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TRADITIONAL ACTIVITY INDICATORS IN THE FUNCTION OF DETERMINATION OF MATERIAL MISSTATEMENT IN THE FINANCIAL STATEMENTS OF THE COMPANIES

Abstract

The financial statements of general purpose are important source of information for purpose of business decision-making. Therefore, it is important to present financial statements fairly and faithfully without material misstatement. The subject of this paper is to explore the impact of traditional indicators of activity on the determination of material misstatements in the financial statements. The main objective of this research is to create a model of an impact of the traditional indicators of activity on determination of material misstatement in financial statements of the companies. Identification of traditional indicators of activity that contribute to the determination of material misstatements in the financial statements is also one of the objectives of this research. The collected data were analysed by inferential statistical methods, and the tables have used to present the research results. Research results revealed that the traditional indicators of the activity contribute to the determination of material misstatements in the financial statements of the companies.

Keywords: financial statements, material misstatements, traditional indicators of activity

1.　　INTRODUCTION

Today, the business activities of the companies directed to achieving of the determined goals are difficult and threatened from the environment. In that context, financial statements represent the main source of information for business decision making. The role of the accounting system is not only

bookkeeping and financial reporting, but also providing quality and timely information to all users of financial statements. The realistic and objective accounting information are one of the necessary preconditions for business decision making of all stakeholders. „The aim of financial statements of general purpose is to provide information about the financial position, the financial success and the cash flows of business entity, which are useful to a wide range of users in economic decision making." (IAS 1[1], paragraph 9.). The assumption of the International accounting standards is that financial statements represent fairly the financial position, the financial success and cash flows of the business entity. However, there is another extreme, and that is unfairly and unfaithfully financial reporting which implies that financial reports are materially misstated. It is special interest to all users of financial statements to achieve that financial statements are without material misstatements.

The researches that in focus of interest have the analysis of relations between different financial and nonfinancial indicators, and material misstatement in financial statements of the companies are always and especially today interesting to both science and profession. American scientific and research area have a special emphasize on this types of research. „Main reason for this lack of research is the problem of data availability arising from the fact of non-transparent markets and unwillingness of the companies to publicly announce full set of their financial statements." (Aljinović Barač, Klepo, 2006, 274). In that context, the aim of this research is to create the model of impact of the traditional indicators of activity on the determination of the material misstatements in financial statements of companies. Additionally, the aim is also to identify the traditional indicators of activity that contribute to the determination of material misstatements in the financial statements. The traditional activity indicators are the main source of information regarding the level and the intensity of using assets and resources of the company. Therefore, the main assumption of this paper is that traditional activity indicators, as the result of the analysis of the financial statements, contribute to the determination of material misstatements in financial statements of companies. Several researches suggested improving the existing determination models that relate different indicators and material misstatements in financial statements. (Dechow et al., 2010; Bayley i Taylor, 2007; Prevoo, 2007).

2.   REVIEW OF THE RELEVANT RESEARCHES

Analysis of the accruals measures (Jones, 1991, Dechow and Dichev, 2002, Jones, 2007) as well as research of selected and specially developed financial and nonfinancial indicators and their impact on the determination and prediction of material misstatement were in the focus of recent researches. (Beneish, 1999; Dechow, 2010).

Two very important papers in the area of quality of the financial statements are from the author Messod Beneish in the year 1997 and 1999. In

[1] IAS 1 – Presentation of Financial Statements

the first research, Beneish (1997, p. 271-309) analysed the financial statements of 64 companies with material misstatements and found that indicators Days Sales in Receivables as an indicator of business activity, and Gross Margin indicator are the most important for the company's classification regarding material misstatements in financial statements. Additional research (Beneish, 1999, p.24-36) revealed that indicators of the average duration of Days Sales in Receivables, Gross Margin Index, Asset Quality Index, Sales General and Administration Index and Positive Accrual Dummy are key factors that have impact on the quality of financial statements.

Another significant model based on financial and nonfinancial indicators is the F-model that is the result of research for the year 2008. (Dechow et al., 2010). Certain activity indicators are included in the final F-model. The research found that activity indicators: Receivables index and Inventory index have a significant impact on the determination of material misstatement in the financial statements.

