

# MANDATORY AND VOLUNTARY R&D DATA DISCLOSURE: EVIDENCE FROM BULGARIA

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## ABSTRACT

*Main object of analysis are the mandatory and voluntary R&D data disclosure by Bulgarian innovative enterprises. Subject of the study are published financial statements and the accompanying notes, incl. significant accounting policies, activity reports, auditor reports, annexes. Adopted research methods are logical, deductive and comparative methods, as well as the methods of content analysis and synthesis of texts introduced into the legislation and specialized literature. To test the author's hypotheses the program IBM – SPSS Statistics is used. The study of statistical relationships and dependencies is based on the Chi - square test. Main findings of the paper are that Bulgarian innovative enterprises that are applying the national accounting standards refrain from publishing R&D information. The lack of disclosure is primary on mandatory compared to voluntary data. The results of the study support the development of the literature by presenting a more in-depth analysis of the factors influencing the disclosure of R&D data by Bulgarian innovative enterprises.*

**Keywords: R&D, Mandatory Disclosure, Voluntary Disclosure.**

## INTRODUCTION

Currently Bulgaria is in the group of “modest” innovators European Innovation Scoreboard, (2018), due to a number of factors including low level of investments in research and development (R&D) activities (Georgieva, 2013). The budget of Bulgarian enterprises, used for development and implementation of innovative solutions, is mainly formed from own funds and foreign investments (Yalamov et al., 2018). Creditors' trust in small and medium-sized enterprises is low, which further leads to a decrease in funds for research projects. Disclosed financial and non-financial textual data in the financial statements of the entities, have a direct impact on the creditors' trust. The purpose of disclosure is, on one hand, to give assurance that the information in the financial statements is reliable, prudent, neutral, impartial, complete in all aspects and, above all, necessary for making reliable economic decisions. On the other hand, it is an indicator of the profitability of the enterprise in near future. The document that gives an overall picture of the used accounting methods by the entity is the accounting policy. Accounting policies are

*“Specific principles, bases, conventions, rules and practices applied by an entity in preparing and presenting financial statements” (IAS 8, art. 5).*

The significant accounting policies are notes to the financial statements as a textual disclosure. The entity's disclosures could be divided into mandatory and voluntary. The mandatory is dependable on the legislative requirements of the applicable accounting standards. According to Bulgarian Accounting Act (AA) enterprises must apply the national accounting standards. Exceptions are the enterprises listed in the law (mainly engaged in financial, pension and investment activities), as well as those that voluntarily choose to apply the international accounting standards (AA, art. 34). Voluntary disclosure can be defined as any additional

information beyond the mandatory one that enterprises provide to their counterpart agents by publishing it in the financial statements. Managers can use the detailed R&D disclosure as an instrument creating a positive enterprise's reputation to outsiders, and thereby to improve the market value of equity (Merkley, 2014; Jones, 2007; Nekhili et al., 2012). In this respect, R&D can be associated with investment behavior, which is a prerequisite for creation of information asymmetry Cheng & Zhao (2018), which is detrimental to investors' interests (Bankova, 2019). Even though voluntary R&D disclosure might lead to a leak of strategic information (Entwistle, 1999). It is an important mechanism for reducing conflicts between insiders and outside shareholders (Patelli & Prencipe, 2007), as well as to increase organization's ability to meet technological challenges and changes (Teixeira da Silva et al., 2013). Due to the uncertainty and high risk for future economic benefits from the research outcomes, disclosure even of a small amount of R&D data enriches the information environment and may motivate innovations (Hsiao-Tang & Huichi, 2018). While helping investors to make reliable predictions of the profitability of their potential investments (Teixeira da Silva et al., 2013).

Main object of analysis in the paper are the mandatory and voluntary disclosures regarding recognition and account of R&D by innovative enterprises in Bulgaria. Additionally analyzed is information about the long-term intangible assets owned and used by enterprises, in particular internally generated assets. This is justified by the need to derive causal relationships and dependencies regarding the innovation activity of enterprises, as well as from the fact that some of the entities perceive R&D as an integral part of internally created assets. Subject of the study are the published financial statements and the accompanying notes, incl. significant accounting policies, activity reports, auditor reports, references, annexes. Primary purpose of the article is to study the practice of Bulgarian enterprises regarding the mandatory and voluntary disclosure of R&D information. To achieve the stated goal main research task is to analyze officially published by innovative enterprises mandatory R&D data, based on the applicable accounting standards in Bulgaria national accounting standards (NAS) and international accounting standards (IAS). Additional task is to analyze the following factors that have impact on the R&D disclosures: size of the company; external auditors' check on the statements; foreign shareholders in the equity capital; used accounting standards for preparing the financial statements. The main author's hypothesis is that Bulgarian innovative enterprises refrain from publishing mandatory compared to voluntary R&D information. This is primary done by entities applying the national accounting standards and is affected by foreign shareholders participation, size of the entity and external auditor. The applied research methods are based on the logical, deductive and comparative methods, as well as on the methods of content analysis and synthesis of legislation framework and specialized literature texts. To test the author's hypotheses the program IBM - SPSS Statistics is used. The results of the researches support the literature providing more in-depth analysis of the factors that influence the disclosure of R&D data in the financial statements of Bulgarian innovative enterprises.

