THE IMPACT OF ACCRUAL ACCOUNTING ON PUBLIC SECTOR MANAGEMENT. AN EXPLORATORY STUDY FOR ROMANIA

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Abstract

This research is intended to supplement comparative national studies, which represent a challenge to accounting history for the last decades, explaining the Romanian public accounting practices in their local and time-specific context, taking into question the case of the entities owned by the government. In essence, the findings show the materialization of accrual accounting benefits for Romania as an emerging economy in terms of all independent variables used in the study: fixed assets, liabilities, revenues and costs. The article also analyzes the gradual evolution of finding the advantages of the Romanian accounting system's transition from a cash basis to an accrual basis in the two analyzed stages, the transition and post-reform periods. It proves thus the correlation between the pace of regulatory changes and their application in practice, indirectly confirming the orientation of the Romanian standard-setters towards IPSAS and accrual accounting. Moreover, this research is an argument for the importance of accounting and of the economic analysis, which the study can support through proper financial reporting.

Transylvanian Review of Administrative Sciences, No. 32 E/2011, pp. 74-97

1. Introduction

There is a an internationally acknowledged trend certified by the rich literature (Olson *et al.*, 2001; Sutcliffe, 2003; Deaconu *et al.*, 2009; Nistor *et al.*, 2009) regarding the shift in the orientation of accounting systems in public institutions from cash based accounts to accruals, the latter being considered more business style. International studies on public sector accounting clearly admit, mainly through qualitative or theoretical demonstrations, the primacy of accrual accounting in providing a transparent, clear and pertinent image regarding financial/non-financial performance of public institutions (Guthrie, 1998; Hodges and Mellett, 2003), increasing accountability (Gillibrand and Hilton, 1998; Perrin, 1998), improving transparency (van der Hoek, 2005; Yamamoto, 1999), and the capacity to fairly reflect the patrimony (Hodges and Mellett, 2003; Pallot, 2001). As public institutions become entrepreneurial entities an organizational, functional and procedural review is required by implementing a managerial system specific to the business sector. Accrual accounting is a component of a new concept entitled New Public Management – NPM (Aucoin, 1990; Hood, 1995), and, as some studies show, can sustain much better principles like: efficiency, effectiveness, transparency and accountability (Parker and Guthrie, 1990; Pallot, 1992, 1994; Mellett, 1997; Lapsley, 1999; Likierman, 2000; Lapsley and Oldfield, 2001; Lye *et al.*, 2005). On the other hand, some authors (Barton, 2009; Guthrie, 1998) question the compatibility between public sector and private sector characteristics concerning objectives, aim and sources of finance. Moreover, the same comparison between public and private sector when considering the implementation of accrual accounting shows that there are doubts over the effectiveness of accrual accounting in guaranteeing sound financial performance, as failures and scandals in the private sector testify (Guthrie and Johnson, 1994; Guthrie, 1998; Guthrie *et al.*, 1999).

Implementing a high performance management system implies direct public accountability (Coy and Pratt, 1998). There are different opinions concerning the advantages of accrual accounting for external users. Some authors (Steccolini and Anessi Pessina, 2003) empirically demonstrate the important role of cash based information narrowed to resources and consumption, to the great majority of external users. Other authors (Lye *et al.*, 2005; Micallef, 1994; Wong, 1998) consider that both internal and external users obtain advantages as a result of accrual based accounting, fundament of a high performance management system, based on clear objectives, good performance information, incentives and freedom to manage well.

Despite the limited empirical evidence of its usefulness for the public sector and the reservations expressed by academics, the adoption of accrual accounting is regarded nowadays, as Lapsley *et al.* (2009) commented, as self-evident. Considering this opinion, there are several studies that assert the primacy of accrual based accounting over cash based accounting as the reason why a large number of countries took on, or are in the process of implementing, accrual accounting principles in the public sector (Paulsson, 2006; Connoly and Hyndman, 2006).

Romania is classified as an emerging country which has started to implement accrual accounting in the public sector as a result of the decision made by the European Union Council at Helsinki in 1999 to start the negotiation process for Romania's accession to the EU in 2007. Thus, the efforts to accelerate economic, social and political convergence with the EU structures by aligning internal legislation to the acquis communautaire became indispensable. Dascălu *et al.* (2006) state that the process of Romania's accession to the European Union raised some problems for the professional accountants (problems of attitude, of reasoning, of ethics and of strategy). Often, emerging economies have too eagerly accepted this reorientation, from the cash based system to the accrual based system (Diamond, 2002), although it has become increasingly clear that the claimed benefits of introducing accrual accounting are not being realized in practice (Wynne, 2008). Dorotinsky (2008) states that these countries should be very well-informed, should accept international guidance, should know their national characteristics and economic limits. He also suggests that if governments in countries such as Australia, New Zeeland or the UK knew then what they know now, the move to accrual accounting may never have taken place.

Taking into account these controversies, the present study verifies empirically, through a quantitative and qualitative research, the theoretical aspects which suggest that accrual accounting leads to better financial management in the public sector (Evans, 1995). From a longitudinal perspective, which is essential in order to present the evolution in time of public accounting, the study aims to demonstrate the way in which the move from cash based accounting to accrual accounting resulted in a better organization and management of the activities in the public institutions, considering financial performance as the reference point. The research starts from the premise that this improvement is a necessary condition for the enhancement of public sector organizations accountability and performance in view of the key role held by accounting information in decision making in organizations (Pettersen, 2001). We believe that the findings of this paper will be significant due to the informational contribution provided on the effect of accrual accounting implementation in general. Furthermore, public authorities in emerging countries that are in the process of implementing accrual accounting are going to be able to base their decisions on the arguments brought by this study in favor of the important role played by the accrual system in implementing a high performance management.

