*

We return to the accounting balance sheet, as a starting point, to conduct the research of the financial balance sheet.

As some authors emphasize, the normalized balance sheet is a hybrid balance sheet, functional and patrimonial at the same time, although its presentation and the actives and passives classification is functional, while its content is patrimonial. If a functional balance sheet is the objective, then the balance sheet used as a basis is treated again in order to make it more functional and to get rid of the patrimonial right restrictions from the content point of view [Colasse, B., 2008]. If we check the specialized literature, we notice that the functional analysis of the balance sheet was developed by some authors who were bankers and was promoted by the Balance Sheet Central from France, in 1970.

The drawing up and the informational valances of the functional balance sheet

The functional balance sheet and its analysis appeared because of the necessity to understand the enterprise's needs and their financing methods, to realize a picture of different ongoing operating cycles [Niculescu, M., 2005].

Therefore, the elements of active and passive reflect the transitory values, passing structures in the transforming of a patrimony.

This idea was sustained by Bernard Colasse when he sustained that while the analysis of the financial balance sheet is made in terms of liquidity and exigibility, considering the balance sheet a situation of the company's patrimony, the functional analysis considers the balance sheet a situation of different roles given to the resources, presented at certain moment and not taking into account the juridical character of the resources.

The drawing up of the functional balance sheet involves taking into account a series of recommendations (which will be presented below), recommendations that are the result of investigating the specialized literature:

- *the actives* are shown at their brute value;
- *the depreciation and the depreciation provisions* enter the category of passive;
- *the current bank credits and the negative balances at banks* are included in the category of loan and financial debts, (their value is mentioned briefly by referencing the balance sheet) and are isolated when the treasury is calculated;
- *the discount effect* are included in active at claims, while in passive at treasury credits (they are included here because the company must repay the banks if the client cannot pay the debts before the due time);
- *the assets based on leasing* are included into the functional balance sheet because they help the operating process, and the leasing is a source of financing, included in the category of traditional loan. In conclusion, the assets must be reintegrated into the active, and at the same time, the resources with the same volume are corrected (the depreciation amount for the depreciation part, respectively the financial debts for the un-depreciated part);
- *the expenses registered in advance* can be included either in the category of operating cycles or outside the operating cycle.

Taking into account the above correlation, the structure of the functional balance sheet can be the following:

Table no. 2

The structure of the functional balance sheet

<table>
<tr><th colspan="3">ACTIVE</th><th colspan="3">PASSIVE</th></tr>
<tr><td rowspan="2">Stable

Uses</td><td>Operating immobilizations</td><td rowspan="2">Investment

Function</td><td rowspan="2">Durables

resources</td><td>Personal resources (among which depreciations and the adjustments)</td><td rowspan="2">Financing

Function</td></tr>
<tr><td>Immobilizations outside operating activity</td><td>Long term loans</td></tr>
<tr><td rowspan="2">Circulating Cooperating Assets</td><td>Stocks</td><td>Operating</td><td colspan="2" rowspan="2">Operating resources</td><td rowspan="2">Operating function</td></tr>
<tr><td>Operating claims</td><td>Function</td></tr>
<tr><td colspan="2">Circulating outside assets operating activity</td><td>Financing function</td><td colspan="2">Resources Operating outside activity</td><td>Financing function</td></tr>
<tr><td colspan="2">Active (cash) treasury</td><td>Financing function</td><td>Passive (short credits</td><td>treasury term banking received)</td><td>Financing function</td></tr>
</table>

Source: adaptation Vintilă, G., 2006:116

We must make supplementary observations, regarding the above classification. Therefore, *the durable resources* include the capitals, the financial debts (not the premium obligations), but also the depreciation and the adjustments for the assets depreciation. The reason the depreciation is included along other elements of capital is that the depreciation in the financial view, is an element of self-funding [Cohen, E., 2007].

The operating resources include the operating debts, advances received from clients, revenues in advances but outside the operating cycle, and *in the operating circulating assets* includes the stocks and ongoing production, the advance given to suppliers, operating claims, advance expenses related to the operating activity (we mention that all these elements are registered in the balance sheet at their entering value).

According to the classification from the functional balance sheet, *the circulating assets and the Resources outside operating* are separately registered. The latter includes the short term financial investments, the debts resulting from the acquisition of assets; those expenses and revenues registered in advance which are not related to the operating activity.

From the functional balance sheet point of view, the treasury actives and passive is not vital. In other words, the net treasury indicator is not fundament for the functional analysis [Buşe, L., 2005].

In order to investigate the enterprise's activities on operating cycles, *the functional balance sheet must regroup the postulate of active and passive after the function which is accomplished on cycles of activities, like: investments, financing and operating.*

Thus, the *investments cycle* – contains all the funds engagements, realized according to the objectives of the enterprise, in order to obtain some cash flows or cash equivalents. According to IAS 7 "The cash flows situation", the investments are the acquisitions of actives on long germ, but also other investments which are not included into the category of cash.

The financing cycle – contains both the transactions between the company and the capital investors (creditors, shareholders), and the transactions concerning the distribution of the result.

The operating cycle – is the fundamental cycle of the functional analysis, which permits to supplying, production, operations in continuum and permanent flow to take place. According to *IAS 7 'The cash flows situation",* the activities are the main activities that generated revenues in a company.

We notice that a functional balance sheet does not take into account the long or short term criteria, when it classifies the active, capital and debts postulates.

Our conclusions, from what was discussed above, will highlight the importance and necessity of drawing up these two types of balance sheet, since they give the opportunity of a superior informing:

Table no. 3

Advantages: Financial balance sheet - Functional balance sheet

Financial balance sheet	Functional balance sheet
Advantages: – serves for an *extern analysis*, on which the *creditors* are interested – is structured on *liquidity – exigibility criteria, but also long-short term criteria,* is very useful in *the analysis of the insolvability risk of a company* – is useful in an *initial evaluation of the enterprise, when the sale or liquidation is considered* – the financial approach of the balance sheet is based on *the liquidity hypothesis of an entity*, meaning that in case the company stops its activity, the main information on the ability to pay the debts are given by this model of balance sheet – serves in the *analysis of the structure and the financial equilibrium*	***Advantages:*** – serves to an *intern analysis*, on which the *management* is interested – the analysis of the functional balance sheet permits the management of the company to *anticipate the influence that transactions specific to investment, operating and financing functions have on treasury* – the functional analysis follows, beside the investigation of the company's activity on operating cycles, *also the modalities of financing of a company*, with the objective of reaching an optimum structure with regard to the financing – the functional approach of the balance sheet is based *on the ongoing activity principles*, and takes into its modality of responding to an dynamic analysis requirements – serves in *the analysis of the functional equilibrium*

In our research regarding the two types of balance sheet we have found also **in the specialized literature, criteria used in the functional analysis of the functional balance sheet** [Colasse, B., 2008]. The main aspects referred to: *established resources*, *the hypothesis of successive allocation of the resources established by users, the role of treasury.*

Regarding *the established resources* – there has been a debate on the non-inclusion of the current bank credit in this category. We agree with them, if we take into account the fact that banks are automatically renew the treasury credits, giving them a similar stability with the one of long term loans. Also, if we consider from the accounting theory point of view, and the definition given to current bank credits, then they are included into the category of passive treasury (according to the structure of the functional balance sheet presented above).

Regarding *the successive allocation of the resources established for assets, and then the circulating fund*, it is not incorrectly or exaggerated from the theoretical (it establish a connection much too rigid between the investment decisions and the financing decisions) and practical point of view (it contradicts the unity principles according to which the resources finance the users). If the difficulty of defining these established resources and if the priory of distribution of these resources for assets is contested, then a powerful doubt regarding the notion of functional circulating fund appears.

The third element which was debated, *the role of treasury*: it can only be the result of reconciliation between the circulating fund and the circulating necessity, but also it can be a real use.

Taking into account these critiques, many authors consider necessary not including the notion of circulating fund, but also the notion of treasury, in order to keep in the functional analysis only the notion of need for circulating fund and the use of a *Pools de fonds* balance sheet.