## **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

It is believed that all innovative enterprises should have the same level of mandatory disclosure of R&D information, depending on the adopted accounting standards (national or international) (Teixeira da Silva et al., 2013). However, the literature provides evidences that there is diversity of information disclosure regarding the intangible assets treatment and R&D activities, which leads lack of national homogeneity, reflecting lack of international homogeneity

(Stolowy & Cazavan-Jeny, 2001; Gelb, 2002; Bean & Jarnagin, 2001). Amaral (2001) argues that clear financial reports provides reliable information which is a core to successful harmonization. The accounting treatment of intangible resources (incl. R&D expenses) according to the Bulgarian NAS is not harmonized with the international standards. This predetermines the wrong methodologies for presenting them in the financial statements Pozharevska & Basheva, (2019) and is a barrier to the clearness and the international comparability of the statements (Alves & Antunes, 2010; Nobes & Parker, 2008). By sharing the idea of Nobes & Parker (2008) that comparability is strictly linked to the legislation in EU, a subject to analysis is the impact of the selected accounting standards on the textual disclosure. To address this goal, the following hypothesis is formulated:

*H<sub>1</sub>: The disclosure of R&D data in the financial statements of entities is influenced by the applied accounting standards.*

If a company is considered international, it faces greater pressure to disclose more information (Oliveira et al., 2006; Gerpott et al., 2008). Some authors define internationalization as Stock exchange listed companies (Morris & Tronnes, 2008; Meek et al., 1995). We believe that such suggestion could be made for countries where the Stock exchange markets are developed. Due to number of factors, this is not the case with Bulgaria. However, we believe that the presence of foreign investors at the equity of an entity could as well put more pressure on the level of disclosure. This is due to cultural and legislative diversity of the shareholders and the need for more data for competitive analyses. Such idea is supported by the findings of Francis et al. (2005) and Petrova (2014). According to Francis et al. (2005) the voluntary disclosure is higher if a company depends on external investments. Petrova (2014) defended the thesis that Bulgarian enterprises disclose more limited information on R&D than European organizations with foreign shareholders, which are operating on the territory of the country. In order to analyze the existence of such statistic relationship the following hypothesis is formulated:

*H<sub>2</sub>: There is a statistical correlation between R&D disclosures in the financial statements of enterprises and the presence of foreign shareholders in the equity capital.*

External auditors are indicator for reliability and clearness of the financial reports. Literature support the idea that the level of disclosure is a factor measuring the quality of auditor's services. This leads prestigious auditors to encourage companies to disclosure more data (Chalmers & Godfrey, 2004; Jones & Higgins, 2006). Based on the fact that R&D is a risky activity, we can assume that auditors aiming for better reputation would put pressure on the voluntary disclosure level (Barako et al., 2006). Auditors can influence companies to disclose information, by affecting the type, quantity and quality of the data (Oliveira et al., 2006; Wallace et al., 1994; Teixeira da Silva et al., 2013). To address this idea the following hypothesis is formulated:

*H<sub>3</sub>: R&D disclosure in the financial statements of entities is influenced by external auditors.*

Company size has an impact on the development of innovation and research activities, and hence the disclosed R&D information. In this case, the relationship is positively correlated. As the size of the organizations increases, the amount of disclosed data increases as well (Bauwhede & Willekens, 2008; Jones & Higgins, 2006). This is due to the fact that the regulations, visibility, social responsibility and external control are greater for big companies

rather than smaller ones. Additionally large companies are more organized and have more resources for the creation of detailed data (Jones & Higgins, 2006). From managerial point of a view it is believed that big companies have more benefits from disclosure compared to smaller ones (Hossain, 2008). Considering these possibilities the fourth hypothesis is as follows:

*H<sub>4</sub>: The disclosure of R&D data in the financial statements of entities is influenced by the size of the enterprise.*

## **Data Collection and Methodology**

For the purposes of the study, an analysis of the financial statements of 197 enterprises is made, covering the period 2008 - 2018. Due to the lack of a developed market for innovative products and a common register of research organizations, the analyzed financial statements are of enterprises which activities or name can be linked to R&D and innovations. After a primary analysis of the collected information some companies for which there are no data or published financial statements in the Bulgarian Commercial register and register of Non-Profit Legal Entities (NPLE) are excluded. The final sample covers 143 financial statements. For the purposes of the study, a content analysis method, considered by experts for reliable in the study of intangible assets and information disclosure, is used (Teixeira da Silva et al., 2013; Abeysekera, 2006; Beretta & Bozzolan, 2008). The analysis covers enterprises balance sheet figures for long-term intangible assets, as well as disclosed information about intangible assets and research activities in the notes to the annual financial statements (including activity report, significant accounting policies, audit report, references).