The remainder of the paper is organized as follows: Section 2 presents the role of accrual accounting within the public sector reform in Romania based on a literature review; Section 3 presents the precise objectives of this research, the framework of the study and the applied methodology; Section 4 contains the application of tests based on economic analysis of empirical data gathered in a case study and the interpretation of the results; Section 5 presents the final points of view regarding accrual accounting benefits in the Romanian public sector and their evolution and occurrence between 2003 and 2009.

2. Accrual accounting – instrument of high performance management

2.1. Advantages and disadvantages of accrual accounting in the public sector

The controversies between cash accounting (hereafter C-A) and accrual accounting (hereafter A-A) as a possible base for a high performance management system, imply that the decision of choosing between one of them is both theoretically and practically advocated. Hoque and Hopper (1994) argue that the accounting system alone with no connection to tradition, culture, economic and political factors is not sufficient in order to reflect correctly the management system needs. This idea is also supported by Blöndal (2003) who acknowledges the importance of public sector accounting reforms along with other managerial reforms, so as to improve decision making in the government.

This is the reason why this study aims to identify the way in which the Romanian public accounting system has its share in increasing the quality of public management system, focusing on its impact over time, strongly connected to legislative change determined by the evolution of certain economic, political and social factors (Mueller, 1964; Nobes, 1984; Hofstede, 1980).

Accounting plays an essential role in assuring the substitution of resource management with result management (Biot-Paquerot and Rossignol, 2006), in providing accounting information useful for planning, decision making and controlling, and last but not least in providing information for users through the financial statements. Through the accounting techniques of performance measurement, the accounting system is present in public institutions in one of its basic forms: C-A and A-A. In the A-A basis income is reported in the fiscal period it is earned, regardless of when it is received, and expenses are deducted in the fiscal period they are incurred, whether they are paid or not. The C-A basis reports transactions only when cash is received or a payment is made.

The international literature mentions the advantages of A-A structured on two levels. The first level refers to increased capacity to provide correct and complete information on resources, debt and revenues, significant in order to improve communication with stakeholders, such as the community leadership and the general public (Wong, 1998; Tat Kei Ho and Ya Ni, 2005). The second level relates to the capacity to obtain full cost information, a critical element for improved organizational planning, controlling and accountability (Chan, 2003). Theoretically, the advantages of A-A usage for managers are: budgeting and allocation of financial resources, outsourcing decisions, service costs evaluation and internal accountability (Ball, 2004; Likierman, 2000).The disadvantages of moving from a C-A system to an A-A system refer to the possible connection between public institutions and economic entities. Performance measurement for an economic entity has at its core the notion of profit, which is irrelevant in the public sector realm where social objectives are pursued (Carnegie and West, 2003). Also, the ability of the decisions made by the management team is assessed by different criteria: if the first case implies the capacity to obtain profit, the second case aims

to reach social objectives (Mulgan, 2002). Apart from these conceptual uncertainties there are some suspicions related to the difficulty and costs of implementation (Jones, 1992; Christiaens and Van Peteghem, 2007), the possibility to recognize and valuate correctly the assets (Lapsley, 1986; Pallot, 1992) or the accountability. The term accountability is generally used to describe the responsibility that those who manage or control resources have towards other (Spathis and Ananiadis, 2004). Moreover, Monsen (2002) cited by Cohen *et al.* (2009) argues that cash accounting contributes to increased control of public money within the core budget-linked public administration and satisfies its information needs in relation to money management, budgetary control and current dues/actual control.

There are relatively few empirical studies to sustain or invalidate the advantages of A-A basis in assuring a high performance management system, specific to public entities. Their number is even lower for emerging countries. Besides, these studies have been conducted mainly in the United States or in the Western part of Europe (Tiron Tudor and Blidisel, 2007), thus the findings are not always representative for the Eastern European countries, having in mind the historical, economic and social characteristics. With regard to public entities (especially local governments), some support the idea that it is obvious that the expected benefits of A-A cannot be achieved (Cohen *at al.*, 2009), others criticize the tendency to reinterpret managerial innovations in a bureaucratic fashion (Anselmi, 2001), underlining the idea that implementing accrual basis in this sector in not useful or necessary (Steccolini, 2002). At the opposite pole, certain authors (Berman and Wang, 2000; Poister and Streib, 1999; Gray and Haslam, 1990) demonstrated the advantages of the accrual based system through the content analysis of the financial statements, both related to cost and efficiency, and also referring to benefits of the internal and external users.

2.2. The evolution of public accounting in Romania

In the case of Romania, the post-communist period represents the point where the accounting system moved towards the international reality (Calu, 2005). The finality of these transformations aimed to reach the level of the European accounting system, based on A-A, having as reference point the International Public Sector Accounting Standards (IPSAS). Historically speaking, IFAC – through the Public Sector Commission (PSC) – launched in 1996 a project for developing a set of accounting standards for public sector entities, known as IPSAS. After July 31, 1998 PSC issued 31 IPSAS standards related to IAS/IFRS, based on the accrual accounting model (IPSAS, 2010). For Romania, the adjustment of the public accounting system to the new accounting standards focused on adapting to the international trend in the field, complying with the EU pre- requirements and simplifying the procedures, increasing the level of productivity and mitigating operational costs. Of course, all these extensive transformations were attended by several legislative modifications which aimed to create the framework within which the characteristics and particularities of the new accounting system were to be found (Nistor *et al.*, 2009). We can mention as

intermediary outcomes the fact that in Romania the accounting requirements took on a large part the stipulations in IPSAS 1 Presentation of Financial Statements, IPSAS 2 Cash Flow Statements, IPSAS 12 Inventories, IPSAS 17 Property, Plant and Equipment and IPSAS 19 Provisions, Contingent Liabilities and Contingent Assets.

