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# Budgetary Balances Adjustments From Governmental Accounting to National Accounts in EU Countries: Can Deficits Be Prone to Management?

SUSANA JORGE , MARIA ANTÓNIA JESUS, AND RAUL LAUREANO

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European Union (EU) countries are required to achieve deficit targets and are thus incentivized to use tools to keep within budgetary limits. This paper argues that accounting discretion might be used to manage some adjustments made during the translation of data from Governmental Accounting (GA) into National Accounts (NA), to window-dress the final deficit/surplus reported to EUROSTAT. The empirical research shows there are certain circumstances that might facilitate the use of GA–NA “adjustment discretion.” EU authorities must pay special attention to these conditions to ensure the reliability of reported deficits. The main findings of this paper could also assist in future efforts to improve the integrity of the adjustment process.

## INTRODUCTION

When reporting to EUROSTAT, particularly for the purpose of deficit assessment, European Union (EU) Member-States follow National Accounts (NA) rules, which are essentially the

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Susana Jorge is affiliated researcher at the Research Centre in Political Science (CICP), University of Minho, and Tenured Professor with Accreditation at the Faculty of Economics, University of Coimbra, Av. Dias da Silva, 165-3004-512 Coimbra, Portugal. She can be reached at [susjor@fe.uc.pt](mailto:susjor@fe.uc.pt).

Maria Antónia Jesus is tenured professor at the Accounting Department of ISCTE Business School, Instituto Universitário de Lisboa (ISCTE–IUL), BRU-IUL, Av. das Forças Armadas, 1649-026 Lisbon, Portugal. She is a researcher at the Business Research Unit (ISCTE-IUL). She can be reached at [antonia.jesus@iscte-iul.pt](mailto:antonia.jesus@iscte-iul.pt).

Raul M. S. Laureano is tenured professor at the Quantitative Methods Department for Management and Economics of ISCTE Business School, Instituto Universitário de Lisboa (ISCTE–IUL), BRU-IUL, Av. das Forças Armadas, 1649-026 Lisboa, Portugal. He is a researcher at the Business Research Unit and also at Information Sciences, Technologies and Architecture Research Center (ISCTE-IUL). He can be reached at [raul.laureano@iscte-iul.pt](mailto:raul.laureano@iscte-iul.pt). Grant sponsors: Portuguese Fundação para a Ciência e a Tecnologia and Portuguese Ministry of Education and Science; Grant numbers: UID/CPO/0758/2013; UID/GES/00315/2013.

requirements of the European System of National and Regional Accounts (ESA). However, the information reported is gathered from Governmental Accounting (GA), particularly from budgetary reporting. During this process, several adjustments are needed when translating data from GA into NA. Regarding the deficit/surplus, these adjustments relate to: the scope of the general government sector (GGS), the accounting basis (for most countries, GA budgetary balance is still cash-based, while NA budgetary balance, according to ESA, is accrual-based), financial and nonfinancial transactions included or not in the GA balance, and lending/borrowing operations with other entities linked to the Central Government.

These adjustments raise questions about the reliability of the final deficit/surplus reported within the Excessive Deficits Procedures (EDP) requirements, casting doubts on the accuracy and trustworthiness of NA data for assessing the Maastricht Treaty convergence criteria, and monitoring EU fiscal policy. These issues are enhanced by the fact that some categories of GA–NA adjustments might be prone to management.

In the last decades, GA reforms have mostly been concerned with moving from cash-based to accrual-based systems. One important discussion that has emerged from these reforms is the introduction of the accrual basis also in budgetary accounting. Most EU countries and the United States have adopted the accrual basis in GA financial reporting, but not in their budgetary systems, namely in what concerns budget preparation and reporting of budgetary performance (CBO 2006, 2018; Benito and Bastida 2009; Lüder and Jones 2003; Moretti 2016). Therefore, the distinction between budgetary and financial reporting systems is important. While the former are still connected to mixed cash/commitments accounting bases, financial reporting systems are mostly linked to modified or full accrual accounting, with different practices and degrees of implementation across countries (CBO 2018; Jorge, Jesus, and Laureano 2016; PwC 2014; Van der Hoek 2005). Consequently, the lack of harmonization is still a problem concerning GA systems, namely among EU Member-States.

On the other hand, NA is the first internationally-harmonized reporting system, aiming to calculate key aggregate indicators so that the entire national economy might be evaluated, including comparisons with other countries' aggregates (Bos 2008). EU Member-States are obliged to follow ESA when preparing their NA, primarily for the specific purpose of supporting

#### **APPLICATIONS FOR PRACTICE**

- “Adjustment discretion” between Governmental Accounting (GA) and the National Accounts (NA) may be used by European Union (EU) countries to reach the Maastricht Treaty deficit targets, compromising reporting reliability.
- EU authorities should pay special attention to the economic conditions—namely, economic growth, GDP percentage change to the previous year, economic crisis conjuncture, and accomplishment of the deficit limit in the previous year—that may represent important incentives to managing certain adjustment categories, encouraging discretionary accounting to window-dress the deficit/surplus ultimately reported to EUROSTAT.
- EU accounting policymakers should improve the integrity of the GA–NA adjustment process, reducing the adjustments made between the two systems and enforcing standardized procedures to convert cash-based (GA) into accrual-based (NA) data, avoiding maneuvering.
- A new accounting framework for the public sector under the EU context is needed, as pointed out by the European Public Sector Accounting Standards (EPSAS) project.

the European monetary policy, among others. This implies monitoring national aggregates such as Gross Domestic Product (GDP), public deficit and debt. ESA is, therefore, the harmonized conceptual framework for EU Member-States' NA, on the basis of which they calculate the ratios established in the Maastricht Treaty and required by the EDP protocol. These criteria are the fundament for assessing and monitoring the budgetary discipline of EU Member-States under the European Monetary Union (Benito and Bastida 2009).