Table no. 4

The "Pool de fonds" balance sheet

Industrial and commercial uses	Brute assets Brut operating NFR	Personal Resources
Financial uses	Financial assets Cash	Borrowed resources (which include the current bank loans)

Source: adaptation Colasse, B., 2008: 136

We notice that this models of balance sheet is much more interesting, because it present the financing and investment policy of the company, but at the same time it does not offer all the instruments necessary to a solid analysis, including the risk bankruptcy of a company (starting from the rate of personal needs and those borrowed, there are few information offered regarding the major objective: the bankruptcy risk).

Conclusions

For the initial evaluation of an enterprise, and the solvability or risk bankruptcy estimation, for the structure analysis and the financial/functional equilibrium, for the analysis of the company on operating cycles and their role in the functioning of the company, we need also other information, beside those given by the normalized balance sheet. The normalized balance sheet is a hybrid balance sheet, with limited informational valances.

This type of analysis can be conducted based on the financial or functional balance sheet. Starting from the balance sheet, through different category of group after specific criteria, these two balances sheet can be drawn up.

It is important to mention that, these models of balance sheet are not normalized; they are the result of accounting specialists. Thus, it is normal and constructive at the same time, that these specialists to hold back when they are using certain criteria, some of them presented by us in this paper.

The importance and the use of these balance sheets is that it helps in complex analysis, when previsions are made, by adding value to the classic balance sheet.

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SITUATIONS REFFERING TO THE ORGANIZATION, CLASSIFICATION AND MANAGEMENT OF ECONOMIC DATA

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Abstract

An efficient information system provides relevant, accurate, reliable and timely information to users. This information is stored as data in files, which must be arranged and maintained so that users can easily obtain the information they need.

Data management is a very important part of the economic organizational information system because it influences the speed with which data can be obtained and, therefore, the decision may be taken. There are times when speed decision is vital to the economic organization. Such information systems, resource data type must be organized and structured in a logical way that allows easy access, efficient processing, fast data access and effective management.

Keywords: *data classification, managing data, data access, data management*

JEL Classification: C_{81}

Introduction

Conceptually, it is stated that a *database* is an organized collection of data which satisfies the informational demands of an organization.

Simultaneously, in a complementary understanding, a database is the multitude of recordings, sets and specific areas of information which are under the control of a certain setup.

Within the same context we emphasize that a database represents a centralized multitude of data, which aims to improve data processing within systems.

The entity represents an actual or abstract object described through its features. The feature of an object is expressed through an *attribute – value* relation. As such, the entities can be formalised by multitudes of pairs.

The data represents at least one model of organizing indivisible information in relation to the represented information. Data can also be found in relation to the processing type, becoming elementary, therefore forming composed data.

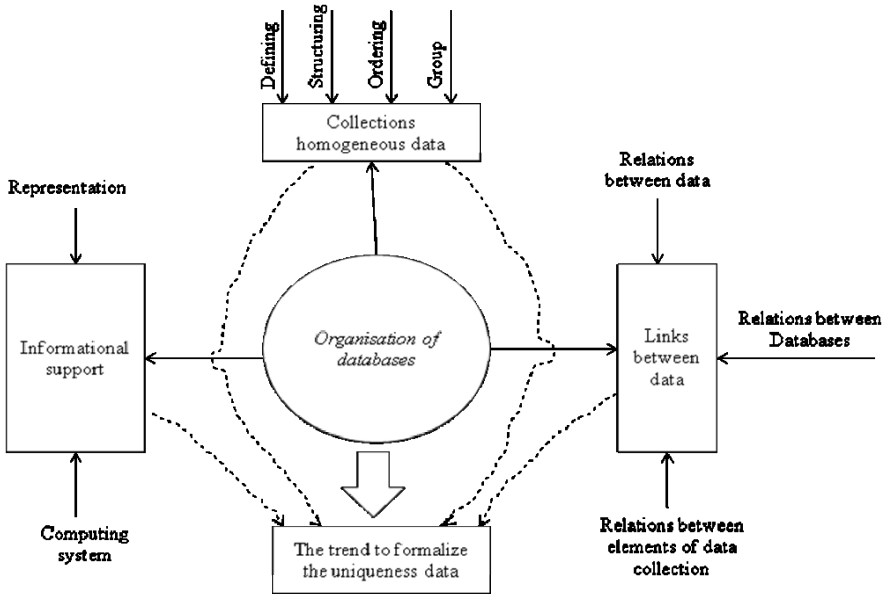
At the same time, database management has developed to such an extent that it has become a key component of modern decisional informational systems.

Rational localisation of data security for Database Management Systems (DBMS)

The formations of database management include informatics systems specialized in storing and processing a considerable volume of data and are used in solving numerous knowledge matters.

Organizing data represents a conceptual alignment, important for developing informatics systems, the level of efficiency of an informatics system being dependent on this. (*figure 1*.)

Figure no. 1. *Basic configurative elements for data organizing*



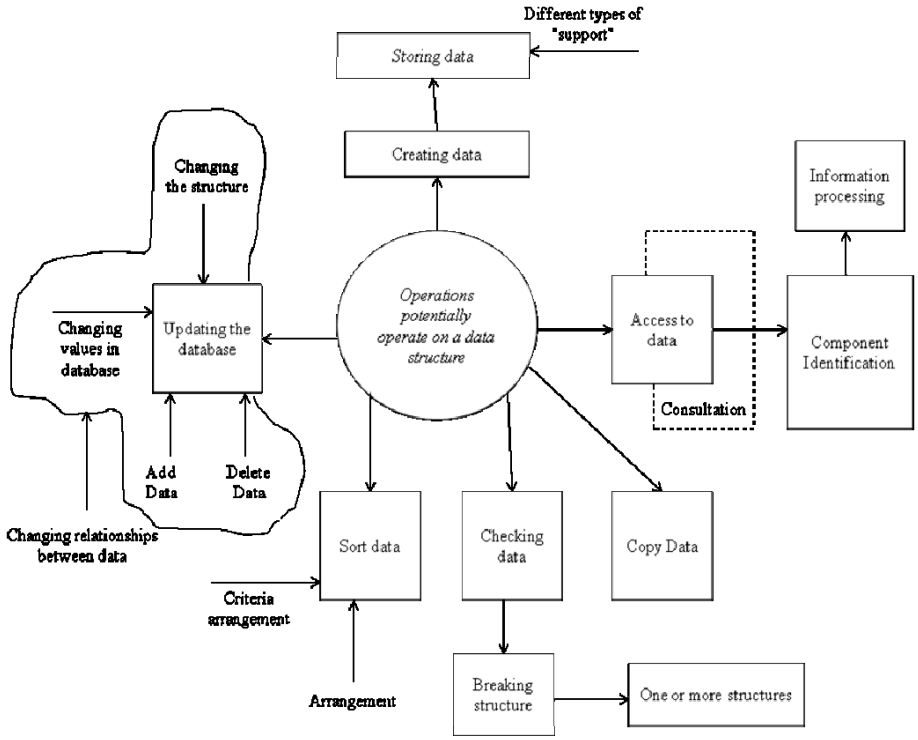
Source: Compiled by the author

The basic concepts which can be found in this domain due to database formalization refer to: *1)* entity; *2)* attribute and *3)* value.

Data security is schematically applied for efficient database operationalization.

„*Data structures* are collections of data, having between them a series of connections which lead to a mechanism of selection and identification of components and potential interventions on them" (*figure 2*).

Figure no. 2. *Results of database structures interventions*



Source: Compiled by the author

The concise context presented above mentions the extremely large variety of database.