IBM – SPSS Statistics, ver. 19 is used to analyze the collected data. The study of statistical relationships and dependencies is based on the Chi - square test, and the measure of association is done by the use of Cramer (V). The variable assumes only two values: 1 (one) to represent the occurrence of an event and 2 (two) otherwise. The variable will have the following parameters:

To analyze the impact of foreign shareholders on the R&D disclosure data: 1 = There are foreign shareholders at the equity

2 = There are not foreign shareholders at the equity to analyze the impact of external auditor:

1 = The financial statement is audited

2 = The financial statement is not audited

To analyze the impact of the chosen accounting standards on the disclosure R&D information:

1 = National accounting standards are used for preparing the statement

2 = National accounting standards are not used for preparing the statement

## **RESULTS**

A relatively high percentage (nearly 38%) of the entities under analysis do not publish notes to their financial statements presenting information about the recognition, classification and reporting of their assets. According to the law AA (2019) only the annual financial statements of micro-entities may consist of abridged balance sheets and income statements. However, only 62% of the organizations that have not published notes are micro- entities, 22% are small, 9% are medium-sized and 7% are large. It is noteworthy that despite the legislative possibility not to publish notes to their statements, 43% of micro-entities voluntarily disclose

such. About 13% of the 88 enterprises that publish notes to their financial statements disclose R&D accounting information. Around 15% of the enterprises report figures for research assets in the balance sheet, but only 57% of them disclose significant accounting policies for R&D. 2% of the organizations under review publish reports showing accounted R&D expenses without providing textual information about them. In addition, nearly 23% of entities, which financial statements are subject to an independent financial audit, and nearly 26% of those in which capital there are foreign shareholders do not publish textual notes.

In terms of applicable accounting standards, 72.7% of the entities under review apply NAS and 27.3% - IAS. None of the entities that disclose R&D data is a subject to a legislative requirement to prepare their financial statements based on the International accounting standards (AA, 2019). In this respect, the choice of IAS is on a voluntary basis that can be linked to attract foreign investors. Based on the analyzes of the collected data, the chi square value is 10.278, with a level of significance  $\alpha=0.05$  and degree of freedom  $n=2$ . These values confirm the existence of a weak statistical relationship (Cramer's V: 0.268,  $p<0.05$ ) between R&D disclosures in the financial statements of the analyzed entities and the applied by them accounting standards. Based on the collected data chi square value is 6.069, and with two degree of freedom, this statistic provides evidence of a weak (Cramer's V: 0.206,  $p<0.05$ ) relationship at the 0.05 level of significance between the foreign shareholders participation in the equity of enterprises and the disclosed significant R&D accounting policies. Furthermore there is an average statistical relationship between the applied accounting standards and the foreign equity shareholders (Cramer's V: 0.467,  $p<0.05$ ). In this respect, 10% of the enterprises disclosing R&D data under NAS and nearly 63% under IAS have foreign investments at their capital. The foregoing is explained by the possibility of a more reliable financial and economic comparison with other companies operating on the international market. When testing the third research hypothesis, the chi square value is calculated 16.318 and with two degree of freedom, this statistic again provides evidence of a relationship at the 0.05 level of significance. This gives us a reason to accept the existence of an average statistical relationship between the external audit control and the disclosures of R&D information (Cramer's V: 0.338,  $p<0.05$ ). This idea is also confirmed by the fact that 70% of the financial statements in which R&D data is disclosed under the NAS and 100% under IAS are audited. According to the Bulgarian Accounting Act there are four categories of entities, based on their size – micro, small, medium and large. The AA requirements are used for a size classification of the enterprises under review to be made. The collected data analysis provide evidence for a weak statistical relationship (Cramer's V: 0.230,  $p<0.05$ ) between the size of the entity and the R&D disclosure. Although in this case the null hypothesis is rejected (chi square value is 15.098, the degree of freedom is  $n=6$ , the level of significance is  $\alpha = 0.05$ ) not all conditions for the Chi square test application are fulfilled. This is a prerequisite for being skeptical when accepting such statistic relationship. It is noteworthy to mention that all large entities that report R&D figures in their financial statements publish textual data for them. The trend in micro-entities is similar. Only 70% of medium and large-sized entities, which report internally generated R&D assets, provide notes to their financial statements.