In this context, one question that might be raised is whether the current GA systems in EU countries are able to meet ESA requirements. Accordingly, the relationship between GA and NA is important, especially as regards translating GGS data to NA. These data are obtained from GA systems that are not harmonized and present significant divergences to NA. These compatibility issues call into question the relevance, reliability, and comparability of the aggregates that sustain financial decisions of EU Member-States (Benito and Bastida 2009).

Framed by the earnings management approach, this paper analyzes the role of GA–NA adjustments as a way of managing the final budgetary balance (deficit/surplus) reported in NA to EUROSTAT by EU Member-States, for the purpose of deficit assessment.

Assuming that managing the final deficit is every country's aim and that they resort to any instrument at their disposal to demonstrate accomplishment of the budgetary balance target, this paper argues that accounting discretion to manage GA–NA adjustments might be used by countries to window-dress their final budgetary balances. Particular attention is paid to certain circumstances that occur in each country and each year that facilitate the management and reporting of GA–NA adjustments to present a desired final deficit/surplus.

The main research question this paper attempts to answer may be stated as follows:

Are there characteristics of each country that occur each year and that are especially related to economic conditions that, while determining the materiality of GA–NA adjustments, may encourage their management and ultimately the management of the final deficit/surplus reported in NA to EUROSTAT?

Accordingly, the empirical analysis, using data from EDP reporting regarding the central governments of all EU Member-States for 2007–2012, explores some situations (especially relating to economic conditions) that might constitute factors encouraging NA deficit/surplus management via GA–NA adjustments.

These economic circumstances relate to economic growth, the economic crisis period, being part of the Eurozone, achieving the Maastricht treaty convergence criteria<sup>1</sup> and the GA budgetary balance as a result of the budget accomplishment, to name a few.

While identifying GA–NA budgetary balances adjustments and discussing how their materiality might be affected, this research evidences circumstances that may foster the management of those adjustments. In doing so, it makes important academic and practical contributions.

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1. According to Article 104 of the Maastricht Treaty concerning budgetary discipline, convergence criteria relate to the public deficit and public debt limits. The former cannot exceed three percent of GDP, while the latter cannot exceed 60 percent of GDP.

It fills gaps in the literature regarding the understanding of which factors might affect the materiality of GA–NA deficit-related adjustments (especially of those more susceptible to management); these factors represent circumstances encouraging the use of accounting discretion. The literature shows that countries “cheat” when reporting their deficits (e.g., Brück and Stephan 2006; Milesi-Ferretti 2003) and that some political factors affect that cheating; but it does not address whether and how a country’s economic conditions affect the adjustments to the deficit reported. For practice, raising the issue of GA–NA budgetary balances adjustment discretion, the paper brings the attention of EU authorities to some adjustment categories that, in certain circumstances, may leave room for maneuvering, thus calling for particular scrutiny. Finally, this paper also offers some reflections for policy making, namely regarding bringing GA and NA systems closer together as an important process for improving the quality and reliability of reported data within the EDP.

The paper is henceforth organized as follows: “Earnings Management Framework” section introduces the theoretical approach used to frame the research question; “Governmental Accounting versus National Accounts: Adjustments in Budgetary Balances” section addresses the adjustments that occur when passing from GA (micro level) to NA (macro level), regarding the budgetary balances to be reported to EUROSTAT; “Empirical Analysis” section presents the empirical study, starting from the methodological issues and then presenting and discussing the main findings; finally, concluding remarks and research implications are presented in “Conclusion” section.

## **EARNINGS MANAGEMENT FRAMEWORK**

This research assumes that accounting discretion might be used to manage reported deficits by managing GA–NA budgetary balance adjustments, especially within certain adjustment categories.

At the country level, the budgetary balance might approximate to “earnings.” Therefore, literature on earnings management and on economic and political incentives to falsify financial statements to achieve specific stakeholders’ requirements (e.g., Anessi-Pessina and Steccolini 2009a, 2009b; Christensen and Mohr 1995; Eisner 1984; Petersen 2003; Stalebrink 2007; Stalebrink and Sacco 2007) was used to inform the conceptual framework of this study.

Within the framework of earnings management, accounting discretion has been widely analyzed in finance and accounting literature on the private or business sector context. However, studies on the public sector are still rare and mostly focused at the organizational level (Anessi-Pessina and Steccolini 2009a, 2009b; Christensen and Mohr 1995; Stalebrink 2007), although they are increasing, namely due to the approximation between business and public sector accounting (Pilcher and Van der Zahn 2010).

Both in the private and public sector, the main idea underlying this framework is that, at the organizational level, earnings management occur when decision-makers resort to some creativity by means of accounting discretion to manage/change the reported financial performance/position. Financial information is manipulated intending to convey a certain situation to

stakeholders (e.g., investors), namely to meet particular expectations. Managers and decision-makers might have incentive to report more favorable financial pictures of the organization (Cheng and Warfield 2005; Stalebrink and Sacco 2007).

However, this research focuses on a macro-level scenario. Therefore, it searches for factors that might constitute incentives to use some “accounting creativity” in order to report a more convenient deficit/surplus position in terms of EDP.