The architecture of database mainly includes:

1)the proper database (which registers the data collection);

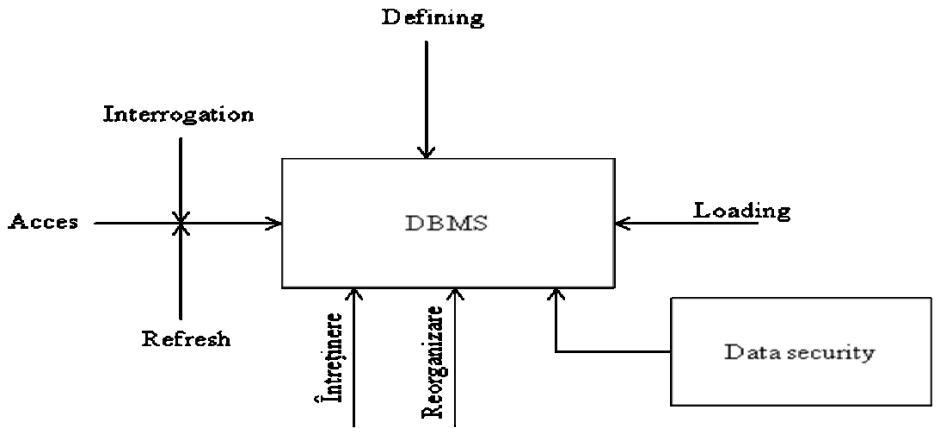
2)the database management system (an ensemble of programs with the purpose of data maintenance and complex processing);

3)the database dictionary, respectively the meta-database (includes information on data, their structure, semantics description etc.).

The superior conceptual level used for a concise description in this area refers to Database Management Systems (DBMS) (*figure 3*.).

Therefore, in an extensive understanding, a Database Management Systems (DBMS) is an ensemble of programs which formalize the interface between a database and its users. (Mihăescu L., 2009)

Figure no. 3. *The relational localization of data security for a Database Management Systems (DBMS)*



Source: Compiled by the author

Data security proves to be an essential, analytical, concise and practical step in the domain.

By accomplishing the objectives of informatics it implies automatically collecting, verifying, communicating, storing and processing data. This satisfies both the demands and the need for efficient information.

This frame hosts data independence manifestation, recording minimal redundancy of some data usage facilities.

Simultaneously, we assist at increasing the degree of database security and ensuring their shareability.

Presently, informational technologies have a significant influence over data security and determine, globally, effective changes over managerial and productive operationalization means.

The Management of data stored in economic database

Simultaneously, database management has developed to such an extent that it has become a key component of modern decisional informational systems.

The elements which contribute to this evolution mainly refer to the new modelling techniques and instruments, based on object thinking, the discovery of client–server processing, the reduction of prices for hardware components and software as well, efficient and corporative management of data.

Product Data Management (PDM) represents the function in an organization, often part of the product's life cycle management concept, which is responsible for creating, managing and publishing product data.

Product data management represents the management of all data which circulates in an organization, needed for being used in developing new products or updating current products. PDM is a system of technical information management for manufacturing enterprises, industrial installations constructions and engineering services. PDM has been known also as Technical Information Management or Product Information Management. PDM represents all the informatic instruments used to manage data for a certain product when the product goes from design to manufacturing, as well as data correlations, so that when modifications are performed in a database, the effects will be reflected in all the others as well.

PDM has been developed for working groups as well as for the entire economical organization, improving communication between groups and forming the bases on which institutions can reorganize their product development processes and can establish initiatives such as concurrent engineering (simultaneous) and collaborative development of products.

By using product data management, an organization can follow the different costs associated with the manufacturing and the launch of the product.

Data organization ranking

The most significant volume of information can be efficiently used with the help of more modern operationalized means in a secured environment. Practically, the process of automatic data processing through electronic computing systems represents the requirement for the quasi-totality of activity domains where information plays a crucial part no matter the scale.

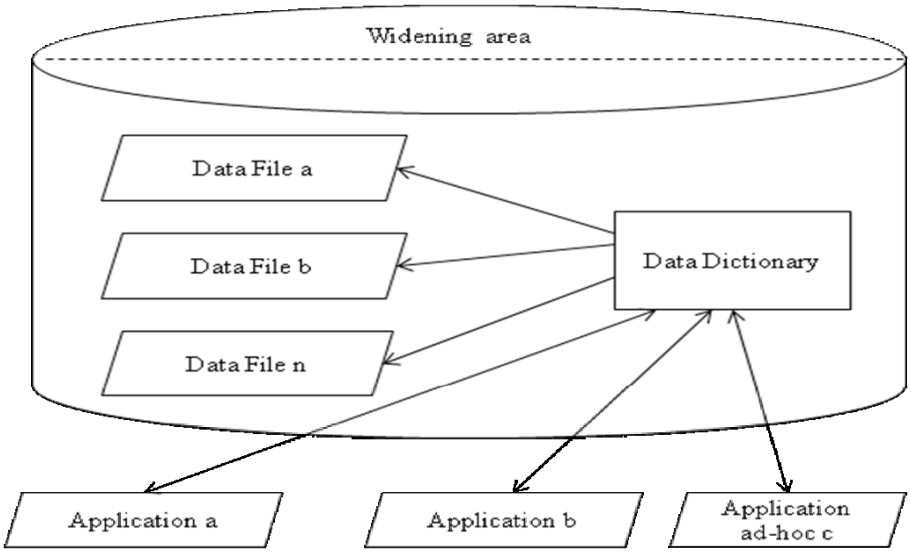
The above affirmations confirm the fact that a relational database represents a shared collection of data, with logical connections in between, being designed for meeting the informational needs of the users' organizations.

In fact, in the contemporary informational environment, designing and managing a database is done through a multitude of software products which surpasses the multitude of hardware components.

Therefore, in the domain, this paper suggests a new structured approach towards the development of software products, called *revolvent* life cycle of informational systems. (Lungu I., et al., 1995)

An informational system can be presented as an ensemble of informational flows and circuits combined in a single whole which makes the connection between the decision making – leading system and the operational – executional system, all starting from a data dictionary (*figure 4*).

Figure no. 4. *The simple configuration of a database*



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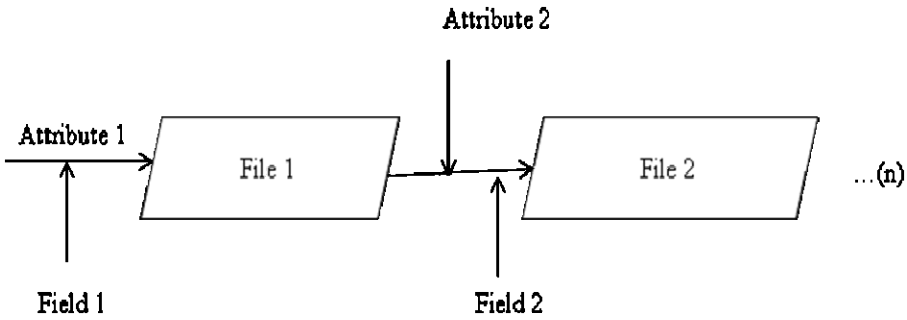
On the other hand, solving data organization offers the chance for differentiated intervention, visible and focused on level elements under the incidence of security (Lungu I., et al., 1995) (*figure 5*).

Figure no. 5. *Data organization ranking starting from attributes found in different fields*



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The levels of database organization are the ones which indicate different intensities, differentiated from security actions.

Ensuring data integrity represents the precondition to any security measures.

Through data integrity, data correctness is also maintained.

This is why the database management system offers its users the option to specify restrictions related to the correctness of data inserted into the database.

The next conditional phase aims to increase protection for the data kept as integrity against intentional or unintentional destruction.

At a bi-directional presumptive level it is identifiable concerning the action area of data protection methods. Contextually, it refers to protection against accidental damages or errors, respectively ensuring complete protection. The latter (reiteration for achieving complete protection) is done in addition to the first iteration.

To the same extent it is also discussed the protection against intentional actions.

It's been observed that, by using multiple computer networks for compiling a large volume of data, it is necessary to achieve multiple versions of protecting existing data.

Conclusions

The informational methods, techniques, procedures and software instruments are subsumed to the methodological theoretical progression for database security. By extending, we reach the conclusion that the autonomy of the projective sequences/sub-sequences in this domain is relative; therefore, suitability to the database domain is required for ensuring a sustainable security system.

Simultaneously, database management has developed to such an extent that it has become a key component of modern decisional informational systems. Thereby, the usage of product data management offers to an organization the advantage of tracking different costs associated with the manufacturing and the launch of the product.