The role of financial indicators in determining future business events is revealed and demonstrated in the previous period for the purpose of bankruptcy (Altman, 1968), as well as the other business events such as business activity reduction or capital increase (Korcan et al., 2013, 1-75). However, additional researches are also suggested in order to analyse the impact of financial indicators, including indicators of activity, on the determination of material misstatements of financial statements (Korcan et al., 2013, p.1-75). Based on the presented, the issue of this research is new, current and insufficiently explored, especially in the domestic and regional conditions.

3.   DEVELOPMENT OF THE RESEARCH MODEL

The methodological approach to the research of the quality of financial statements implies methods of researching and analysing of the material misstatements in the financial statements. Therefore, it is possible to identify three basic methodological approaches to the researching of material misstatements in the financial statements (Gabrić, 2017, p. 112):

1. "Accrual based researches of material misstatements;
2. Financial and nonfinancial indicators based researches of material misstatements; and
3. Alternative approaches to research of material misstatements".

In this research, the methodological approach is based on financial indicators, particular the traditional indicators of the activity. One of the main objectives of this research is to create the model of the impact of traditional activity indicators, as the result of the analysis of financial statements, on the determination of material misstatement in the financial statements of the companies. Regarding the material misstatements in financial statements as dependent variable and traditional indicators of activity as independent variables,

the conceptual model of research implies the assumption that the traditional indicators of activity are in the function of material misstatements. The research model has presented in the form of a multiple linear regression equation.

$$\mathbf{MM_{i,t}} \quad = \quad \beta_{0i,t} + \beta_1\, QtTA_{i,t} + \beta_2\, QtCA_{i,t} + \beta_3\, QtRec_{i,t} \qquad (1)$$

$$+ \beta_4\, QtInv_{i,t} + \beta_5\, DRec_{i,t} + \beta_6\, DInv_{i,t} + \varepsilon_{i,t} \qquad (2)$$

where is

MM	-	Material misstatement in the financial statements
$\beta_0, \beta_1,...., \beta_n$	-	Parameters (coefficients) with independent variables
QtTA	-	Turnover coefficient of assets
QtCA	-	Turnover coefficient of current assets
QtRec	-	Coefficient of Duration of receivables payment
QtInv	-	Turnover coefficient of inventories
DRec	-	Duration of receivables payment
DInv	-	Inventory Days
$\varepsilon_{i,t}$	-	A statistical (random) error
i,t	-	For a company i, in the period t

Since the material misstatement is primarily the accounting and auditing concept, accounting and audit theory and practice provide the relevant conceptual definition. According to IAS 8[2] "the error is material if it can, individually or collectively, affect the economic decisions that users make on the basis of financial statements. The materiality depends on the combination of size and type of omitted or incorrectly presented items of financial statements." Accounting errors, and the material ones, arise from the recognition, measurement, presentation or disclosure of the elements of the financial statements. The reasons for the occurrence of errors can arise from the lack of information, wrong assessment of a particular business event or financial effect of the transaction, lack of knowledge, or intention to misstate.

There are different classifications of traditional activity indicators. The accrual-based indicators of activity used in analysis of financial statements have presented in Table 1 with appropriate description and the method of calculation.

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[2] IAS 8 - Accounting Policies, Changes in Accounting Estimates and Errors

Table 1

The classification and the method of calculation of activity indicators

The name of the indicator	The description and the method of measurement	
Turnover coefficient of assets	=	Total income / Total assets
Turnover coefficient of current assets	=	Total income / Current assets
Turnover coefficient of receivables	=	Sales income / Receivables
Turnover coefficient of inventories	=	Costs of sold inventories / Inventories
Receivables days	=	365 days / Turnover coefficient of receivables (QtRec)
Inventory days	=	365 days / Turnover coefficient of inventories (QtInv)

Source: Žager et al., 2008, p. 243-296

The traditional indicators of activity are the indicators of management efficiency in use of resources of the company. Because of that, this group of indicators have often called the indicators of management of assets. Calculation of this group of indicators usually put in the ratio incomes (total income, sale income, etc.) and the selected item of the assets that indicates turnovers of assets during a particular period. The indicators of activity point out the level of asset circulation through the business process. The higher value of the turnover coefficient of assets implies the higher probability for company to achieve appropriate level of liquidity and profitability. It is possible to calculate turnover coefficient for each item of assets as an indicator of activity and usually it calculates for total assets, current assets, inventories and receivables. When calculating turnover coefficients of assets it is important to take into account that the value of incomes and the value of the assets should be determined at approximately same price levels. Otherwise, it can occur overestimation or underestimation of the turnover coefficients of assets. Based on the turnover coefficients of the items of inventories and receivables, interesting indicators of the average duration of receivable payments or inventory days can be determined.