In the public sector, authors such as Eisner (1984) and Petersen (2003) referred to practices to measure, manage, and report budgetary deficits that, although within the U.S. context, are related to some of the GA–NA budgetary balances adjustment categories. Eisner (1984) mentioned, among others, off-budget items and credit extension, contingent expenditures, and investment assets not systematically accounted for. Petersen (2003) explained that deficit reductions tend to be achieved by practices other than raising taxes or reducing spending, such as changing the assumptions underlying the budget, altering the timing and recognition of various flows, or even redefining what constitutes revenue and expenditure. He also refers to techniques that contribute to an apparently balanced budget, such as: over-estimation of revenues, internal borrowing, asset sales, acceleration on revenues and delays in spending, and anticipated future savings. GA–NA deficit-related adjustments, regarding the recognition (or lack thereof) of certain operations, concepts of budgetary revenue/expenditure, and the accounting basis, all fit within the aforementioned “creative” practices.

In the field of economics, a few studies have also pointed to some creativity while reporting deficits in the context of the EU. Brück and Stephan (2006) proved that, since the adoption of the Stability and Growth Pact (SGP), Eurozone governments cheat in reporting their budget deficit forecasts, especially in periods prior to general elections. They conclude that “[t]he Pact creates incentives for governments to mislead their electorates about budget deficit forecasts” (p. 4). Milesi-Ferretti (2003) studied the effects of fiscal rules when the government has a margin for “creative accounting.” In her analysis, she highlighted that the numerical rules imposed by the SGP “may encourage the use of dubious accounting practices, thereby reducing the degree of transparency in the government budget. These concerns have gained strength with the use of “creative accounting” by a number of European countries in order to facilitate meeting the budget deficit ceiling established in the Maastricht treaty” (p. 378). These authors point to some issues concerning the fact that creativity might exist while reporting to the EUROSTAT, since if a country is included in the Eurozone, it must be committed to convergence deficit limits.

Furthermore, empirical reports, such as those of Koen and Van den Noord (2005) and Mora and Martins (2007), have explained some one-off measures taken by EU Member-States to fulfill the Maastricht criteria to join the Eurozone, or in the subsequent years to adhere to those criteria. The authors referred to operations such as privatizations, tax amnesties, pension fund acquisitions, and sales of third-generation mobile-phone (UMTS) licenses being used by Member-States to reduce their deficit figures for a specific period; these were decisions of a noncurrent nature, having an impact in only one or a few years, and not representative of better financial performance, but rather the use of fiscal discretion to achieve a concrete, momentary objective. The case of Portugal between 2002 and 2003, analyzed by Mora and Martins (2007), is a relevant example, where in a set of one-off measures such as those mentioned above

represented 1.4 percent of the GDP. The case of Greece is also very interesting, considering that this Member-State has used one-off measures to shape its deficit and debt data both to enter the Eurozone and after, to meet the European monetary union convergence criteria (Koen and Van den Noord 2005).

In the last few years, the political and economic debate, especially surrounding the context of crisis in some EU countries and the problems in meeting the SGP, has pointed to issues relating to certain economic circumstances that might be relevant to affect not only the category of GA–NA deficit-related adjustments to be made, but also their materiality. These circumstances may, therefore, encourage adjustment discretion and ultimately the management of the final deficit/surplus reported in NA.

The explanation above supports the reasoning behind using an earnings management approach for managing budgetary balances. However, no literature addressing the effects of a country’s economic conditions on that management was found. Moreover, no references to the particular effects of those conditions on GA–NA adjustments were found. Therefore, this is an innovative study, exploring a different perspective of the earnings management approach to analyze a specificity of the deficit reporting context of EU Member-States.

The next section briefly addresses the relationship between GA (micro perspective) and NA (macro perspective), explaining the budgetary deficit-related adjustments that are necessary to make when reporting from the former into the latter.

## **GOVERNMENTAL ACCOUNTING VERSUS NATIONAL ACCOUNTS: ADJUSTMENTS IN BUDGETARY BALANCES**

### *The GA–NA Relationship*

As explained, the Maastricht Treaty convergence criteria for EU Member-States are assessed on the basis of a harmonized reporting system of NA supported by the ESA. The ESA framework<sup>2</sup> offers guidance, tables, and procedures for countries to report to EUROSTAT, namely within the scope of the EDP. A full accruals basis of accounting is implicitly used for the recognition of most flows.

Nevertheless, public sector data reported to the convergence criteria are derived from (micro) GA systems (mostly budgetary reporting systems) drawn upon the rules in practice for each country. Despite all having some kind of accrual accounting, GA systems are not yet harmonized between countries, and in some cases, not even within each country. Additionally, in many countries, budgets and budgetary accounting are still cash-based (Blöndal 2003; Brusca and Montesinos 2014; Lüder and Jones 2003; Van der Hoek 2005).

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2. Regulation (EU) 549/2013 of the European Parliament and of the Council, of 21 May 2013—European System of National and Regional Accounts in the European Union. Published in the Official Journal of the European Union, L174, Vol.56, 26.06.2013.

Therefore, when reporting to EUROSTAT for the purpose of deficit assessment, countries start from the so-called “working balance” (deficit/surplus) in GA and make adjustments to obtain their final deficit/surplus in NA for convergence evaluation. These adjustments result from conceptual differences between the two accounting and reporting systems (GA and NA), including those related to accounting principles such as recognition criteria—cash versus accrual basis (Dasí, Montesinos, and Murgui 2013; Jesus and Jorge 2016; Jones 2003; Keuning and Tongeren 2004; Lüder 2000).