In order to understand better the extensive process of the Romanian public accounting system transformation we separated the process into three historical phases which we will describe hereinafter.

I. Phase 1 (2000 – 2002) – The Pre-reform (Post-communist) Period

The socialist period of the public accounting is the starting point, and, considering at least the theoretical and legislative bases, we cannot state that this period ended in 1989 (the year when the communist regime fell), as it continued until 2002; this timeframe was characterized by the C-A system. In this period, the public accounting system had a slow evolution with no influence at all from the global tendencies in the field. In what concerns the Romanian accounting system for economic entities we can state that it has been reformed according to the users' need for information and the requirements for harmonization with the European Directives and International Accounting Standards (IAS/IFRS). On the other hand, the public institutions continued to use the same chart of accounts developed in the socialist period, adopted in 1984 and slightly modified according to the requirements of that time.

II. Phase 2 (2003-2005) – The Transition Period

This period is characterized by the official start and end of the A-A system adoption, as the Ministry of Public Finance took upon itself the compulsory need to restructure budgetary accounting by supplementing cash based accounting (C-A) with A-A.

During 2003 and 2005 the Romanian standard-setters have tried to align the chart of accounts for public institutions to the already created framework for economic entities by using a set of regulation projects with the help of the external guidance offered by the British experts. The outcome was a success, as a chart of accounts with the same structure as the chart for economic entities was developed, having in addition a significant part of the budgetary field particularities (OMPF 1917/2005, applicable since January 1, 2006). The norms that go with the chart of the accounts include, in some cases even by word, concepts and definitions comprised in the IPSAS.

Within the same transition, there are at least the following transformations: revaluation of public institutions' assets; the correction of the carrying value of the public assets with the market value established according to the standards of the National Association of Romania Evaluators (ANEVAR); the impairment of public institutions' assets needed to reflect the physical depreciation and obsolescence; risk coverage/reversible depreciation of assets by recognizing provisions/value adjustments; recognition of debts at the moment the payment obligation occurs and receivables at the moment the budget allocation is recognized. However, we believe that the public accounting system moved away slowly from the socialist practice, it did not take into

account the global changes, it meets the needs of internal and external users at a very low level and it is not harmonized with the international standards in the field. The information in the financial statements (Balance sheet, Patrimonial results account) is disclosed in a completely different manner than the form specific to economic entities. This generated multiple difficulties both for practitioners and accounting information users.

III. Phase 3 (2006-2009) – The Post-reform Period

This is the period in which there are no more significant legislative changes and the effects of previous measures are more striking, by recognizing the Romanian public accounting system as an accrual based system. The main characteristic of the new accounting system can be summed up as follows: the harmonization between the chart of accounts for public institutions and the chart of accounts for economic entities with certain elaborated or maintained particularities; the disclosure of financial statements in a manner similar to the form specific to economic entities in what concerns the structure and the content; the income and expenses statement shows the financial performance of the public entity, both for its own requirements and for the need of other governmental institutions, suppliers, creditors, customers and other users; the result of the fiscal year is patrimonial, comprising unpaid engagements and debts; the valuation methods for assets and debts are similar to economic entities; the budgets are drawn up based on projects, thus there is the possibility to identify and keep track of funds in the budgetary system and to allocate funds based on results.

3. Research design

3.1. Research questions

The research questions of this study refer to whether or not the advantages of A-A compared to C-A stated in the literature can be found in practice (1), and to verify which of these advantages are proven (2). The main two arguments of the research questions are presented below.

- We believe that empirical testing of accrual accounting benefits has been insufficiently realized, knowing that there are few studies on this subject as we mentioned in section 2. Thus, this research can provide new information to bridge the determined gap.
- There is little empirical evidence regarding accrual accounting benefits, much less in the context of an emerging economy like the one of Romania.

A rich literature investigated the differences between accounting systems in general, focusing mainly on the geographical criterion and less on the type of economy (emerging or developed). For the latter criterion, which is of interest to us in the present study, it is worth mentioning the studies of Bailey (1995), Ionaşcu *et al.* (2007) and Gordon (2008). Considering all these in the context of the public sector, the functionality level of the economy, the cultural, political and social factors influence the public

accounting system inclusively, even though the public accounting system has its own characteristics, organizational, operational and efficiency related principles globally common, as this is supported also through the quasi generalized reform of this sector. This study will present the characteristics of implementing accrual accounting in an emerging economy, starting from the theoretical benefits allocated to it. We observe that we will be able to compare the actual benefits identified on other emerging or developed markets to a little extend because of the insufficient quantitative studies on this subject.

Moreover, accounting systems in general differ not only in space, between countries, but also in time, in a given national context. In the literature, different reporting is considered mainly in geographical context, through cross countries comparisons in a given period of time. However, there are some studies conducted on the temporal measure of accounting differentiation (Doupnik and Salter, 1993; Nobes, 1998). This research aims to conduct a temporal approach of the accounting system. All in all, the study interprets Romanian public accounting history in the context of moving from C-A to A-A, as a solution for the managerial reform and an outcome of the alignment to IPSAS. The study takes into account the temporal-historical measure regarding change in financial reporting in relation to a specific area and type of economy.

The study starts from the premise that the A-A benefits are revealed over time, as they manifest moderately at least at the beginning of the post-reform period. This is because even if the desire was to get as close as possible to accounting harmonization in the public sector, the process was slow and there have not been dramatic changes in the practice and old traditions. The research also presents the materialization of A-A benefits in the period that starts with the year 2003, when the accounting reform began. Within this period the study presents two phases, corresponding to two out of the three clear-cut phases previously described, namely the transition period, 2003-2005 and the post-reform period, 2005-2009.