All entities, which use the international accounting standards, disclose the full mandatory R&D information required by IAS 38. Only 20% of the organizations that apply the national accounting standards disclose the full mandatory R&D data. For the other 80% there is a selective approach of disclosure the required by NAS information. Predominantly the published data is regarding the applied approach for initial measurement of internally generated intangible

assets and the applied approach for recognition the development costs as intangible assets. Regarding the voluntary disclosure the enterprises applying IAS publish more rich information in their financial statements which contains not only additional data regarding the R&D accounting policies but textual information with social and investment aspects see Table 1.

|  | <b>Entities applying NAS</b>   | <b>Entities applying IAS</b>   |
|--|--|--|
| <i>R&amp;D-relevant voluntary disclosure practices in the financial statements of the analyzed enterprises</i> | 1. Nearly 3% - provide more data on implemented research projects and the amortisation policy of the internally developed intangible assets.<br>2. Around 2% - disclose the subsequent measurement and the subsequent expenditures of R&D created asset. | 1. 75% - publish additional data on the recognition criteria of an internally generated intangible assets.<br>2. Around 35% - the activities that falls under the development phase.<br>3. Nearly 88% - provide more data on the initial measurement approach of R&D assets.<br>4. 38% - the measurement subsequent to acquisition, the approaches for accounting subsequent expenditures, the applied impairment and amortisation policies related to the asset.<br>5. 25% - publish information on their research projects, primary containing data on the project goals, expected outcomes and partners institutions.<br>6. Around 13% - disclose data regarding their research employees, the outputs of the performed R&D activities, expected future research investments and their source of funding. |

Source: author's research of 143 financial statements.

## DISCUSSIONS

The analyses of the financial statements give us a reason to confirm that Bulgarian enterprises, applying NAS disclose limited accounting information on their R&D activities (Petrova, 2014). However, the analysis of published financial statements is also indicative of lack of mandatory compared to voluntary disclosures. Around 83% of entities that publish data on R&D accounting approaches disclose additional information. Only 56% fully publish the mandatory by NAS 38 and IAS 38 data. This contradicts the idea of Teixeira da Silva et al. (2013) for equal level of disclosure of mandatory information by entities applying national or international accounting standards. Although, there is a weak statistical relationship between the applicable accounting standards and the published R&D data, that influence for the impossibility of reliable economic and financial R&D disclosure comparison. Explanation could be the lack of harmonization between international and national accounting standards, leading to incorrect methods for reporting R&D data in the statements.

The report confirms the results of previous studies, that the disclosures are affected by the type and shareholder structure, and the external auditor (Ponce et al., 2016; Teixeira da Silva et al., 2013; Barako et al., 2006; Wallace et al., 1994). Even though it is believed that foreign investors seek for more reliable financial and economic comparison, there are innovative enterprises having foreign stakeholders that do not published textual notes to their statements.

The reported average statistic relationship between the textual disclosure and the external auditor does not as well explain the Bulgarian practice of publishing incomplete mandatory and voluntary R&D information. Due to its limitations, this paper does not study the impact on foreign investors & auditors attitude towards R&D data and disclosure. Based on "agent theory" the possibility that auditors and investors also influence the creation of "asymmetric information"

should not be neglected.

The data analyzes of innovative enterprises financial statements supports the idea that there is a relation between entity's size and the disclosed R&D information. However, the idea that large companies disclose more data (Bauwhede & Willekens, 2008; Jones & Higgins, 2006) is not fully supported because of the high level of R&D disclosure by micro-entities. This can be explained by the main goal of micro-entities to establish them on the market, but the present research cannot confirm or deny such hypothesis. The outcomes of the report raise the question: why Bulgarian innovative enterprises refrain from textual disclosures in their statements? The answer can be seek in further researches first, regarding the compilers' attitude and understanding of the nature and importance towards R&D. Second, at the level of added value of the disclosed accounting policies to the internal and external stakeholders.

## CONCLUSIONS

The results of this study show weak statistical relationship between the disclosed significant R&D accounting policies and the size of the company, the applicable accounting standards and the foreign shareholders participation in the equity. There is an average statistical relationship between the external audit control and the disclosures of R&D information. However, the focus of the government, accountants and auditors are on taxation and financial control by ignoring R&D disclosure as a factor that can have a positive impact on the country's innovation potential. This could negatively influence the level of R&D data disclosure in the financial statements of Bulgarian innovative entities, which apply the national accounting standards. The article's conclusions can be partly explained by the fact that Bulgarian enterprises do not develop high technological innovations but mainly incremental products and processes. In the context of current global technological development, not disclosing the mandatory R&D information by innovative enterprises may question the accuracy of the data reported in the financial statements. This could lead to bigger lack of foreign investments, which as noted, is essential part of the Bulgarian enterprises budgets for research and development.

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