In spite of recent GA reform trends in EU Member-States, moving from cash to accruals (PwC 2014), differences still remain due to the coexistence, in some countries, of two different accounting bases in GA—accrual basis for financial accounting and cash basis for budgetary accounting. This is particularly relevant given that data transferred from GA to NA are based on budgetary reporting (Barton 2007; Van der Hoek 2005). Since in some countries (e.g., Spain and the UK) the GA working balance is already reported on an accrual basis, while in others it is still cash-based, the adjustments range from highly diverse and material, to a reduced number and of low magnitude (Jesus and Jorge 2015).

Authors such as Jones (2003) and Keuning and Tongeren (2004) and documental sources (e.g., IPSASB 2012) additionally identify other specific issues concerning differences between GA and NA that raise a need for adjustments when translating data from one system into the other. Particularly interesting are papers pointing out the materiality and diversity of those adjustments, questioning the reliability and comparability of the final deficits/surpluses reported by EU Member-States within the EDP (Jesus and Jorge 2014, 2015). They raise doubts about NA data accuracy and reliability to assess the Maastricht Treaty convergence criteria.

### *Deficit-Related Adjustments*

According to the inventories of sources and methods<sup>3</sup> disclosed by each EU Member-State (henceforth called inventories), the need to make deficit-related adjustments from GA data into NA arises essentially from conceptual differences between the two reporting frameworks. The main adjustment categories relate to: (i) cash-to-accrual adjustments and (ii) reclassification of some transactions (Jesus and Jorge 2014, 2015).

Regarding cash-to-accrual adjustments, derived from different recognition criteria, inventories describe the adjustments each country makes in order to transform cash-based data into accrual-based data, considering issues such as taxes, social contributions and other receivables, interest, and primary expenditure. In this matter, the analysis of the inventories allows to observe that the procedures are not harmonized between countries, both in terms of the issues adjusted and in the way the adjustments are done. As for adjustments related to the reclassification of some transactions, the procedures described in the inventories tend to be similar across countries and are typically related to: (i) capital injections in state-owned corporations; (ii) dividends paid to GGS entities; and (iii) military equipment expenditure and EU grants (Jesus and Jorge 2014, 2015).

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3. Available to all EU Member-States at <http://ec.europa.eu/Eurostat>



The quantitative impact of GA–NA deficit-related adjustments may be measured using data from the EDP reporting notifications each country submits to EUROSTAT twice a year. In those notifications, Table 2A provides data related to central government deficit/surplus reported by EU Member-States, listing the categories and amounts of adjustments to pass from the “working balance” of central government accounts (GA)<sup>4</sup> to the central government’s final deficit/surplus (NA).

Dasí, Montesinos, and Murgui (2013) explain that the “working balance” in GA must be adjusted for the net lending/borrowing in NA and that those adjustments can be classified into four categories, resulting from: (i) differences in the classification of transactions between financial and nonfinancial public entities; (ii) differences in time of recording, basis of recognition and time period; (iii) differences in the delimitation of the public sector; and (iv) other adjustments.

Following previous research (Jesus and Jorge 2015), this paper points out (see Table 1) that some of the adjustment categories are related to the conceptual differences already identified, whereas others are not.

Some of these adjustment categories are critical, in the sense that they might be conveniently managed, including resorting to one-off measures, especially if they prove to be material in relation to the GA “working balance,” hence having high impact on the NA deficit/surplus. Categories B (nonfinancial transactions not included in the “working balance”) and C (accounting basis adjustments) are good examples.

Regarding category B, some sporadic operations may not be reported under GA and, consequently, some discretion is possible when reporting in NA. For example, according to Koen and Van den Noord (2005), some nonfinancial transactions between the GGS and other entities, such as public-private partnerships (PPPs) and concession agreements, were sometimes not considered by Portugal, Spain, and the UK. In another example, Jesus and Jorge (2014) refer to warranties offered by governments to development funds and credit insurance companies.

In what concerns category C, using different recognition and measurement criteria may lead to lower final deficit or even a surplus. Regarding this adjustment category specifically, different countries make different adjustments according to each subcategory mentioned in Table 1—interest, taxes and other receivables, and payables (Jesus and Jorge 2015). Because of this, accounting basis adjustments represent a mean each country may use to manage its deficit/surplus in a specific year, deferring or anticipating the recognition of certain transactions (e.g., taxes or other accounts payable). An example of this type of operation is the fiscal debt securitization adopted by Portugal in 2003, representing 1.4 percent of the Portuguese GDP by anticipating tax revenues in that year; another case is the Portuguese Mail (CTT) pension fund transference of 2003,<sup>5</sup> which had a positive impact on that year’s deficit, but negative consequences on future deficits (Koen and Van den Noord 2005).

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4. This is the deficit/surplus resulting from budgetary execution, reported in cash basis in some countries and in accrual or mixed bases in others. The inventories show that a few countries display a mixed accounting basis, meaning they use cash in some transactions and accruals in others.

5. At the time, CTT was a state-owned company. While transferring the pension fund (receivables), the Portuguese government improved the final deficit in that year but also assumed the responsibility of paying the future pensions to CTT employees.