3.2. The framework

The present study continues the research conducted by Deaconu *et al.* (2009), which aimed to identify and rank the benefits offered by A-A compared to C-A based on a literature review. Also, the previous research tested and validated the hypothesis according to which the public sector performance is highly brought forward by the shift between the two accounting systems. The cited study was based on the idea that the organization's performance – including the one of the public institutions – could be shown in the financial statements. This is the reason why the analysis was supported based on the format of financial statements required by the accounting regulations into force in Romania in the pre and post reform period. In comparison with the testing at the formal level done in the cited study, the present research is based on empirical information observed in the content of financial statements developed by Romanian public institutions between 2003 and 2009 and for the public administration sector.

Figure 1: Main benefits identified for accrual accounting concerning public institutions governance

Source: adapted from Deaconu *et al.* (2009)

Consistent with Deaconu *et al.* (2009), the main benefits of accrual accounting brought forward in the literature are shown in Figure 1. Figure 2 presents the conclusions of the study of Deaconu *et al.* (2009) concerning the comparative effect of financial reporting on public institutions performance. In the cited study, the analysis themes were evaluated by the scoring technique based on the number of the theme's citations in the literature. Those items are assumed and tested empirically in the present study.

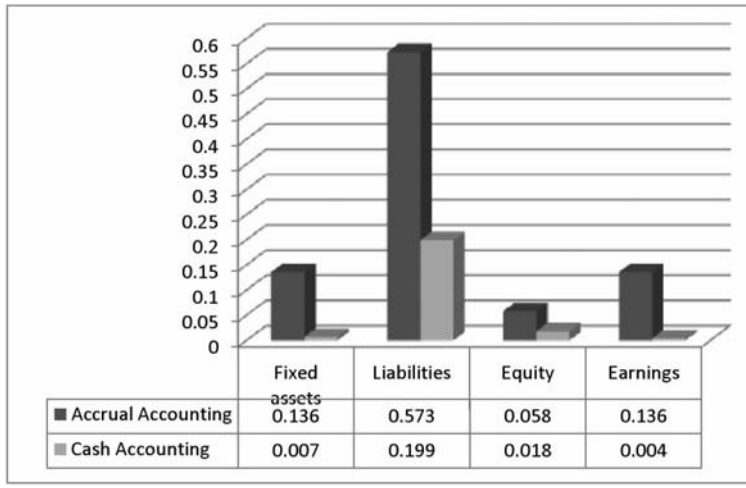

Figure 2: The effect of the main financial reporting elements on public institutions governance – comparative analysis of accrual versus cash accounting

Source: adapted from Deaconu *et al.* (2009)

3.3. Methodology

In this study, we examine the question if and which of the A-A advantages compared to C-A stated in the literature are materialized in practice. As we know so far, there are no established measures for quantifying the different benefits of the two accounting systems. We have chosen two performance measures and four independent variables of these two proxies. We believe that in this purpose a number of techniques can be used, such as techniques based on interviews, questionnaires or representative samples of entities with their financial statements. As we chose the quantitative variant and due to the lack of complete databases and the inconsistent manner of public entities financial statements disclosure on their own web sites we chose the field research and the multiple case study technique. The multiple case study design is a method described by several authors (Yin, 1984; Meredith, 1998; Dubois and Araujo, 2007). Our choice was based both on the constraint regarding data availability and on the investigative nature of the research. The use of multiple cases helps to add confidence to the findings and to increase reliability of the study, according to Miles and Huberman (1994) and Yin (1984). With respect to the research objective, the proposed methodology is adequate according to Eisenhardth (1989) who specifies as reason to apply such a method the situation in which little is known about a phenomenon or a theory, testing study suggests a need for a new perspective. The level of analysis conducted is that of the public institution.

The selection of the field and entities to be studied has been considered of theoretical interest, rather than statistical sampling logic. Thus, the A-A benefits in the Romanian public administration sector have been assessed, based on the fact that at present in Romania this sector is a frequent subject of public debate, as there are many people in favor of a more intensified institutional reform. We observed to what extend the move from C-A to A-A has improved performance in this sector in the past years. Our focus on a single public sector is justified in order to control cross-sector differences and extraneous variations as suggested by Eisenhardth (1989).

The main selection criterion of individual institutions part of the public administration sector to be analyzed was information availability, considering the period of 7 years that the study is taking into account. We also looked for comparability between entities, in order to eliminate the influence of factors related to differences between external characteristics such as size, geographical area correlated with the economic development area and with the characteristics of social or cultural factors that can affect public management policies. The public institutions under consideration are identified as A and B, due to confidentiality reasons. Their characteristics, judged relevant for demonstrating comparability, valid at the date of this study, are shown in Table 1.

Table 1: Descriptive information regarding the entities under analysis

Specific variables	Entity A	Entity B
Number of employees	564	310
Number of allocated inhabitants	317,953	170,000
Number of subordinate authorities	3	4
Number of subordinate services	3	6
Geographical area	N-V Transylvania	S-V Transylvania

The financial statements of the entities under analysis have been obtained directly or from the institution's web site as they are public records. The database was set up in lei, the Romanian monetary unit, at comparable values, by integrating the effects of inflation (according to the National Socio-Economic Statistical Institute), and the ones of monetary denomination (the ratio of RON 1/ ROL 10,000, into force starting with July 1, 2005 and regulated by the National Bank of Romania). The average exchange rate in the analyzed period was 3.722 lei/euro. This database is not presented in this paper.