Receivables days indicates on the average time needed to reimburse the previously recognised receivables. The shorter time needed for reimbursement of the receivables implies that the company is more active and have a greater potential for a liquid and profitable business. Inventory days indicates on the average time of inventory storage. The lower value of this indicator implies that the company is well in planning and managing inventories. In addition, the higher value of Inventory days implies that there is unnecessary retention of inventories that results in additional costs (including opportunity costs) and reducing the company's profitability. Unnecessary inventories can immobilize liquid assets (e.g. money) into less liquid assets that result in reducing the company's liquidity.

Previous and relevant research suggests that activity indicators can be a useful tool in assessing the quality of financial statements. One of the key discriminatory factors in Beneish's M-model is the indicator: Duration of receivables payment (1999, p. 24-36). On the other hand, Skousen et al. (2008, p. 1-39) showed that, the rapid growth of assets has a positive impact on the likelihood of fraud, or intentional material misstatements in the financial statements.

4.   RESEARCH METODOLOGY

4.1.   Research sample

For the purposes of the empirical research, it is defined a sample with the basic and control group of companies. Companies with material misstatements in the financial statements are included in the basic sample group, while all other companies without material misstatements in the financial statements are included in the sample control group. The basic and control sample group (see Table 2) consists of the audited annual financial statements of companies whose equity securities[3] (stocks) are listed on the organized capital market in the Federation of Bosnia and Herzegovina (Sarajevo Stock Exchange - SASE).

In the first step, the sample included the total population of 208 companies whose securities are in the quotes of the company (one issuer), the primary free market (29 companies) and the secondary free market (178 companies) of the Sarajevo Stock Exchange[4]. In the second step, the sample excluded all inactive companies (whose securities are not active, etc.) as well as financial institutions from due to the institutional differences.

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[3] "Securities" for the purposes of this Securities Market Act ("Official Newspapers of the Federation of Bosnia and Herzegovina." No 85/08, 109/12), "is transferable in an immaterial form - an electronic record, issued in a series that provides rights to the holder".

[4] Data refer to date 29.02.2016 representing the moment of the formation of the sample and the beginning of the collection of empirical data for research purposes. Data were obtained from official data base of Sarajevo Stock Exchange (Source: www.sase.ba)

Table 2

Designing a research sample

Description	Number
Total number of companies on the quotation, free primary and secondary market on the Sarajevo Stock Exchange	208
Inactive companies whose shares are not traded (suspension and others)	(12)
Financial entities and institutions	(21)
TOTAL number of companies	175
Total number of units (observation) of the basic population in the period 2010. - 2014. (175 x 5 years)	875
Total number of units in the sample 2010. - 2014.	257

Source: author's own creation

In the context of the adequacy of the research sample, it can be noted that 66,86% of the total number of companies included in the sample is an indicator at an appropriate level. Due to the fact that audited annual financial statements were collected for one or more years, final sample includes 257 audited annual financial statements (basic and control group), or 29,37 % of the total population, which is an indicator at an appropriate and acceptable level especially in the field of social researches. Due to the time pattern of the sample for the purpose of this research, the sample includes companies listed on the organized equity market of the Sarajevo Stock Exchange, in a five-year period from 2010 to 2014.

4.2. Methods of data collection and processing

The methodology of data collection and processing implies the selection of appropriate instruments for collecting, systematizing, classifying and statistical data processing. It is used a technique of analysing the content of auditing and financial statements to collect research data for the period from 2010 to 2014 on a sample of companies whose securities are quoted on the capital market in the Federation of Bosnia and Herzegovina. In the next step, the data were classified and ranked where needed. This research considers material misstatement as a dichotomous variable with two possible rank states: the financial statements without material misstatements (rank 0) and the financial statements with material misstatements (rank 1).