**TABLE 1**

**Deficit-Related Adjustment Categories and Conceptual Differences between GA and NA**

<b>Adjustment categories</b>	<b>Conceptual differences</b>
A. Financial transactions included in the “working balance”	Recognition criteria differences
B. Nonfinancial transactions not included in the “working balance”	Not related
C. Accounting basis adjustments	
C.1 Differences between interest paid and interest accrued	
C.2 Other accounts receivable (including taxes and social contributions)	Recognition criteria differences
C.3 Other accounts payable	
D. Balance (net borrowing or net lending) of other Central Government entities	Definition and scope of reporting entity under GA and NA
D.1 “Working balance” ( $\pm$ ) of entities not part of the Central Government	
D.2 Net borrowing (+) or lending (–) of other Central Government bodies	Preparation and disclosure of consolidated financial statements
E. Other adjustments (including reclassifications, dividends paid to GGS entities, military equipment expenditure and EU grants)	Relationship between government and government business enterprises and other reclassifications of specific transactions

Category A (financial transactions included in the “working balance”), although related to recognition criteria differences, does not seem to be susceptible to management, since it reflects financial transactions that are recognized on a cash basis in GA and must be converted into balance sheet stocks in NA. Consequently, the adjustment is technical and must be made and recognized by all countries that report the “working balance” on a cash basis. Adjustments in this category include operations such as financial or nonfinancial asset sales or acquisitions, which are considered in the GA “working balance,” but are not flows in NA.

Category D (balance of other central government entities), related to the delimitation of the GGS sector, is manageable in the sense that countries may or may not include some entities (e.g., reclassified entities—entities that were not part of the GGS sector but, because they present successive deficits financed by governments, must be included in its perimeter). The criteria for these reclassifications may be susceptible to management, so this adjustment category is also critical.

Category E (other adjustments) is also conceptually susceptible to management because it essentially concerns the reclassification of some transactions that countries might have not reported in a proper way. Examples of these include the reclassification of capital injections in state-owned companies—according to ESA rules, these transactions must be considered

financial transfers, thus affecting the deficit; when Member-States do not report in this way, the EUROSTAT requires adjustments to be made afterwards. Such operations were carried out in Portugal, France, and Germany in 2002–2003 (Koen and Van den Noord 2005). However, these reclassifications fall under high EUROSTAT scrutiny and room for maneuvering is increasingly limited.

The above discussion shows that the management of these adjustments demands further research, particularly in exploring circumstances that might possibly encourage deficit/surplus management, taking advantage of adjustment materiality and of accounting discretion.

To this end, an empirical analysis will be performed in the next section. The aforementioned theoretical framework, in the perspective used in this paper, does not allow for a theoretical foundation to preestablish hypotheses. Consequently, this paper takes an inductive approach to explore the relationships the data might show.

## EMPIRICAL ANALYSIS

### *Methodology*

*Sample and Data.* Central government data are used, gathered from both EDP reporting notifications (Table 2A from April 2012 and October 2013 notifications) and EUROSTAT statistics. The sample consists of all 27 EU Member-States at that date, from 2007 to 2012, in a total of 162 observations.

This period was selected for several reasons. First, it allows for a coherent comparison between adjustment categories—the way GA–NA adjustments are made and reported changed in 2005 and in 2013, making it difficult to harmonize and categorize adjustments had a larger period been considered. Then, it embraces ex-ante and ex-post economic crisis years (2009 is generally acknowledged as the striking year in Europe). Finally, it comprises the largest number of EU countries with the exception of Croatia, which entered the EU in 2013.

Regarding the dependent variable, it should represent the materiality (magnitude) of each adjustment category. Accordingly, the research uses eight dependent variables, taking into account the adjustment categories presented in Table 1. Given some specificities, categories C (accounting basis adjustments) and D (balance of other central government entities) were subdivided.

For each adjustment category, materiality was defined as its weight in the absolute value of the GA “working balance,” expressed as a percentage. For instance, for category A—financial transactions included in the “working balance”—the expression is:

$$\text{Materiality of Category } A_i = \frac{\text{Adjustment amount of Category } A_i}{|\text{GA Budgetary balance}_i|} \times 100 \quad (1)$$

As previously explained, the total amount of GA–NA adjustments results from transactions not yet included in the GA balance, or those already included but using different criteria than in NA. An adjustment category (adjustment magnitude) is considered material if the discretion it provides is sufficiently large to allow a country to reach a desirable final deficit. Therefore, it measures the impact of the adjustment (regardless of the sign) in the final deficit/surplus. If a certain category is more material and more susceptible to being managed, countries have more incentive to use it for discretion (especially when certain economic circumstances occur). In the ratio, the adjustment amount is divided by the budgetary balance in GA (the so-called “working balance”), given that adjustments are added to or subtracted from that to “correct” it and obtain the final deficit/surplus in NA.

Table 2 reports the summary statistics for the materiality of each adjustment category. Negative values make the adjustment to contribute to a higher deficit or a lower surplus and positive values do the opposite.

Overall, there is large dispersion in materiality of all adjustment categories. Furthermore, the percentages of GA budgetary balance of certain adjustment categories in some years are largely higher (more than 100 percent) than the balance itself; for example, category C2 (accounting basis adjustments related to other accounts receivable, including taxes and social contributions) shows a minimum of –1,697 percent (negatively impacting the balance reported in NA), and category E (other adjustments) shows a maximum of 923 percent (positively impacting the balance reported in NA).

As previously explained, this empirical analysis is exploratory. Although the theoretical framework, as it is used in this research, does not allow for the derivation of hypotheses, it points to the choice of variables related to factors that have been mentioned by some authors within the earnings and budget management framework. Some of these issues have also generally been at the center of the political and economic debate as possible issues affecting EU countries’ deficits/surpluses as reported to meet the SGP.