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A BRIEF OVERVIEW OF THE TYPES OF ETFS

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Abstract

Exchange-traded fund is a type of exchange-traded product. ETF is a fund that is traded as a typical financial asset. Just like an index fund, ETF represents a basket of assets that reflect popular stock index. ETF traded just like any other company on the stock exchange. By owning ETF investor receives two important advantages – the diversification of index fund plus the flexibility of trading financial assets. There are different types of ETFs. Mainly divided into index, commodity, bond, currency, exchange-traded trusts and leveraged exchange-traded funds.

The article discusses the basics of exchange-traded fund, does a brief history review on the emergence of exchange-traded funds, and provides information on the basic and specific types of exchange-traded funds.

The used scientific tools include:

- *study of scientific literature;*
- *study the performance of different markets which operate with exchange-traded funds;*
- *meaningful analysis and summary of theoretical and practical applied information.*

Keywords: *exchange-traded fund, types of ETFs, financial asset*

JEL classification: G_{12}

Introduction

ETFs (Exchange-traded fund) are a type of financial instrument whose unique advantages attract many investors. ETF is a fund that is traded as a typical financial asset. Just like an index fund, ETF represents a basket of assets that reflect popular stock index. ETF traded just like any other company on the stock exchange. Unlike a mutual fund which has a net asset value calculated at the end of each trading day, ETF's price changes throughout the day depending on supply and demand.

Nature and importance of ETFs

ETFs began its development in 1989 with the S&P 500 proxy, which is traded on the American Stock Exchange and Philadelphia Exchange. This product, however, had a short life after "Chicago Mercantile Exchange" to stop its sales.

Similar product began trading on TSX [www.tmx.com] in 1990. Originally shares tracked by index TSE are 35 and later they reached number of 100.

Nathan Most and Steven Bloom designed and developed Standard & Poor's Depositary Receipts, (NYSE: SPY). Introduced in January 1993 and known as SPDRs or "spiders" the fund became the biggest exchange-traded fund in the world. In May 1995 they created MidCap SPDRs (NYSE: MDY).

Barclays Global Investors, a subsidiary of Barclays Plc [http://group.barclays.com/home], entered in 1996 with World Equity Benchmark Shares, WEBS, subsequently renamed iShares MSCI Index Fund Shares. WEBS are an innovative oriented and provides easy access to foreign markets. While SPDRs are organized as investment trusts, WEBS created the first-ever mutual fund. [Wiandt, J., & McClatchy, W., 2002]

In 1998 "Dow Diamonds" (NYSE: DIA) are introduced to the market, which follow the famous Dow Jones Industrial. In 1999 influential "cubes" (NASDAQ: QQQQ) began to reproduce the NASDAQ-100 [http://www.nasdaq.com]. iShares of "Barclays Global Investors" started in 2000 and within five years surpassed the assets of any other competitive ETF in the US and Europe. Barclays Global Investors was sold to BlackRock in 2009. Vanguard was released in 2001. [https://investor.vanguard.com/corporate-portal]

ETFs are traditionally index funds; however, in 2008 the Securities and Exchange Commission of the United States allowed the creation of actively managed ETFs. In the 21st century ETFs are multiplied, taking into account the more specific set of classes' assets.

Table no. 1

The Largest ETFs by Assets under Management

Symbol	Name	AUM	Avg Volume
SPY	SPDR S & P 500	$ 129,435.8 M	127,299,508
GLD	SPDR Gold Trust	$ 62,729.3 M	10.38 0.529
VWO	Emerging Markets ETF	$ 58,393.8 M	18,541,262
EEM	MSCI Emerging Markets Index Fund	$ 45,528.7 M	51,044,004
EFA	MSCI EAFE Index Fund	$ 41,348.2 M	17,976,365
IVV	Core S & P 500 ETF	$ 40,637.2 M	3,892,555
QQQ	QQQ	$ 31,926.6 M	33,018,621
VTI	Total Stock Market ETF	$ 28,898.5 M	2,183,142
LQD	iBoxx $ Investment Grade Corporate Bond Fund	$ 23,688.7 M	2,143,665
IWM	The Russell 2000 Index Fund	$ 21,471.9 M	33,831,383
TIP	Barclays TIPS Bond Fund	$ 20,725.2 M	1,258,152

Note 1 The term "Assets Under Management – AUM" shows the market value of assets investment company managed on the behalf of investors. Assets under management (AUM) are regarded as measure of success against competition and comprise growth/drop is due to the increase/ loss of capital and new inflow/outflow of money.

Note 2 The term "Average Volume" shows the average number of traded shares.

Source: http://etfdb.com/compare/market-cap

ETFs can be an attractive investment option because of its low costs and tax efficiency. By owning exchange-traded fund investor receives two important advantages – the diversification of an index fund plus the flexibility of trading financial assets.

Only authorized participants (usually large institutional investors) buy or sell shares of the ETF directly from the fund manager. Individuals also can trade ETF shares, but at the secondary market through retail brokers. Existing ETF portfolios are transparent. Unlike traditional mutual funds, financial institutions purchase and redeem shares of exchange-traded fund directly from it, but only in large blocks, ranging in size from 25,000 to 200,000 shares, called "units". The ability to purchase and redeem shares of ETFs is defined as an arbitration mechanism designed to minimize the potential difference between the market price and net asset value per share of the ETF.

ETFs are characterized by transparency of portfolios and generally have lower costs than other investment products, because most of them are not actively managed. There is flexibility in buying and selling of assets. ETFs can be bought and sold at current market prices at any time of the trading day, unlike mutual funds that can be traded at the end of the trading day. ETFs are tax efficient. Typically generate relatively low capital gains, as they have low turnover of portfolio securities. ETF provide an economical way to rebalance, i.e. portfolio diversification across the index.

Types of ETFs

Index ETFs are those ETFs that try to follow the stock market indices, such as repeat or complete contents or kept in its portfolio a representative sample of the securities that are in the index. Some indexed ETFs invest 100% of their assets in proportion to securities underlying the index. Thus investing is called "replication". Other indexed ETFs use "representative sample" of the securities in the index, i.e. invest 80% to 95% of its assets in securities of the underlying index and investing the remaining 5% to 20% of its assets in other assets, such as futures, options and swap contracts. [http://etfdb.com/compare/market-cap]

Commodity ETFs are investment funds that track the performance of the underlying index of a single asset/commodity. The earliest commodity ETFs (e.g., GLD and SLV, i.e. gold or silver) have traded precious metals (e.g. gold and silver bars). Like them NYSE: PALL has palladium [http://www.nyse.com/about/listed/lcddata.html?ticker=PALL] and NYSE: PPLT – platinum [http://www.nyse.com/about/listed/lcddata.html?ticker=PPLT].

Commodity ETFs (Commodity ETFs, ETCs / CETFs) invest in precious metals and futures. They do not invest in securities. The first product, which is marketed by this type of fund, is gold. The first gold-exchange traded fund is Gold Bullion Securities [http://www.etfsecurities.com], which launched on ASX in 2003 and the first silver-exchange traded fund is iShares Silver Trust, which launched on the NYSE in 2006. Till November 2010 SPDR Gold Shares

[http://www.etfglobalinvestor.net/gold-etf.php] was the second largest ETF by market capitalization.

Exchange-traded funds which invest in bonds are known as *Bond ETFs*. They develop during economic recessions, when investors withdraw money from the stock market and invest them in bonds for example, treasury bonds or bonds of companies that are considered to be financially stable.

In 2005, Rydex Investments launched its first-ever currency exchange traded fund (*Currency ETFs*) called the Euro Currency Trust (NYSE:FXE) [http://www.nyse.com/about/listed/lcddata.html?ticker=FXE] in New York. Since then Raydeks launched a series of tools for tracking all major currencies under its own brand CurrencyShares. In 2007 Deutsche Bank launched EONIA Total Return Index ETF in Frankfurt trading the euro, and later in 2008 appeared Sterling Money Market ETF (LSE: XGBP) and US Dollar Money Market ETF (LSE: XUSD) in London [http://www.londonstockexchange.com]. In 2009 ETF Securities [http://www.etfsecurities.com] launched the world's largest FX platform tracking currency called MSFX ^{SM} Index.