After that, the data entered into a database where variable rankings, classification and the calculation of the required financial analysis indicators have performed. Data from audit statements have related to the relevant data from the annual financial statements. Finally, the data have reviewed and prepared for entry into the statistical analysis and testing program (SPSS - Statistical Package for Social Sciences). In this the research statistical methods, that include the application of inferential statistics, have applied as a fundamental form of the scientific-cognitive process. The obtained results have presented by tabular views. Specifically, differential tests have applied, including parametric T-test

and nonparametric Man-U-Whitney test, as well as binary logistic regression in order to identify activity indicators that have significant impact on the determination of material misstatement in the financial statements.

5.   RESEARCH RESULTS

Activity indicators are an indicator of efficiency in the use of company resources. In this research, the traditional activity indicators include the Turnover coefficient of total assets (QtTA), Turnover coefficient of current assets (QtCA), Turnover coefficient of receivables (QtRec), Turnover coefficient of inventories (QtInv), Receivables days (DRec) and Inventory days (DInv). The results of the analysis of the traditional activity indicators (see Annex 1) point out that companies without material misstatement in the financial statements in generally have better average values of indicators of turnover coefficient of asset, turnover coefficient of current asset and receivables compared to companies with material misstatement in the financial statements. Regarding general reference values of the activity indicators, the aim is to maximize all indicator values, except indicators Receivable days and Inventory days, where the aim is to minimize the value of it, in order to improve and maximize the efficiency of asset utilization. It is interesting to note that companies without material misstatements in the financial statements have weaker indicators related to inventories compared to companies with material misstatements in the financial statements. Companies with material misstatements in the financial statements need 151 days in average to reimburse their short-term receivables, which is about 50% longer compared to the companies without material misstatements that need 105 days in average for reimbursement their short-term receivables.

Regarding the tests of differences in the traditional indicators of activity between the two observed groups of companies, the results of the conducted Mann-Whitney U test (see Annex 3) reveal that there is a statistically significant difference in the Turnover coefficient of current assets (QtCA) (p = 0.036) and Receivables days (DRec) (p = 0.012) at the 5% significance level. Statistically significant difference in other indicators of activity was not determined between the observed groups of companies using the Mann-Whitney U test. On the other hand, the results of the conducted T-test, presented in Annex 2, confirm the previously presented results of the nonparametric test of difference. There is a statistically significant difference in the Turnover coefficient of current assets (QtCA) (df=245; p=0.047) and Receivables days (DRec) (df=214; p=0,017) between the companies with material misstatements and companies without material misstatements in the financial statements at the 5% significance level. However, the T-test has identified two additional activity indicators that significantly differ between the two observed groups of companies at a significance level of 5%. That indicators are Turnover coefficient of total assets (QtTA) (df = 250; p = 0,015) and Turnover coefficient of inventory (QtInv) (df = 221; p = 0.007). It have not revealed any statistically significant differences in Turnover coefficient of receivables and Inventory days between companies

with material misstatements in financial statements and companies without material misstatements in financial statements. The results are expected and are in relation with other researches (Gabrić, 2017, p. 209-215) that have revealed the most common areas of material misstatements that are balance items value adjustments of receivables and impairment of inventories. Therefore, it is logical that the indicators of activities related to these areas are also a useful indicator in determination of material misstatements in the financial statements.

Due to the analysis of the impact of traditional activity indicators on determining of material misstatement, binary logistic regression has conducted. Additional reason to apply binary logistic regression is the fact that data in the research sample do not follow normal distribution.

Table 3

Results of applied logistic regression

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 5[a]	QtTA	-1,414	,496	8,117	1	,004	,243
	QtInv	,145	,053	7,574	1	,006	1,156
	Constant	,118	,318	,137	1	,711	1,125
a. Variable(s) entered on step 1: QtTA, QtCA, QtRec, QtInv, DRec, DInv.							