4. Results of the analysis

In the first phase, a within-case analysis was conducted on the basis of the quantitative data collected from the financial situations of the A and B institutions, and some proxies were prepared, which reflected the effect of applying A-A. In the second phase, a cross-case analysis was performed.

The discussion is developed on three levels, rendered in Tables 2 to 4, using methods of overall economical and factorial analysis. Table 2 serves for the overall assessment of the independent variables, and Tables 3 and 4 help in assessing their influence on the public sector performance management. There are some elements of the financial statements that arise from Figure 2, for which the improved financial reporting (through their distinct reflection, differentiation on various criteria, by providing the permissiveness of connecting to fair values and by enabling the possibility of the realization of certain connections between the groups of the Balance Sheet and the Patrimonial Results Account) leads, according to views from the literature, to an increase in the performance of public entities, confirming the benefits of A-A and their superiority to C-A. We separate these elements in variables which reflect the performance (earnings, symbolized with E and equity, symbolized with Eq) and independent elements of performance, respectively (fixed assets, symbolized with FA, liabilities, symbolized with L, revenues, symbolized with R, and costs, symbolized with C, respectively). Depending on the type of analysis that we have used for each of the three levels, we used all or some of the independent variables.

Table 2 provides the possibility of interpreting the overall development of the independent variables and their impact on the proxies of performance. It presents the dynamic of the variables, expressed as a percentage of change. For an integrated understanding on the development of independent variables and of the events that mark the reform of the public accounting system in the period under analysis, 2003-

2009. Table 2 also presents a number of significant changes in accounting regulations, as they were interpreted and summarized in the study of Nistor *et al.* (2010).

Applying the cross-case analysis for the two periods under analysis, namely the transition period (2003-2005) and the post-reform period (2006-2009), we can state the following on the development of independent variables:

Table 2: Overall interpretations of the independent variables and their impact on performance proxies

	Transition period			*Post-reform period*			
	2003	2004	2005	2006	2007	2008	2009
Entity A							
Panel A[1]	2	3	4	9	-	-	-
Panel B[2]							
%E**	327	-100	853,46	-186	-91	63	-157
%Eq***	7,992	-6	3	27	2	39	2
Panel C[3]							
%FA	10,821*	-5	2	22	6	40*	3
%L	15	100*	4	15	82*	44	16
%R	39	17	41	47	11	27	-3
%C	38	17	33	61	13	22	0
Entity B							
Panel A[1]	2		3	4	9	-	-
Panel B[2]							
%E**	429	-37	-90	44,997	-238	9	-28
%Eq***	2,322	9	10	25	18	234	1
Panel C[3]							
%FA	3,361*	11	10	21	25	227*	3
%L	186	66*	12	-25	325*	57	57
%R	61	24	13	43	14	11	1
%C	58	25	15	-8	155	5	8

[1] number of changes in accounting system regulations; [2] performance proxies; [3] independent variables.

Notations stand for: E – earnings, Eq – equity, FA – fixed assets, L – liabilities, R – revenues, C – costs, and % (E, Eq, FA, L, R, C) – percentage of change for the mentioned variables.

*Significant influence of the independent variable.

**Earnings percentage of change (%E) is determined for the period 2003-2005 based on earning value obtained from the Budget execution account, namely the difference between incomes and expenses as earnings are not part of the Balance sheet in that period; for the period 2006-2009 when earnings are reflected both in the Budget execution account (which receives the name Patrimonial Results Account) and in the Balance sheet, (%E) is determined based on the value of earnings in the Balance sheet minus "working capital"; the working capital is a reserve recognized starting with 2007, based on a clear requirement, from earnings of the period and it is reflected as equity; we eliminated from earnings the value of working capital because we considered it a form of retained earnings while we are looking for gross earnings which reflect the performance of the period.

***Equity percentage of change is determined for the period 2007-2009 based on the value in the Balance sheet minus working capital.

Notes: The percentage of change is the ratio between the variations in absolute value from one year to another of each proxy and its value determined for the previous period. Values of the percents are rounded off to integers in order to ease observation. In order to avoid confounding results variables with negative denominators were used in absolute value (positive numbers).

a. Fixed Assets

The revaluation of fixed assets, required since 2003, which is also the peak year of this process throughout the period under review, and which is applicable until 2010, shows its influences on the fixed assets and by default on the equity, in the same year, and on the earnings of the next year, 2004, respectively. The recognition of fixed assets depreciation expense was also required since 2004, which was a premiere. The year 2003 is followed by a relative stagnation of annual investment. A new jump occurs after 2006 and continues until the peak in 2008, following new series of revaluations. The average upward trend from this second period is correlated with the development of equity, which shows that entities revaluate their fixed assets even in the post-reform period. For this reason, we cannot isolate the effect of this independent variable on performance here, although some of the influences may be the result of not only the revaluation operation and the increased carrying value induced upon the volume of the balance sheet, but also of the commencement of a more detailed reflection of fixed assets, as a dynamic, in the notes to the financial statements (since 2006), which could target better the public investment policy. Moreover, the fact that beyond the years in which the revaluations of various groups of fixed assets have been performed, 2003 and 2008, these assets have been growing in volume and value, in the case of both entities, through the fixed assets in execution and between these two temporal points, is not very visible. Thus, during the years 2005-2006, on the basis of public-private partnerships, public institutions have started to build houses or other buildings, which led to an increase in fixed assets in execution, especially at the time when the private funding was received. Furthermore, entity B has started the construction of local infrastructure and the operation of expropriation, which led to an increase in value of the assets (fixed assets in execution) and of the public fund.