**TABLE 2**  
**Summary Statistics for the Adjustment Materiality (in Percent)—Dependent Variables**

Adjustment category	Standard		Percentile			Percentile	
	Mean	deviation	Minimum	25	Median	75	Maximum
A	–10.06	123.34	–1,411.41	–2.04	0.00	9.36	187.58
B	–8.14	25.90	–161.82	–2.25	0.00	0.00	64.28
C1	1.38	40.55	–77.93	–3.94	–0.49	0.44	488.69
C2	–8.51	147.41	–1,696.97	–1.21	2.09	10.87	278.18
C3	–13.48	58.96	–639.39	–7.79	–0.87	0.64	64.05
D1	–1.44	26.72	–326.68	0.00	0.00	0.00	53.85
D2	–4.92	50.86	–223.45	–6.81	0.00	3.01	380.30
E	–5.95	108.04	–766.78	–10.25	–1.29	0.22	922.62

*Note:* 162 observations. Values are expressed as percentages.

Accordingly, the research uses two dimensions of explanatory variables:

1. Economic conditions variables:

- Economic growth, represented by the sign of the GDP percent change to previous year (1—growth/0—recession).
- Percent of GDP change to previous year, intending to analyze the effect of the magnitude of the variation of GDP.
- GA budgetary balance (deficit/surplus) over GDP (percent), as a result of the budget accomplishment.
- NA budgetary balance (final deficit/surplus) over GDP (percent), in the previous year.
- The economic crisis period, considered to affect the EU context, especially after 2008 (1—2009 or after/0—otherwise).
- The accomplishment, in the previous year, of the deficit limit of the Maastricht Treaty criteria (1—yes/0—no).
- Eurozone—the country belongs to euro area (1—yes/0—no).

2. Control variables:

- GA accounting basis (cash, accrual or mixed, defined as *dummy* variables).
- Country size (natural logarithm of the population).
- Country wealth (natural logarithm of the GDP per capita).

In what regards the GA accounting basis in particular, previous research has already indicated that it is an important factor explaining GA–NA adjustment diversity and materiality (Jesus and Jorge 2015; Jorge, Jesus, and Laureano 2014).

Table 3 reports the summary statistics for each explanatory variable. The majority of the adjustments reported occurred in years and countries of economic growth (64.2 percent), with an average GDP growth of 0.66 percent, but with a deficit in the GA budgetary balance (representing 3.56 percent of the GDP, on average). Furthermore, a small majority of the adjustments was reported by Eurozone countries (58 percent) and by countries that had not accomplished the deficit criterion in the previous year (50.6 percent); this final deficit in NA was, on average, 3.34 percent of GDP, slightly above the established limit of three percent. Finally, the majority of the adjustments (69.1 percent) have happened in countries using a cash basis in GA reporting and in years of economic crisis, that is, from 2009 onwards (66.7 percent).

*Statistical Analysis and Models.* The statistical analysis seeks evidence that might associate variables regarding the economic conditions in a country in a certain year, with the GA–NA deficit-related adjustments.

Panel regression models for the materiality of each adjustment category were estimated. The general model is presented as:

$$Y_{it} = \alpha + \beta X'_{it} + u_{it} \quad (2)$$

Where  $Y$  is the dependent variable,  $X_i'$  is the vector of explanatory variables,  $\alpha$  and the vector  $\beta$  are the parameters to estimate, and  $u_{it}$  is the stochastic disturbance term. Moreover,  $i$  represents each of the 27 countries and  $t$  represents the time period (years 2007–2012).

The qualitative variables were introduced in the model as *dummy* variables, and the reference category for the accounting basis is cash (i.e., cash basis for all operations).

**TABLE 3**  
**Summary Statistics for the Explanatory Variables**

Explanatory variables	N°	%	M	SD	Min	Me	Max
Economic growth							
No	58	35.8					
Yes	104	64.2					
Crisis period							
No	54	33.3					
Yes	108	66.7					
Deficit accomplishment in previous year							
No	82	50.6					
Yes	80	49.4					
Euro area							
No	68	42.0					
Yes	94	58.0					
Accounting basis							
Accrual	12	7.4					
Cash	112	69.1					
Mixed	38	23.5					
GDP change to previous year (percent)			0.66	4.31	−17.70	1.20	10.50
GA budgetary balance/GDP (percent)			−3.56	3.76	−15.32	−3.19	6.27
NA budgetary balance/GDP (percent)			−3.34	4.54	−30.60	−3.10	5.30
LN (population)			15.89	1.44	12.91	16.05	18.23
LN (GDP per capita)			2.98	.65	1.40	3.05	4.40

Notes: 162 observations. M, mean; SD, standard deviation; Min, minimum; Me, median; Max, maximum.

Three estimation methods were used: Ordinary Least Squares (pooled OLS), Random Effects (RE), and Fixed Effects (FE) models. Moreover, an  $F$ -test (choice between an OLS model and a FE model), a Breusch–Pagan Lagrange multiplier test (choice between an OLS model and a RE model) and a Hausman test (choice between a FE and a RE model) were performed, allowing for a determination of which model best fit the purpose under analysis. In the majority of the regressions, the OLS is the preferred model (see bottom line of Table 4). In order to avoid possible misspecification problems, the regressions were run considering robust standard errors (Green 2002). In addition, the Variance Inflation Factors (VIF) for explanatory variables was also