Source: Research results (N=123), SPSS v. 20

The test results (see Table 3) show that the traditional activity indicators: Turnover coefficient of total assets (QtTA) and Turnover coefficient of inventories (QtInv) contribute to the determination of material misstatement in the financial statements of the companies, at a statistically significant level of 5%. The obtained model of impact of traditional indicators of activity on determination of material misstatement is statistically significant and relevant (Chi-square = 21,082; df = 2; p = 0,000). The obtained model represents activity indicators that could serve as useful tool in determination of misstatements, since there is a relation between the value of the indicators and the occurrence of material mistakes in the financial statements.

The results of the statistical analysis presented in Annex 4 indicate the basic characteristics of the obtained model. The value of the Nagelkerke R Square indicator is 0,212, which points out that the 21,20% variations in the dependent variables is explained by the predictors. However, in statistical theory, there is no consensus about the optimal value of this indicator. Therefore, the overall assessment of the model requires consideration of this indicator together with other model parameters. Hosmer and Lemeshow tests indicate how well the model is fit to data, and the statistical significance value of the test should be higher than 0,05 (p>0.05). In this case, the statistical significance value of the Hosmer and Lemeshow test is higher than 0,05 (p=0,217) which indicates that the model is well adjusted to the data.

Beta coefficient values of each predictor show the direction and intensity of impact on determining material misstatement in the financial statements. The

Beta coefficient results show that the indicator Turnover coefficient of total assets has a greater intensity impact (B=-1,414) on the determination of material misstatement in the financial statements compared to the Turnover coefficient of inventories (B=0,145), at the planned statistical significance of 5% (p<0,05). Turnover coefficient of total assets (QtTA) has a Beta coefficient value at the level of -1,414 meaning that Turnover coefficient of total assets contributes to the determination of material misstatement in the financial statements of the companies at the statistically significant level (p=0,004). Furthermore, the higher value of the Turnover coefficient of total assets (QtTA) contributes to the lower value of the model, or to the lower probability of material misstatements in the financial statements. On the other hand, the higher value of the Turnover coefficient of inventories (QtInv) with the value of the beta coefficient B=0,145 contributes to the higher value of the model (with a low intensity), which implies the higher probability of material misstatements in the financial statements.

It is also interesting to analyse the value of probability factors (Exp (B) for selected predictors included in the model. The probability factor of Turnover coefficient of total assets (QtTA) at the level of 0,243 implies that if Turnover coefficient of total assets increases for 1,00, the probability of occurrence of material misstatement in the financial statements decreases for 75,70%. This additionally implies the relation of this predictor with the dependent variable and its ability to determine material misstatement in the financial statements. On the other hand, the probability factor of Turnover coefficient of inventories (QtInv) at the level of 1,156 implies that if Turnover coefficient of inventories increases for 1,00, the probability of occurrence of material misstatement in the financial statements increases for 15,60%. The fact that companies with significant errors in the financial statements have overestimated the costs for the sold inventories or underestimated the inventories is one of the explanations of the contribution of Turnover coefficient of inventories on the occurrence of material misstatements in the financial statements.

6. CONCLUSION

Based on the foregoing, the financial statements are a useful and important source of information for making different decisions. The results of the conducted research indicate that the traditional activity indicators, as the result of the analysis of the financial statements, have a contribution to the determination of material misstatement in the financial statements of the companies. There is a significant difference (p<0,05) in the traditional activity indicators: Turnover coefficient of current assets (QtCA) and Receivable days (DRec) between companies with material misstatements in financial statements and companies without material misstatements in financial statements. In addition, the statistically significant difference between the observed two groups of companies have revealed in the Turnover coefficient of total assets (QtTA) and Turnover coefficient of inventories (QtInv). Furthermore, a model of impact has obtained, which indicates that the activity indicators Turnover

coefficient of total assets (QtTA) and Turnover coefficient of inventories (QtInv) have a contribution to the determination of material misstatement in the financial statements. In the end, research revealed that traditional activity indicators are a useful tool in determination of the material misstatements in the financial statements of the companies. The forthcoming researches should take into consideration the analysis of the impact of traditional indicators of activity on the determination of material misstatement in the financial statements of different types of business activities. In addition, it would be interesting to research the impact of activity indicators based on the realized cash flow on the determination of the material misstatement in the financial statements of the companies.

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Annex 1.