Leveraged ETFs (Leveraged exchange-traded funds) are a special type of ETF, which is more sensitive to market movements. [http://www.marketwatch.com] Leverage funds are often used in a situation of a bull market. Leveraged ETF at bull market may attempt to achieve a daily return that is 2x or 3x more than a certain index. Leveraged ETFs require the use of financial engineering techniques, including swaps of capital, derivatives and rebalancing the portfolio to achieve the desired return. The most common way to build leveraged ETFs is through contracts for future contracts.

Rebalancing of leveraged ETF could have significant costs when markets are unstable. It is possible to realize the fund trading losses, because it has to buy assets when the index rises and sell assets, when the index drops to maintain certain leverage ratio. So, daily change in the index of 2.5% would reduce the value of the fund 2 times.

Actively managed ETFs [http://www.sec.gov/rules/concept/ic-25258.htm] (AMETFs) are recently launched worldwide. The first of these occurred in March 2008 in the United States. Actively managed ETFs are fully transparent and publish daily current securities portfolios on their web pages. Actively managed ETFs have grown in recent years and are considered as a significant competitive threat to the actively managed mutual funds.

Exchange-traded trusts ETFs (Exchange-traded grantor trust) consist of static basket of stocks selected from a specific sector. A leading example is the “Holding Company Depositary Receipts” or HOLDRS, which is a product of Merrill Lynch. HOLDRS are either index funds or actively managed funds, where the investor has a direct interest in investing in specific stocks. HOLDRS [http://www.amex.com/holdrs/HrMain.jsp] have some common characteristics with ETFs, including low fees and tax efficiency, but many scientists believe they may be a separate product from ETFs. [Ghosh, R.P., 2005]

ETFs are tax efficient and can be more attractive than mutual funds. In the US mutual fund must distribute the capital gains to its shareholders. This can

happen when the fund sells securities in order to reallocate their investments or to finance the redemption of shares. These profits are taxed for all shareholders. In contrast, ETFs are not bought by the holders. Instead, holders simply sell their ETF shares on the stock market so that investors generally only realize capital gains when they sell their own shares.

ETFs are traded on the stock exchange and each transaction is subject to brokerage commissions. Typical fees of an online brokerage firm in the United States range from $ 10 to $ 20. [Baker, M.J., 2000]

Perhaps the most important advantage of the ETF is an ability to perform the same types of transactions that can be carried out with all the assets on the stock exchange. For example, investors may make short sales to make purchases on margin, and invest as much money as they want (there is no minimum requirement for investment). Many ETFs have the possibility of using the options (put and call), while mutual funds do not offer this.

According to some critics ETFs can be used to manipulate market prices, including the realization of short sales, which allegedly contributed to the collapse of financial markets in 2008. [Kovak, S., 2007] The founder of the Vanguard Group argues that ETFs are short-term speculation. [Bogle, C.J., 2007] However, he admits that a broadly diversified ETF can be a good investment.

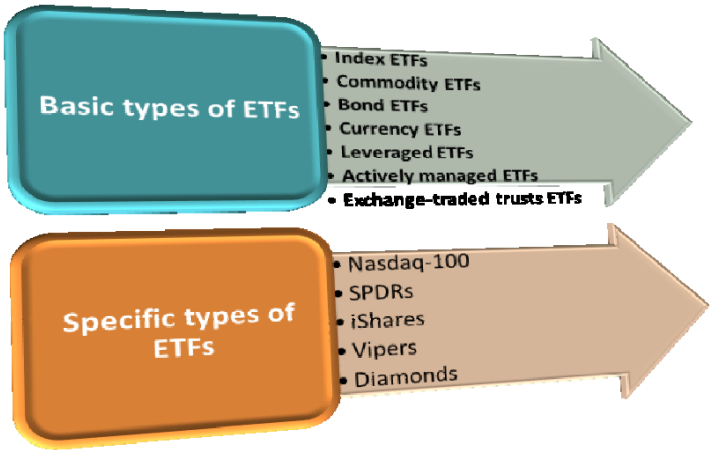

Figure no. 1. *ETFs*

Specific types of ETFs [http://www.investopedia.com]

The first exchange-traded fund was the S&P500 (named “Spiders” because of their stock ticker symbol or SPDR), which began trading on the American Stock Exchange (AMEX) in 1993. Today there are hundreds of ETFs in different sectors of the market. For example, in the health sector operates Vanguard's Health Care Viper (ticker VHT). In the Internet sector works Merrill Lynch's HOLDRS (ticker IIH0). Some of the most popular ETFs have nicknames “Cubes” (QQQQ), vipers (VIPERs) and “Diamonds” (DIAs). Below is a list of some specific types of ETFs.

• *Nasdaq*-100 (NASDAQ:QQQQ). This ETF follows the index Nasdaq-100 Index, which consists of the 100 largest and most actively traded stocks on the NASDAQ and offers broad exposure to the technology sector. While limiting risk arising from investing in individual stocks, QQQQ is a great way to invest long-term in the technology industry. The offered diversification is a huge advantage when there is instability in the markets. Between 2000 and 2004 QQQQ was the most traded index fund.

• *SPDRs.* Usually called "Spiders" this investment instrument follows the S&P 500. SPDRs allow individual investors to hold shares in the index in a cost-effective way to solve problems for the purchase of all 500 companies. Another positive feature of SPDRs is that they divide the different sectors of the S&P 500 and sell them as separate ETFs. Selected technology sector index, for example, contains over 85 stocks, covering products developed by companies' manufacturers of defence products, telecommunications equipment, microcomputer components and integrated circuits. This ETF is traded under the symbol XLK of AMEX.

• *iShares.* iShares ETFs is the brand of Barclay (Barclay's Global Investors). In 2009 there were about 350 iShares trading around 300 billion $. iShares follow many major indexes worldwide. All these ETFs are traded on the major exchanges in the US as normal financial assets.

• *Vipers.* As iShares are trademarks of Barclay, "Vipers" are Vanguard's ETFs. They are structured as classes of shares of open-ended fund. Vanguard offers dozens of ETFs for many different market areas, including the financial, healthcare, and others.

• *Diamonds.* "Diamonds Trust Series I" followed Dow Jones Industrial Average. The Fund is structured as an investment trust. Ticker symbol of "Dow Diamonds" is NYSE: DIA. It is traded on the New York Stock Exchange. The combination of diversification, low costs and flexibility makes it one of the most useful innovations and attractive financial engineering instruments.

Conclusion

Exchange-traded fund is a type of exchange-traded product. By owning ETF investor receives two important advantages – the diversification of index fund plus the flexibility of trading financial assets. There are different types of ETFs. Mainly divided into index, commodity, bond, currency, exchange-traded trusts and leveraged exchange-traded funds. ETFs were traditionally index funds until 2008, when the Securities and Exchange Commission of the United States authorized the creation of an actively managed exchange-traded fund.

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- http://group.barclays.com/home
- http://www.investopedia.com
- https://investor.vanguard.com/corporate-portal
- http://www.londonstockexchange.com
- http://www.marketwatch.com/story/profunds-readies-first-leveraged-etfs
- http://www.nasdaq.com
- http://www.nyse.com/about/listed/lcddata.html?ticker=FXE
- http://www.nyse.com/about/listed/lcddata.html?ticker=PALL
- http://www.nyse.com/about/listed/lcddata.html?ticker=PPLT
- http://www.sec.gov/rules/concept/ic-25258.htm
- http://www.tmx.com

METHOD OF DECISION TREE APPLIED IN ADOPTING THE DECISION FOR PROMOTING A COMPANY

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Abstract

The decision can be defined as the way chosen from several possible to achieve an objective. An important role in the functioning of the decisional-informational system is held by the decision-making methods. Decision trees are proving to be very useful tools for taking financial decisions or regarding the numbers, where a large amount of complex information must be considered. They provide an effective structure in which alternative decisions and the implications of their choice can be assessed, and help to form a correct and balanced vision of the risks and rewards that may result from a certain choice. For these reasons, the content of this communication will review a series of decision-making criteria. Also, it will analyse the benefits of using the decision tree method in the decision-making process by providing a numerical example. On this basis, it can be concluded that the procedure may prove useful in making decisions for companies operating on markets where competition intensity is differentiated.