**TABLE 4**  
**Results of the Regression Models for Adjustment Categories' Materiality**

Explanatory variables	Adjustment categories (dependent variables)									
	A	B	C1	C2	C3	D1	D2	D3	D4	E
	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)	Coefficient (Std. error)
Economic growth (1—Yes/0—No)	25.320 (21.526)	9.778* (5.602)	-0.236 (6.198)	-31.282 (25.493)	6.030 (9.959)	8.800 (8.515)	24.075** (10.186)	8.800 (8.515)	24.075** (10.186)	-3.841 (16.645)
GDP % change to previous year (percent)	(5.520)	(0.880)	(1.916)	(2.771)	(1.180)	(1.618)	(1.151)	(1.618)	(1.151)	(3.889)
GA budgetary balance/GDP (percent)	(1.630)	(0.287)	(0.468)	(4.226)	(1.555)	(0.300)	(1.005)	(0.300)	(1.005)	(2.794)
Crisis period (1—Yes/0—No)	(51.027)	(3.795)	(17.424)	(56.132)	(20.301)	(2.063)	(13.764)	(2.063)	(13.764)	(40.109)
NA budgetary balance/GDP (percent) in previous year	(1.792)	(0.384)	(0.528)	(0.988)	(0.599)	(0.247)	(1.032)	(0.247)	(1.032)	(1.343)
Deficit accomplishment in previous year (1—Yes/0—No)	(24.602)	(7.809)	(7.660)	(57.822)	(21.580)	(4.232)	(12.506)	(4.232)	(12.506)	(22.661)
Euro area (1—Yes/0—No)	56.551 (40.742)	-7.778 (8.110)	-14.463 (14.096)	25.331 (20.957)	1.314 (7.926)	0.543 (2.938)	-4.778 (12.412)	0.543 (2.938)	-4.778 (12.412)	-35.854 (29.468)
Accrual (1—Yes/0—No)	21.570 (31.380)	Omitted (collinearity)	(10.325)	(12.569)	(5.771)	(1.918)	(10.730)	(1.918)	(10.730)	(22.193)
Mixed (1—Yes/0—No)	37.795 (47.015)	4.164 (3.794)	-18.443 (15.565)	29.032 (29.404)	20.225* (10.816)	1.381 (2.287)	2.420 (16.196)	1.381 (2.287)	2.420 (16.196)	-37.943 (31.037)
LN (population)	2.799 (4.826)	168.992 (128.493)	2.247* (1.193)	8.576 (7.641)	5.822** (2.892)	0.431 (1.195)	5.458 (4.517)	0.431 (1.195)	5.458 (4.517)	-0.528 (3.280)
LN(GDP per capita)	(47.302)	15.528 (38.900)	16.035 (13.495)	99.625 (14.089)	10.681 (8.039)	2.727 (2.655)	-9.305 (11.113)	2.727 (2.655)	-9.305 (11.113)	40.602 (25.836)
Intercept	79.757 (156.483)	-2733.988 (2036.027)	-84.143* (48.646)	-72.074 (99.967)	-104.241** (41.584)	-17.650 (30.937)	-89.687 (61.020)	-17.650 (30.937)	-89.687 (61.020)	-157.026 (96.692)
R-squared (R <sup>2</sup> )	0.114	0.088	0.097	0.034	0.149	0.061	0.074	0.061	0.074	0.112
Panel data model	Pooled OLS	Fixed effects	Pooled OLS	Pooled OLS	Pooled OLS	Pooled OLS	Random effects	Pooled OLS	Random effects	Pooled OLS

Notes: Dependent variable is the materiality of the adjustments (percent). Total obs: 162. Robust standard errors are in parentheses. \*Significant at the 10 percent level. \*\*Significant at the five percent level. \*\*\*Significant at the one percent level.

computed; the highest value obtained for GDP percent change to previous year was 2.649 and the lowest one for GA budgetary balance/GDP was 1.108. These VIF values are very low and confirm the absence of linear dependence of the variables in Table 4, that is, absence of multicollinearity problems.

### *Findings and Discussion*

Table 4 displays the results of the eight regression models. The results reported concern only the appropriate model for each adjustment category.

Among the explanatory variables, just a few have a statistically significant impact on adjustment materiality (in bold in Table 4):

- Economic growth has a positive impact on categories B (nonfinancial transactions not included in the “working balance”) and D2 (balance of other central government entities, relating to net borrowing (+) or lending (–) of other central government bodies).
- GDP percent change to previous year has a negative impact on categories C3 (accounting basis adjustments regarding other accounts payable) and D2 (balance of other central government entities, relating to net borrowing (+) or lending (–) of other central government bodies).
- Crisis period has a positive impact on category E (other adjustments).
- Deficit accomplishment in previous year has a negative impact on category C3 (accounting basis adjustments regarding other accounts payable).
- The control variable mixed accounting basis has a positive impact on category C3 (accounting basis adjustments regarding other accounts payable).
- The control variable LN (Population) has a positive impact on categories C1 (accounting basis adjustments regarding interest paid and accrued) and C3 (accounting basis adjustments regarding other accounts payable).

As for the variables concerning economic growth/recession, the positive effect of economic growth on adjustment categories B and D2 might reflect an overall higher volume of those types of transactions. Nonfinancial transactions with other entities and borrowing/lending transactions between the central government and other bodies are likely to increase since there are generally more resources available; hence, more materiality of these adjustments. In these cases, countries might have more incentives to use accounting discretion for these adjustments to reach the targeted final balance in NA.

On the other hand, when analyzing the magnitude of the GDP variation, there is a negative effect of the GDP percent change to previous year on categories C3 and D2, meaning that the higher the growth rate (the more a country’s GDP grows or decreases less), the lower the adjustment materiality in these categories. Therefore, a higher growth rate would allow a country to achieve the deficit limit with a higher nominal deficit, without needing to perform material adjustments relating both to the accounting basis used to recognize other accounts payable and to borrowing/lending transactions between the central government and other bodies. Moreover, the economic crisis, considered from 2009 onwards, had a positive effect on the “other adjustments” (category E). The crisis forced EU



oversight authorities, namely EUROSTAT, to place greater scrutiny on Member-States' EDP reporting, often requiring corrections, which must be compulsorily included in this adjustment category. Although this is an adjustment category that is not directly manageable by each Member-State, it displays any previous manipulations.