b. Liabilities

A correlation between changes in earnings and liabilities, and in their cost, respectively, can be observed throughout the entire period 2003-2009, which increased in the second period, 2006-2009, when there is a justified fluctuation of debt and equity, other than earnings, to complete the financing structure. We tie the results to the fact that the year 2006 marks the highlighting of their debts after their maturity, more or less than one year and as such an increase in the attention riveted on them.

c. Revenues and costs

During the transition period, 2003-2005, there was no connection between revenues and costs, reflected in the Budget Execution Account, and earnings of the period reflected in the Balance Sheet. The reason was that the meanings of revenue and costs, which were seen as settlements (a type of claim or debt) which upon cashing, or payment, respectively, were reflected as incomes or expenses (e.g. the rent of its space by a public institution generates an increase in settlements with third parties – the receivable, after which the real cashing determines the appearance of the revenue). As such, revenues and costs were not identified separately, in the sense in which

they are identified in a pure A-A. The cash result was calculated as the difference between collected revenues and paid expenses. Only since 2006, they are depicted as such, explaining the evolution of the result of the period and providing a verifiable correlation between the two main financial situations of the public entities. In Table 2, this trend is better observed since 2007, year when the stabilization of public regulations occurred. Some differences still remain between the amount of earnings in the Patrimonial Results Account and the Balance Sheet, because of a so-called working capital constituted since 2007 as binding title at the surplus (profit) of the period, with direct impact on equity. Given that revenues and costs are included in earnings of the period, we cannot consider them independent variables of the latter, which is one of the proxies that indicate performance, and as such, we will adopt them to a lesser extent in the following factorial analyses.

In Table 3, data was tabulated in search for patterns of A-A's influence on performance, this being the suggested by earnings and equity. To observe the degree of influence of the fixed assets and liabilities independent variables on earnings and equity we analyzed the size of the percentage of change in each of the years of the transition period, namely the post-reform one and for each unit of analysis, respectively. We considered the influence as being significant when the percentage of change for an independent variable surpasses in a substantial manner those for other independent variable or other assets than fixed assets. Also, we have observed that the specific influence should be close, at the most, if not bigger than the percentage assigned to residual influences. We also found significant the case in which the percentage of residual influences was much higher than the percentage of the independent variables, in the context that the percentage of the other independent variable and other assets was 0. This reasoning was confirmed by the fact that we have obtained the same results for both proxies. The appeal to the two proxies used to reflect the entity's performance is justified by offering greater robustness to the findings and also to complete, by a comparison with a second proxy, the interpretation of those cases where there is a direct correlation between the independent variable and the analyzed proxy (e.g., fixed assets revaluation directly affects equity through the revaluation reserve which is recognized). The results are confirmed not only between the two proxies, but also between the two entities under consideration.

The cross-case analysis shows that the entities' performance was influenced in a significant manner, corresponding to the events that have marked the reform regarding the transition to A-A, and highlighted by us in section 2 through the following:

1. The transition period shows the influences of independent variables in the first years of reform, more specifically:

– In 2003, the starting year of the reform, the revaluated amount of fixed assets significantly influenced the performance of entities; if the influence on equity is direct and does not necessarily impact the efficiency of public management, positive influence on earnings of the new assessment method of fixed assets reflects the effects of the reform.

Table 3: Patterns of performance proxies' variation

	Transition period				*Post-reform period*		
	2003	2004	2005	2006	2007	2008	2009
Entity A							
Panel A[1]							
%E	327	(-) 100	853,466	(-)186	(-) 91	63	(-) 157
%FA/%E	3,314*	-5	0	12	6	64*	2
%L/%E	5	100*	0	8	-90*	70	-10
%OA**/%E	1	52	0	63	-8	31	-2
Residual influences***	-2,993	-47	-853,466	103	183	-102	167
Panel B[2]							
%Eq	7,992	(-) 6	3	27	2	39	2
%FA/%Eq	135*	-84	63	82	346	105*	182
%L%Eq	0	1,782*	116	58	4,977*	115*	961*
%OA/%Eq	0	936	1,196	441	-415	51	-196
Residual influences	7,857	-2,628	-1,372	-554	-4,906	-232	-945
Entity B							
Panel A[1]							
%E	429	(-) 37	(-) 90	44,997	(-) 238	9	(-) 28
%FA/%E	784*	29	12	0	11	2,446*	9
%L/%E	44	180*	14	0	137	614*	201*
%OA**/%E	2	26	-4	0	9	211	82
Residual influences***	-401	-198	68	-44,997	81	-3,263	-264
Panel B[2]							
%Eq	2,322	9	10	25	18	234	1
%FA/%Eq	145*	116	104	84	141	97	437
%L%Eq	8	718*	122	-101	1,802*	24	9,946*
%OA/%Eq	1	105	-39	521	114	8	4,081
Residual influences	2,168	-930	-177	-479	-2,039	105	-14,463

[1] *Earnings;* [2] *Equity;*

Notations stand for: E – earnings, FA – fixed assets, L – liabilities, OA – other assets that fixed assets, Eq – equity, and % (E, FA, L, OA) – percentage of change for mentioned variables, % (FA, L, OA)/%E – contribution of the percentage of change for different independent variables to the percentage of change of the performance proxy, E, and finally % (FA, L, OA)/%Eq – contribution of the percentage of change for different independent variable to the percentage of change of the performance proxy, Eq.

*Significant influence of the independent variable; **Other than fixed assets; ***Influences of other elements than independent variable and OA.