Keywords: *decision, decision-making methods, decision trees, information system*

JEL Classification: C_3, M_2, L_6

Introduction

The realities of the modern society show us that with the development of the market economy and the increase of its complexity, on needs to develop properly the economic information as well so that it can provide the necessary elements to make decisions, to be able to accurately reflect the financial situation of the economic agents and economic and financial results, the main objective being increasing the company's value.

Management, through its functions and attributes, is the one that determines the company's objectives, the resources necessary to achieve them, as well as the distributions of the results created by using these resources. The raw materials, on which the management is based on, are information and people [Tofan C.A., 2009].

The decision may be defined as the way chosen from several possible to achieve an objective. The quality and the value of decisions taken by the decision-making system depend on the quality of the information. The qualitative characteristics of information can be minimized by the operations to which they are

subject, beginning from the collection, passing through processing and finishing with their transmission.

One company can calculate several types of costs, depending on its organizational choices, usefulness and their use. Basically, the costs calculated diversity shows the diversity of decisions in an organization.

The costs are calculated according to the person who uses them, to the purposes for which he uses them and the cost object. Cost object is any item (product, customer, department, activity) for which costs are measured [Tofan C.A., 2013].

A cost is relevant, if it is drawn at the right time for the right decision maker to ensure a precise and satisfactory decision.

The cost-type information is important for managers for at least three reasons [Tofan C.A., 2013]:

- based on the cost one decides the acquisition, production or abandon of a product and the nature of the customer relationship is also influenced;
- costs can be a basis for a price quote;
- the cost analysis identifies the need to improve product design or manufacturing process.

The role of the cost calculation in the management process can be summarized as follows: it allows current and strategic decision making, helps determining the analytical results and facilitates the prediction and analysis of deviations.

Among the management decisions taken based on information about the activities, there are included: review of the product price, product and customer profitability analysis, replacing or removing products, investing in technology [Tofan C.A., 2013].

Theoretical background

Criteria for adopting the decision within companies

Decisions with random universe are characterized by the following elements: factors and decisional consequences are not perfectly known, there are a multitude of consequences and a probability may be assigned to each consequence.

Probability calculation allows determining the optimal alternative that maximizes the economic function determined by the decision maker.

In this case, the decision criterion is the mathematical expectancy that applies to the repetitive decisions.

The function to calculate the mathematical expectancy of winning is calculated by using the following formula:

$$E_{mj} = \sum_{j=1}^{n} p_j * R_{ij} \qquad (1.1)$$

In which:

E_{mj} is the mathematical expectancy of gain for the i decision (i version)

p_j is the probability of achieving the j criterion results

R_{ij} symbolizes the result for p_j probability

Within companies, the types of economic problems which have a random future are very numerous. Complex situations benefit from obtaining good results to determine the optimal decision using the decision tree method.

The decision tree is used for the complex decisions such as those for the investment optimization, assimilating in manufacturing of a new product, selling products and others.

Adopting the decision using the decisional tree method – a numerical example

A company wants to set out for the next semester the sequences required for its plan of operation, carrying into effect several advertising campaigns that will be fulfilled in time for various channels (radio, television). Each new decision will be taken depending on the reaction of its main competitor.

The company may allocate its quarterly budget either for a television campaign which would cost 2,000 euros, or a radio campaign that would cost 1,000 euro.

The competitor may or may not commit an action on the same channel, which results in a variable income.

In the next quarter, the company can choose again between a radio campaign and a television campaign that would lead to new financial results due to the competitor's reaction.

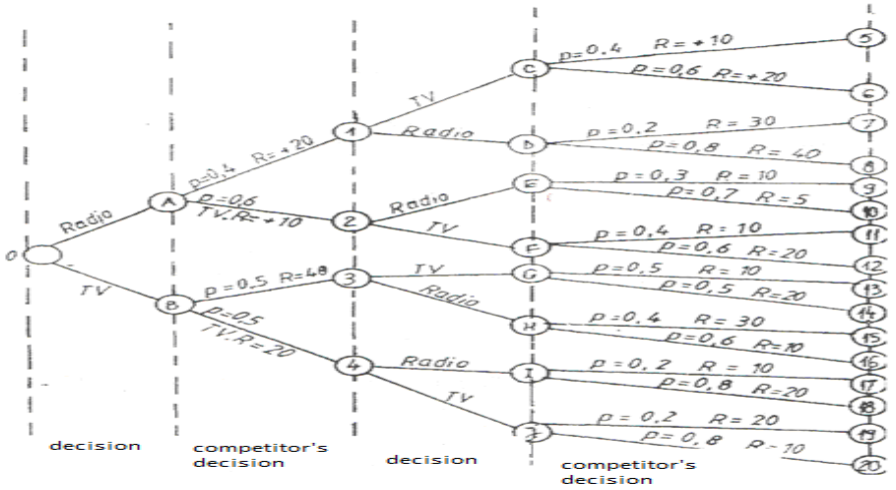
The decisions, the competitor reactions, and the results (costs and gains) of each person as well as the probabilities are shown directly on the decision tree shown in Figure 1.

In this tree, the [0]following notations are used

- roads (arcs) symbolized by a square and marked with numbers (0 ... 4 ... 20), corresponding to the company decisions;
- roads (arcs) symbolized by a circle and marked with letters (A, B ... J), corresponding to the interventions chance, respectively the reaction of competition;
- p = probability;
- R = net result of the decision for the period;
- TV, radio, decision alternatives of the company or of the competitors.

Based on the presented data one can determine the decision that may be taken. For this we calculated the value of each road that leads to the original decision.

Figure no. 1. *Decisional tree*



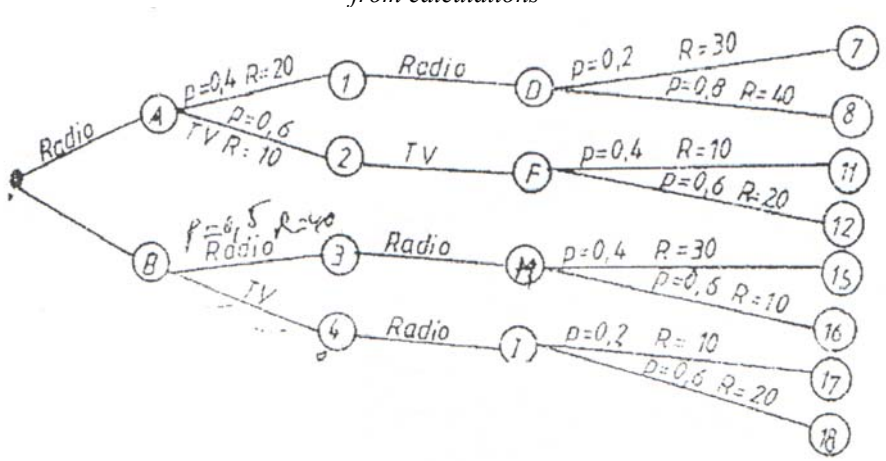
For each stage, we calculate the expectancy of gain (E) starting from the end of the graph, applying the formula (1.1):

$$E(C) = 10*0.4+20*0.6 = 16 \quad (1.2)$$
$$E(D) = 30*0.2+40*0.8 = 38 \quad (1.3)$$
$$E(E) = 10*0.3+5*0.7 = 6.5 \quad (1.4)$$
$$E(F) = 10*0.4+20*0.6 = 16 \quad (1.5)$$
$$E(G) = 10*0.5+20*0.5 = 15 \quad (1.6)$$
$$E(H) = 30*0.4+10*0.6 = 18 \quad (1.7)$$
$$E(I) = 10*0.2+20*0.8 = 18 \quad (1.8)$$
$$E(J) = 20*0.2+10*0.8 = 10 \quad (1.9)$$

After the calculations, it results that a number of roads can be removed. If the company leaves from point 1, it is clear that we must choose the road D because the mathematical expectancy value is greater 38>16. Thus, C_5 and C_6 are eliminated.