As for deficit accomplishment in the previous year, this also affects the materiality of accounting basis adjustments relating to other accounts payable (category C3). If and when a country meets the deficit criteria in the previous year, there is lower materiality in this adjustment category, or vice versa. When the deficit target is accomplished in the previous year, countries may show less concern in the current year for postponing expenditure payments; that is, in these circumstances, they might be willing to pay in a shorter term, leading to more coincidence between obligations and payments and thus fewer accounting basis adjustments are needed. So, the circumstance of a country meeting the deficit limit in the previous year seems to lead to fewer incentives in the current year to use accounting discretion while making GA–NA adjustments in category C3, to window-dress the final deficit reported in NA.

Regarding the control variables, the accounting basis used in GA has a positive effect on the materiality of accounting basis adjustments relating to other accounts payable (category C3), meaning that the prevalence of a mixed accounting basis makes adjustment materiality in that category higher. The positive effects of country population, as a proxy for country size, mean that more populated countries have more materiality of accounting basis adjustments both relating to interest paid and accrued (category C1) and to other accounts payable (category C3).

The above discussion has attempted to offer some hints as to why certain economic conditions in countries might affect the materiality of some categories of GA–NA deficit-related adjustments, particularly of those that might be the most susceptible to being managed: nonfinancial transactions (category B), accounting basis adjustments (categories C1 and C3), and those relating to the scope of the GGS (category D2).

Therefore, there are indications that incentives might exist to increase or decrease adjustment amounts, especially in certain categories. Overall, this confirms the assumption within the earnings and budget management theoretical framework: accounting discretion, when used in these adjustment categories, is likely to have a significant impact on the final deficit reported in NA.

Finally, although some variables were not found to be statistically significant in this set, they may still be linked to the materiality of certain categories of adjustments, hence encouraging the use of discretion. For example, if the GA balance, as a result of the budget accomplishment, is faraway enough from the final deficit targeted in NA, countries might feel encouraged to manage the adjustments to achieve the target. However, if the gap is too large, countries may lack the ability to reach the target through adjustments, and therefore might not use accounting discretion. Countries might increase their use of accounting discretion only when it makes a difference between meeting the limits or not. Another example relates to the Eurozone: whether they belong to the Eurozone or not, countries might be equally compelled to meet deficit limits, either because they must meet the SGP criteria as Eurozone members or because they want to become members.

Both groups would therefore be incentivized to manage GA–NA deficit adjustments to reach their objectives.

## CONCLUSION

This research presents a quantitative study that explores, for the first time, the circumstances of a country, in a specific year, that might constitute incentives for EU governments to manage their final deficit/surplus in NA. This management is assumed to be done through the use of accounting discretion in GA–NA deficit-related adjustments.

Economic conditions identified as statistically significant might be important incentives to managing certain adjustment categories, subsequently encouraging accounting discretion to window-dress the deficit/surplus finally reported to EUROSTAT. They relate to: economic growth, GDP percent change to the previous year, economic crisis conjuncture, and deficit limit accomplishment in the previous year.

While affecting deficit-related GA–NA adjustment materiality, these circumstances become facilitators of increasing/decreasing their amount, indicating that adjustments are manageable. Therefore, countries' governments might seize these conditions and manage some transactions that have a greater effect on GA–NA adjustment materiality, namely nonfinancial transactions, other accounts payable and transactions related to other central government entities.

The fact that most of the explanatory variables were not statistically significant, across all adjustment categories, is a notable finding. Indeed, there does not appear to be a clear pattern across countries regarding which economic factors determine the materiality of the adjustments. Future research might enlighten this matter by, for instance, exploring new approaches to testing the data over longer periods. This research is an early attempt to provide a more rigorous quantitative understanding of the adjustments, and the study has the salutary effect of motivating other researchers to consider alternative statistical approaches.

This analysis also contributes toward highlighting issues that need to be addressed by policymakers. Nowadays, micro-national GA systems are changing to approach International Public Sector Accounting Standards (IPSASs); furthermore, a revised ESA has begun to be implemented. Consequently, it is important to understand that bringing GA and NA systems closer together must maximally reduce the aforementioned adjustments. This is particularly important for those whose materiality seems to be more affected by certain economic circumstances the country is undergoing (hence being more prone to management). It is only in this way that the window-dressing in the deficit finally reported might be reduced, assuring data reliability.

Accordingly, a future extension of this research could be to analyze the effects of ESA2010 on deficit-related GA–NA adjustments and their use as a means for accounting discretion and deficit management.

Although some work has been done to approximate GA and NA (IPSASB 2012, 2014), this paper points to the importance of putting into practice all the theoretical efforts that have ultimately been developed regarding convergence between GA (IPSASs) and NA (ESA), hence

reducing the adjustments required. If most countries still use cash-based (budgetary) reporting in GA while ESA requires accruals, and the definition and criteria for the reporting entity (especially at the level of the whole of government) differ in practice between the two systems, adjustments concerning the accounting basis and those related to transactions with other central government entities are likely to continue, as is, consequently, the deficit manipulation.

Assuming that all countries window-dress their ratios for the convergence criteria, stricter control is needed from oversight bodies, namely EUROSTAT. The “trust in Member-States’ honesty” is a strategy that is proven to have failed in recent years, leading to a serious crisis of reliability of GFS as a primary instrument for monitoring fiscal policy across the EU.

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