Notes: Percentage of change is the ratio between each proxy's variation from one year to another and its value is determined for the previous period. Since losses appear as negative numbers in our database, the absolute value (positive numbers) is used as base for the percentage calculations in order to avoid confounding results. These negative numbers are shown in brackets in the table on the rows referring to %E, and %Eq. Variables for which we determine the weight in %E and %Eq are kept negative or positive numbers showing the direction of their influence on earnings (which can be profit or loss) or on equity variation in the analyzed period. Other assets (OA), is shown on a distinct row, although it is not an independent variable but a residual variable, in order to render obvious the contribution of fixed assets (FA) to total assets. Values of the percents are rounded off to integers in order to ease observation.

– In 2004, a year which was still characterized by accounting reforms, liabilities are an independent variable with significant impact, in the sense of decrease, concomitantly on the entities' earnings (these being also influenced in the sense of decrease by fixed assets impairment operational from this year), and on the size of the equity (proxy which is much more useful than earnings in this interpretation).

2. In the post-reform period, the influences of independent variables occur annually, starting with 2007, after finding the effects of the changes in the legislation in 2006, as follows:

– Fixed assets show their influence in 2008, another peak year of revaluation, similar to 2003.
– Liabilities, shown mainly as a sum, cost and maturity, have an impact on the proxies in each year in the 2007-2009 periods, with moderate values observed in 2008, when there was a new revaluation of fixed assets.

Table 4 presents the results of the factorial analysis conducted through three economic models. They were obtained by applying factorial analysis and decomposition processes in representative factors. The model from which we started is the accounting correlation between the components of financial statements, namely $\Delta Eq = \Delta A - \Delta L$. Considering equity after deducting the earnings of the period, separating earnings in revenues and costs, and considering that the relationship between earnings and variation of the external resources for the period reflects the entity's performance we obtained the following models that will all be tested and interpreted in order to complete them as an information input, respectively to check the obtained results and found the conclusions:

Where:

Eq – equity, FA – fixed assets, OA – other assets than fixed assets,
L – liabilities, R – revenues, C – costs, ER – external resources

The interpretation of Table 4 is differentiated by the three panels that reflect the results of each of the three suggested economic models.

1. Panel A

$$\Delta Eq = \Delta FA + \Delta OA - \Delta L - R - C \quad (1) \qquad \frac{E}{\Delta ER} = \frac{\Delta Eq}{\Delta A} + \frac{\Delta L}{\Delta A} \quad (2)$$

$$\frac{E}{\Delta ER} = \frac{\Delta FA + \Delta OA}{\Delta ER} - 1 \quad (3)$$

The findings based on model (1) underline the importance of tracking the annual change in fixed assets (ΔFA), taking into account their prevailing impact compared to the impact of other assets and not only for the revaluation years, 2003 and 2008, impact which was also justified by their importance as fixed patrimony of public institutions. In the period 2003-2008, the influence of liabilities (ΔL) on earnings can

be observed, caused by the increased indebtedness, even though in 2008 this influence was offset by the revaluation, and in 2004 it was completed by the impairment expense which started to be observed beginning with this year. In 2003-2005, the evolution of revenues and costs taken from the Patrimonial Results Account, while their resultant was not presented in the Balance Sheet is not consistent with the equity variation. This link is only observable starting with the year 2006.

2. Panel B

The economic model (2) that reflects the choices regarding the financing structure of the public entities which is designed to cover the value of assets (ΔEq/ΔA, ΔL/ΔA) offers the possibility to track the logic of the indicators and of the determinant factors of the internal resources' evolution, compared to the external ones (E/ΔER). However, there are no identifiable correlations in Table 4 other than those from the post-reform period, 2006-2009.

3. Panel C

The type of finance influence of assets from external resources on the evolution of earnings, considered an internal financing resource, starts to be observed in 2005 for entity A and in 2006 for entity B (the last part of the transition period, and the first post-reform period). So far, according to the economic model (3), there is no correlation between the ratio of assets variation to external resources variation (ΔA/ΔER), and the ratio earnings to external resources variation (E/ΔER), which had an important increase, and then a significant decrease in 2003-2004, without this having to be reflected in the modification of the earnings of the period (zero variation of E/ΔER for the two years). On the other hand, between 2005 and 2009 there was an increase of assets (notably of fixed assets) which in accordance with the liabilities reduction had a positive impact on income in 2005 (for entity A) and 2006 (for entity B). A better effective solvency (since the relationship between assets variation and external resources variation (ΔA/ΔER), which includes equity variation (ΔEq+ΔL), cancels the concomitant effect of revaluation on assets and on equity, effect which was not materialized in cash and unrelated to solvency) has positively influenced the earnings. In the years 2006-2009 (entity B starting with 2007) the net solvency which was more reduced than in previous years due to increased debt, negatively influenced the result of the period, which became negative. In 2008, for both entities, the loss is reduced on the account of the increase in the coverage of the external resources from the value of assets, in the case of a rhythm of steadily increasing debt. Another cause is the revaluation made in 2008 which directly influenced the ratio earnings – external resources variation. For the entire period under analysis and for both entities, the influence of the share of assets in external resources on earnings is due primarily to the growth in fixed assets, in comparison to other assets.