A similar procedure is applied to others possibilities, thus simplifying the tree. So, it results a simplified tree shown in the following figure:

Figure no. 2. *Decisional tree after eliminating some branches resulted from calculations*



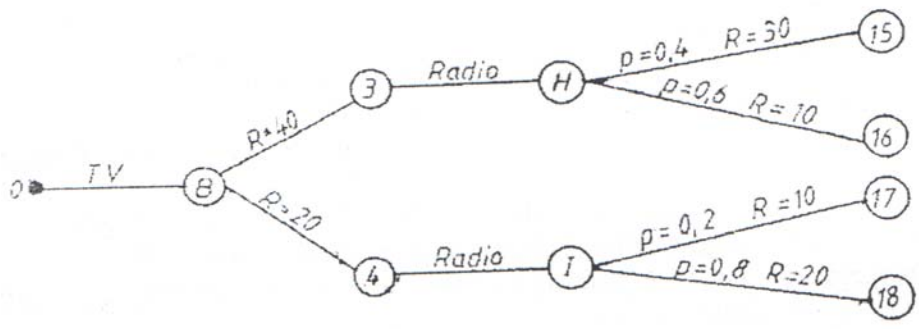
$$E(D) = 30*0.2+40*0.8 = 38 \quad (1.3')$$
$$E(F) = 10*0.4+20*0.6 = 16 \quad (1.4')$$
$$E(H) = 30*0.4+10*0.6 = 18 \quad (1.6')$$
$$E(I) = 10*0.2+20*0.6 = 18 \quad (1.7')$$

Thus, it can be calculated the expectancy of gain for every road to the end of the first period (in A and B):

$$E(A)=0.4*E(A,D)+0.6*E(A,F)=0.4(20+38)+0.6(10+16)=38.4 \quad (1.10)$$
$$E(B)=0.5*E(B,H)+0.5*E(B,I)=0.5(40+18)+0.5(20+18)=48 \quad (1.11)$$

The tree can be further simplified, resulting in the situation shown in the following figure:

Figure no. 3. *Decisional tree after eliminating some branches resulted from the expectancy of gain calculations*



It can be concluded that the tree allows taking the first optimal decision, meaning the company must conduct a television campaign because the hope of winning is 48 to 38.4 for the radio campaign.

The following decisions are subject to competition reaction. Thus, if the competition reacts (Section 3), the company will have to fight back through a radio campaign (3H road that has a value greater than 3G). If the contestant chooses a TV campaign (point 4), now it has to fight back through a radio campaign. It follows that the company must start with a TV campaign and track with a radio campaign.

At present, the uncertain and changing environment, in which the companies operate, leads to the occurrence of many unforeseeable situations, therefore it is advisable to underlie scientifically the decisions.

The decisional tree method is applied in situations when the hazard periods (risk) succeed the decision periods, with several possible consequences, to which may be associated a probability.

The probability of the risk represents the possibility that risk to occur. According to the probability theory, it is called the *probability* of the event A (denoted by P(A)) the ratio between the *m* number of the favourable results for occurring the event A and the total number *n* of the experimental results considered equally possible (all the results are possible):

$$P(A)=\frac{m}{n} \tag{1.12}$$

Where:

m = number of favourable results for occurring the event A

n = total number of experimental results considered equally possible (all results are possible)

The impact of the risk indicates the effect of the risk on the organization's objectives if it is manifested. The probability and the impact of the risk are assessed as:

- High,
- Moderate,
- Low.

To perform the matrix of the risk score, we use to calculate the risk score the following formula:

Risk Score = Probability x Impact (1.13)

To determine the scores for each risk, the matrix of the risk score is drawn up according to table 1.

Table 1

Matrix of the risk score

Probability	Impact of the risk				
	0.05	**0.1**	**0.2**	**0.4**	**0.8**
0.9	0.045	0.09	0.18	0.36	0.72
0.8	0.04	0.08	0.16	0.32	0.64
0.7	0.035	0.07	0.14	0.28	0.56
0.6	0.03	0.06	0.12	0.24	0.48
0.5	0.025	0.05	0.1	0.2	0.4
0.4	0.02	0.04	0.08	0.16	0.32
0.3	0.015	0.03	0.06	0.12	0.24
0.2	0.01	0.02	0.04	0.08	0.16
0.1	0.005	0.01	0.02	0.04	0.08

Score < 0.05 – low impact (green)
0.05 ≤ Score <0.15 – moderate impact (yellow)
Score ≥ 0.15 – high impact (red).

Quantitative analysis aims the numerical evaluation of the probability and the impact of each risk on the organization's objectives.

By using this method the decisions and the random events are represented as they are perceived by the decision makers.

Conclusions

It can be concluded that these decisions, which we assign to the category of market decisions, are closely linked to the enterprise development policy and its decisions on production. It is well known that the competitiveness is the most important for maintaining any company on a certain market. Although it has a complex content, the term designates primarily the quality of work, closely related to the quality of workers. That is why it is considered that these decisions are very important for the company.

Because the relative expectations of the decision makers in the decision-making environment are subjective, they will perceive degrees of uncertainty differently. Two decision makers can analyse the same event and have different personal expectations (materialized in the subjective probabilities) on the occurrence of the certain events. The procedure of decision making depends largely on the degree of uncertainty perceived by the decision maker. In terms of risk and uncertainty, the typical problem of decision is complex enough to enable a number of possible outcomes for each strategy, results often depending on conditions beyond the control of the decision maker. For this reason, the decision-making methods and techniques constitute a useful tool in presenting and analysing these results, which help the decision-makers to conceptualize and formalize the

decision-making process with a view to: setting the goals, and the consequences of the decision-making variants, assessing and selecting the alternative strategies. Unfortunately, many managers do not think in the incremental terms; they make decisions based on the average values of the total costs, in the most cases these short-term decisions proving to be incorrect because the goal of the company is to maximize the profits.

Decision trees are a technique applicable to both classification and prediction, the result taking the form of a tree that has a hierarchy of logical rules set automatically by exploring a database of examples. Examples have the form of records consisting of several attributes. Rules are obtained as a result of a more and more detailed subdivision of the examples, according to the content of the attributes.

Decision trees are proven to be particularly useful for deciding on financial or numbers, where a large amount of complex information must be taken into account.

They provide an effective structure in which alternative decisions and the implications of their choice can be assessed, and help the formation of fair, balanced risks and rewards arising from certain choices.

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DEFINITIONS AND SCIENTIFIC CONTEXT OF THE SCIENCE OF COMMODITIES

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Abstract

The Science of Commodities as an independent discipline studies the level of satisfaction of implicit and explicit needs through quality and assortment of goods. In time, this scientific area has held various names. The best known of these names is the "Commodities". The term "Commodities" is equivalent in Romanian with "study (science) goods". The phrase "knowledge goods" was borrowed from Italian, which was formed from the Latin expression mercis (= the commodity) and Greek expression λογοξ, logos (= science, knowledge) deeper, state, Commodities that name comes from the Latin word MERX, which is mercis genitiv.

Key-words: *quality, science, commodities, consumer, goods*

JEL Classification: A_{14}

Introduction

The Science of Commodities emerged and developed from practical requirements in all countries. As a result, in various languages, the phrase has been translated alone or in equivalent terms.

In Romania the first name of Commodity Knowledge appeared for the first time in a book published in 1879 entitled "Commodities trading Manual for knowledge of goods" author N. Mallian – Professor of Accounting and Commercial goods Public School in Craiova. Also in Romania in 1895, Arsenie Vlaicu published in Brasov the first manual of classic Commodities entitled „Commodity and technology professional trade schools and private study". In this respect, Arsenie Vlaicu is considered a valuable precursor of modern Commodity science in Romania because in his view the Science of Commodities received a fuller definition. From its inception until the twentieth century, the notion of Commodity Science knew three types of definitions:

- Science of Commodities is the study of the properties, of the derivation and analysis, as well as the social importance of the goods. This definition belong to the first professor of higher education in Göttingen, Johann Beckmann (1739-1811);

- Science of Commodities is the science of all types of goods. The author of this definition was Professor of Mannheim, Viktor Poschl (1884-1948);
- Science of Commodities is the science of examining the goods. Definition belongs to H. Thomas and J. Holfert, but also in Germany. K. Ohara (Germany) expressed the same definition, adding that „Commodity is a science that examines the goods in terms of the merchant and the buyer."