Analysis of the traditional activity indicators regarding material misstatement

Material misstatement		QtTA	QtCA	QtRec	QtInv	DRec	DInv
Positive Audit Opinion	N	157	154	154	132	127	81
	Mean	,579832	2,379100	5,299512	,891040	104,881552	1880,861512
	Median	,428600	1,973400	4,022050	,070750	77,624700	750,064800
	Std. Deviation	,5957815	1,9166918	5,2106286	2,7000686	113,2494523	2440,295116
	% of Total	62,3%	62,3%	61,8%	59,2%	58,8%	59,6%
Modified Audit Opinion	N	95	93	95	91	89	55
	Mean	,409614	1,916710	4,777298	2,483655	151,082551	1530,006402
	Median	,306300	1,729900	3,362400	,105200	100,996500	768,388600
	Std. Deviation	,4162972	1,4832582	4,5823933	5,9173122	167,9728509	2034,362394
	% of Total	37,7%	37,7%	38,2%	40,8%	41,2%	40,4%
Total	N	252	247	249	223	216	136
	Mean	,515663	2,205002	5,100274	1,540941	123,918075	1738,971578
	Median	,367450	1,879800	3,757100	,089800	86,038650	753,655550
	Std. Deviation	,5406889	1,7770894	4,9773339	4,3717854	139,9437075	2283,469853
	% of Total	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Source: Research results (N=257), SPSS v. 20

Annex 2.

Results of the difference testing using Independent Samples T-Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QtTA	Equal variances assumed	8,499	,004	2,446	250	,015	,1702188	,0695934	,0331548	,3072828
	Equal variances not assumed			2,663	244,805	,008	,1702188	,0639149	,0443256	,2961120
QtCA	Equal variances assumed	4,490	,035	1,993	245	,047	,4623903	,2319783	,0054641	,9193165
	Equal variances not assumed			2,121	230,288	,035	,4623903	,2179719	,0329162	,8918644
QtRec	Equal variances assumed	1,405	,237	,804	247	,422	,5222144	,6498073	-,7576556	1,8020845
	Equal variances not assumed			,828	218,393	,408	,5222144	,6303475	-,7201285	1,7645574
QtInv	Equal variances assumed	26,936	,000	-2,712	221	,007	-1,5926148	,5873225	-2,7500844	-,4351452
	Equal variances not assumed			-2,401	116,049	,018	-1,5926148	,6633293	-2,9064162	-,2788134
DRec	Equal variances assumed	6,385	,012	-2,415	214	,017	-46,2009986	19,1318760	-83,912054	-8,4899424
	Equal variances not assumed			-2,260	142,870	,025	-46,2009986	20,4452638	-86,615306	-5,7866903
DInv	Equal variances assumed	1,893	,171	,879	134	,381	350,8551105	399,3078658	-438,90627	1140,6164928
	Equal variances not assumed			,910	128,359	,365	350,8551105	385,7030465	-412,30389	1114,0141150

Source: Research results (N=257), SPSS v. 20

Annex 3.

Results of the difference testing using Mann-Whitney U test

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of QtTA is the same across categories of MM.	Independent-Samples Mann-Whitney U Test	,056	Retain the null hypothesis.
2	The distribution of QtCA is the same across categories of MM.	Independent-Samples Mann-Whitney U Test	,036	Reject the null hypothesis.
3	The distribution of QtRec is the same across categories of MM.	Independent-Samples Mann-Whitney U Test	,604	Retain the null hypothesis.
4	The distribution of QtInv is the same across categories of MM.	Independent-Samples Mann-Whitney U Test	,634	Retain the null hypothesis.
5	The distribution of DRec is the same across categories of MM.	Independent-Samples Mann-Whitney U Test	,012	Reject the null hypothesis.
6	The distribution of DInv is the same across categories of MM.	Independent-Samples Mann-Whitney U Test	,362	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Source: Research results (N=257), SPSS v. 20

Annex 4.

Results of the test of the significance of logistic regression

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 5[a]	Step	-1,637	1	,201
	Block	21,082	2	,000
	Model	21,082	2	,000
a. A negative Chi-squares value indicates that the Chi-squares value has decreased from the previous step.				

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	143,111[a]	,176	,237
5	145,830[a]	,158	,212
a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.			

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	13,285	8	,102
5	10,736	8	,217

Source: Research results (N=123), SPSS v. 20