Table 4: Factor analysis of the proxies' variation performance

	Transition period			*Post-reform period*			
	2003	2004	2005	2006	2007	2008	2009
Entity A							
Panel A[1]							
ΔEq	1,944	-110	61	511	40	953	57
ΔFA	1,949*	-92*	38	419*	132*	995*	105*
ΔOA**	1	22	25	106	-13	36	-7
(-) ΔL	5	40*	3	13	79*	78	41*
(-) R	189	220	311	457	506*	641*	623*
(+) C	188	20	293	472	535*	651*	650*
Panel B[2]							
E/ΔER***(%)	0	0	38	-3	-22	-1	-24
ΔEq/ΔA (%)	100	-158	95*	98	34	92*	58*
ΔL/ΔA (%)	0	58	5	3	67*	8	42*
Panel C[3]							
E/ΔER (%)	0	0	38	-3	-22	-1	-24
ΔA/ΔER (%)	100	-102	137*	29*	90	102	86*
ΔFA/ΔER %	100	-134	83	75	100	98	92
ΔOA/ΔER%	0	32	55	19	-10	4	-6
Entity B							
Panel A[1]							
ΔEq	528	51	61	163	149	2,274	19
ΔFA	536*	59*	64*	139*	207*	2,315*	83
ΔOA**	1	1	1	17	6	7	10
(-) ΔL	9	9	3	-7	64*	48*	75*
(-) R	117	144	164	234*	268*	297*	300*
(+) C	114	143	164	150*	383*	402*	434*
Panel B[2]							
E/ΔER***(%)	1	3	0	116	-28	-5	-109
ΔEq/ΔA (%)	98	84	95	104*	70*	98*	20
ΔL/ΔA (%)	2	16	5	-4	30*	2	80*
Panel C[3]							
E/ΔER (%)	1	3	0	116	-28	-5	-109
ΔA/ΔER (%)	101	98	97	216*	52*	101	76*
ΔFA/ΔER %	100	96	98	191	50	100	68
ΔOA/ΔER%	0	2	-1	24	2	0	8

Notations stand for: Eq – equity, FA – fixed assets, OA – other assets that fixed assets, L – liabilities, R – revenues, C – costs, ER – external resources, and Δ (Eq, FA, OA, L, ER) – variation in absolute value of the variables from one year to another.

* Significant influence of the independent variable; **Other than fixed assets; ***External resources means equity, other that earnings, plus liabilities

Notes: Values of the percents are rounded off to integers in order to ease observation. Values of indicators in Panel A are shown in millions lei, rounded off numbers, and the value of indicators in Panels B and C are shown in rounded off to integer percentages. In order to avoid confounding results variables with negative denominators were used in absolute value (positive numbers).

5. Conclusions

The results from the two cases which were analyzed are well aligned with the literature supporting the benefits of A-A versus C-A. The overall analysis of the independent variables' evolution reveals the development of fixed assets revaluation (the peak years, 2003 and 2008) and the direct effect on earnings of the period due to commencing the impairment procedure of these assets (in 2004). Global assessment did not allow the clear observation of other benefits of reflecting fixed assets (on components and as a dynamic), although some impact was shown in the interval between the two revaluation, this having to be completed by the factorial analysis. The global influence of liabilities is best observed, both as principal amount, as well as costs, through the highlighted correlations that exist between them and earnings evolution. The second period, starting with 2006, allows the observation of certain choices in the financing structure of the entity. Finally, the overall analysis of revenues and costs suggests the absence of any connection between revenues, costs (as they were reflected in the Budget Execution Account) and result, in its economic meaning, as part of equity, in the transition period. This is done only in the second period which reflects the beneficial influence of the coverage of the revenues and costs according to the full A-A.

The supposed patters of the proxies performance variation are confirmed through the factorial analysis. Thus, fixed assets and liabilities, considered as independent variables, show their influence on both the earnings and equity, in a chronology of events that have punctuated reform on the transition to A-A. It can be observed the impact of the fair value of fixed assets, and the influence of liabilities as amounts in principal, cost and tracking after maturity. From a temporal point of view, it can be seen that there is a direct correlation between fixed assets and equity, as a proxy of performance, throughout the whole 2003-2009 period. The impact of liabilities is evident since 2004 and continues until 2009. The informational contribution of revenues and costs is revealed in time, beginning with 2006, the year of completion of the application of regulatory changes and full compliance with A-A. Model (2) interpreted in Table 4 reinforces the historic importance of the year 2006, from which it can be analyzed the internal resources evolution compared to the external resources, and it can be explained the evolution of assets and liabilities. From model (3) of Table 4 we can discover, firstly, the independent variables' influence on the performance of the period, reflected through the ratio earnings to external resources variation, and, secondly, the gradual evolution of the visibility of this correlation (from 2005 and 2006, respectively). This shows the usefulness of applying A-A principles and concepts that enable economic analyses and interpretations, which are useful to an efficient management.

The present study is intended to supplement comparative national studies, which represent a challenge to accounting history for the last decades, explaining the Romanian public accounting practices in their local and time-specific context, taking into question the case of the public administration entities. In essence, the findings

show the materialization of accrual accounting benefits for Romania as an emerging economy and in terms of all independent variables used in the study, fixed assets, liabilities, revenues and costs. It also shows the gradual evolution of finding the advantages of the Romanian accounting system's transition from a cash basis to an accrual basis in the two analyzed stages, the transition and post-reform periods. It proves thus the correlation between the pace of regulatory changes and their application in practice, indirectly confirming the orientation of the Romanian standard-setters towards IPSAS and accrual accounting. Moreover, this research is an argument for the importance of accounting and of the economic analysis which the study can support through proper financial reporting. We tried to demonstrate the usefulness of accrual accounting through a quantitative approach and to add arguments for the trend which has been noted today, the increasing implication of accounting in the public sector management and guidance to governments who generally give more attention to the efficiency and effectiveness of public sector management.

The results of the study should be interpreted with caution, as empirical generalizations, because they are based on a small number of cases. A further research in the direction of testing the benefits of accrual accounting on a statistically representative sample of public entities and differentiated on sectors of activity would be desirable. Another possible limitation of the present research relies on the exploratory type of the study. It is possible for other researchers to make another selection and prioritization of the benefits of accrual accounting. Finally, changes in the performance of the analyzed institutions are also due to other factors whose influence may not be sufficiently isolated.

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