To these three definitions, can be added a fourth one, given by Arsenie Vlaicu: Science of Commodities is the original study, of obtaining, essential properties of the physical and chemical indicators of life and goodness, and means to establish these qualities and discover the alterations and falsification goods. For the period, in a modern vision, the focus is on the study of the use value of goods.

Theoretical background

The need to know the importance of goods and their commercial importance is ancient, being connected to stage of exchange, which involved a fair assessment of the value of the goods exchanged. The first investigations and research were made by doctors on drugs and medicines. The literature considers the beginnings of the Science of Commodity in the work of Johann Beckmann "Commodities preparatory course or the knowledge of the best goods from abroad" (Göttingen 1793-1800). In this regard, it is noted that in Italy the first Treaty of weights, measures and trade of goods belonging to Francesco Balducci Pegolotti (XIV) was published in Florence in 1440.

In Germany, the first attempts to describe and systematize the goods dates from seventeenth century. In our country the interest for the study goods starts with the establishment of the commercial and industrial schools in Bucharest and Craiova (1880) and Galati (1864), and of the Academy of High Commercial and Industrial Studies in Bucharest (1913) and Cluj (1920). The main period of the Science of Commodities developments are set to be:

- The period of the precursors characterized by the creation of a new field of study, specialized in connection with development of economy and trade;
- The Science of Commodities founding period, which clarifies the relationship with related science and technology in particular;
- General Science of Commodities Period (circa 1810-1870), in which progress has been made on counterfeiting, methods of preservation and storing of goods;
- The period of technical Science of Commodities studies, along with the flourishing trade in the colonies;
- The period of modern trends starting from the third decade of the XX^{th} century, has two associated current of the Science of Commodities: Technological Science of Commodities (characterizes goods in technical terms and not in terms of their characteristics) and the teleological Science of Commodities (characterized by emphasizing the purpose for using the goods and treating the subject predominantly in merceological terms, with the appropriate limitation of the technological descriptions).

Defining the Science of Commodities

In line with the foregoing, it can be stated that the Study of goods or the Science of Commodities rapidly evolved in the 2nd half of the twentieth century from being a classic study, the one in which the emphasis is on in-depth study of the properties, quality characteristics, the defects and fault detection, the interaction between the product (system component) and environment, to the modern status of a study of goods as a two-component system (product and packaging) in connection with technical and socio-economic factors that are involved in the development, distribution and consumption of goods. Depending on the foregoing, one of the essential characteristics of modernization of production and trade with goods is reconsidering the goods as two-component system products goods-packaging. Currently a reconsideration of the Science of Commodities as a tricomponent system product – packaging – the environment is required. In this way packaging is integrated in the concept of total package.

The Science of Commodities as a discipline studying the physical and chemical properties of the goods in respect of quality and storage and has two sub-branches main profile:

- *Industrial commodities (non-food) is that part of studying the quality and range of non-food products derived from inorganic materials with high degree of industrial processing.*
- *Food Commodities is part of studying the quality and range of food products derived from raw materials of organic origin, animal or vegetable, with low processing time and use limited food value and taste mainly determine their characteristics quality.*

The Science of Commodities as a discipline, studies the properties of the goods. Properties and quality of goods gives utility in relation with market requirements to meet consumer needs. Due to the complex and dynamic quality goods Commodity science is studied in technical, economic and social terms.

These points of view are inseparable functions and are in close interdependence. In the modern concept of quality of life, the Science of Commodities is assigned the following functions:

- *The propelling function with an impact in production, which relates to quality improvement, redesign and upgrade the products;*
- *The function of hierarchy of use values for their correlation with the quality and cost of products;*
- *The economic function manifested by the influence of the Science of Commodities on production, with the aim of adapting to consumer demands;*
- *The social function resulting from the role of the Science of Commodities in enhancing the utility of the manufactured products and therefore of the consumer requirements;*

- *The educational function exercised by explaining the qualitative characteristics of products, aim to achieve a proper use of products by introducing new products in consumption and by creating new needs;*
- *The rationalizing of the consumption function, the masses aware of the consumer to buy the most suitable products according to their wishes and needs.*

The connections of the Science of Commodities with other sciences

The Science of Commodities is part of the frontier sciences, with a deep economic and social outlook. The Science of Commodities is strongly interrelated with other disciplines as merchandise is investigated as a technical and socio-economic structure that generates a system of relations with human needs, the environment or other complementary goods for purposes of satisfying some needs. These disciplines include:

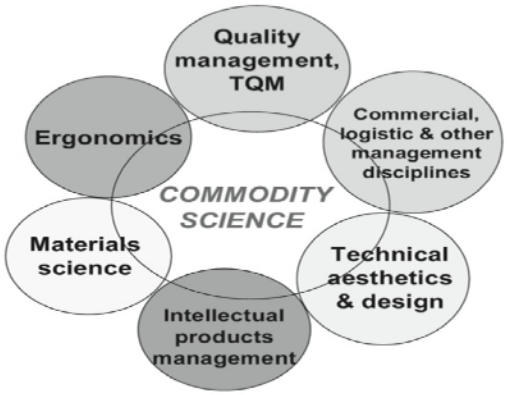
- Technology studying the influence the technological process on product quality;
- Biology with Science of Commodities studying substances from various plants and their influence on consumer health;
- Justice science that is necessary to know the laws and regulations in force regarding the products sold;
- Marketing establishes consumer requirements cannot be known without a market survey and the production and sale of goods requires good logistics, appropriate publicity and location wise commercial network;
- Chemistry establishes the chemical composition of the goods both in laboratory tests and the consumer;
- Physics, particularly electrical and electronic goods, by checking the technical and functional characteristics.

The Science of commodities it is also science related with other scientific subjects: mathematics, economics, management and informatics. In this sense, one can conclude that the Science of Commodities is a discipline with a deep interdisciplinary, increasing the usefulness and quality of goods.

Types of analysis used in the research of goods

Scientific research of consumer goods uses methods such as structural analysis, comparative analysis, system analysis, functional analysis, brainstorming method, value analysis and morphological analysis. Each one helps individually or associated with each of the other methods resulting in better knowledge of the goods as such and of their quality, based on the needs that they have to satisfy.

Figure no. 1. *The connections of the Science of Commodities with other sciences*



Source: the author

- Structural analysis is used for analysing the structure of the product;
- Comparative analysis compares the local products, imported products, but similar utilities;
- Systemic analysis refers to the ratio produced – need – cost – economic and social efficiency. The main properties of the goods must be reported on the cost of products and consumer needs. Product quality should result in obtaining the most optimal cost for both producer and consumer.
- Functional analysis applies to products with a high degree of technicality and determines the technical-functional characteristics;
- Brainstorming method aims to identify the group of the best ideas for new products / services. It has made a systematic screening of ideas, to identify the best solution, on which the decision to apply in practice;
- Value analysis (technical and economic) follows each product/service setting reasonable correlation between intake parts, sub-assemblies or functions (properties, characteristics) utility (use value of the whole) reported: cost and degree of satisfaction of need. The purpose of the analysis is to reduce unnecessary costs and increase product quality by optimizing functions.
- Morphological analysis devised by Zwicky involves achieving the next step: decomposition product according to its most important dimensions; for each dimension searching all possible solutions; to carry out the combination of the solutions identified in order to find new product ideas.

For example, a product may be broken down into four areas: A, B, C and D. Each size is specific to particular solutions:

The size, there are solutions A1, A2, A3, and so on; size B, there are solutions B1, B2, B3, etc. By combining solutions of each dimension may result new ideas, such as A3B1C2D3.

Science of commodities presents some important features as multi and interdisciplinary character, dynamics and practical and formative character.

Conclusion

The Science of Commodities covers a very broad issue, its core consisting of tradable – merchandise. Thus the Science of Commodity studies goods in the field of technical-economic in all its activities, in which feedback highlights the evolution in time and space of their quality. All these factors underline the complex, interdisciplinary, standing and consistent, dynamic and adaptable, but also the science practical formative and informative of the Science of Commodities.

So it can be stated that the Science of Commodities has a commercial importance underlined by the functions it performs: technical, economic, social, with systemic implications on the goods in the information flow (needs – production – trade – consumer – environment).

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