

Analysis of the Impact of Changes to International Financial Reporting Standards, on the National Accounts Dashboard

Valentin Burca¹, Robert Almasi²

Abstract: Along the last two decades, IASB has been entitled as the core accounting standard-setting institution. As result of its cooperation with FASB, within the international accounting convergence projects, there have been issued, either revised forms of existing financial reporting standards, or completely new standards, under the constraints of the international due process. All those changes affected in different forms and amplitudes the macroeconomic performance indicators, such as the gross domestic product. This study aims to raise discussion around the implications on GDP value of the recently issued IFRSs, from a qualitative point of view. This way, we provide some insights concerning the role of financial information quality on macroeconomic predictions, from an international framework analysis perspective. As a first step in our research, we try to understand the scheme of changes generated by modifications on IFRSs on the macroeconomic indicators, such as GDP, considering two examples.

Keywords: gross domestic product; international financial reporting standards; European System of Accounts; leases; depreciation

JEL Classification: E17; H68; M40; M41; O11

Introduction

The continuous process of global accounting convergence has been confirmed as a success, at least from the perspective that competing IASB and FASB efforts have led in the last decade to significant insights into the area of potential financial reporting quality improvements (Kothari et. al., 2010). Either we refer to due process political and cultural considerations (Ramanna, 2015), economic consequences of IFRS adoption (Bruggemann, 2011; Palea, 2013; De George et. al., 2016), or financial information quality (Soderstrom & Sun, 2007; De George et. al., 2016),

¹ West University of Timișoara, Romania, Address: Bd. V. Pârvan 4, Timișoara, Timiș 300223, Romania, E-mail: valentin.burca@eu.joysonsafety.com.

² Aurel Vlaicu University of Arad, Romania, Address: 77 Revoluției Blvd, 310130 Arad, Romania, P.O. BOX 2/158 AR, Corresponding author: robert.almasi@uav.ro.

IFRSs are considered high quality financial reporting standards, that can be translated into a global solution for financial reporting purposes.

However, as Nobes & Parker (2008) emphasized, the financial reporting system has to evolve in line with the economic system it serves. As currently we are witnesses to increasing economic uncertainty, the accounting system has to face any challenge that would deter its main purpose, to provide a true and fair view of the financial position and performance of each reporting entity.

On this direction, IASB has conducted visible efforts towards increasing financial information quality, by issuing new financial reporting standards and revising existing ones. By now, there are issued seventeen new standards (IFRSs), from which only four standards were not yet subject to amendments (IAS 2, IFRS 14, IFRS 16, IFRS 17). On the other side, existing standards (including the new issued standards) were subject for different revisions, implying changes in: recognition/derecognition criteria, classification considerations, measurement models aspects, or even on the area of conceptual considerations.

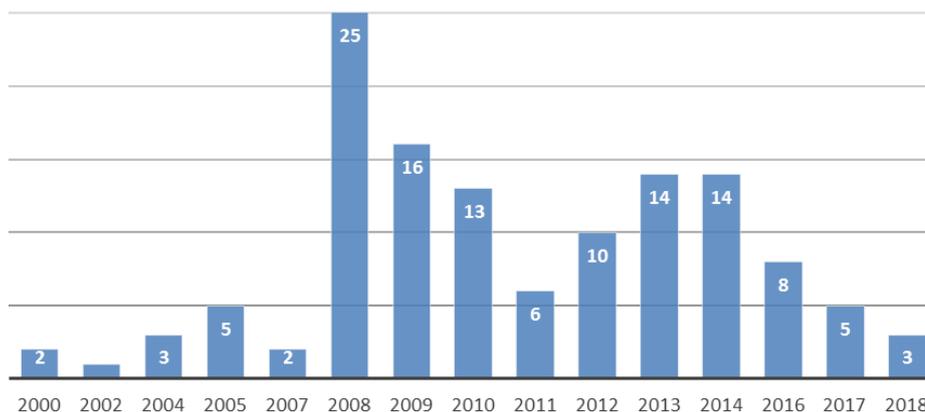


Figure 1. Count of Amendments to Existing Standards

Source: Own projection based on research on Deloitte website (www.iasplus.com)

We observe there is not constant standard-setting output, because of complexity on the standards proposed for amendments, like is the case of IAS 39, IFRS 7 and IFRS 9, which treat the financial instruments concerns.

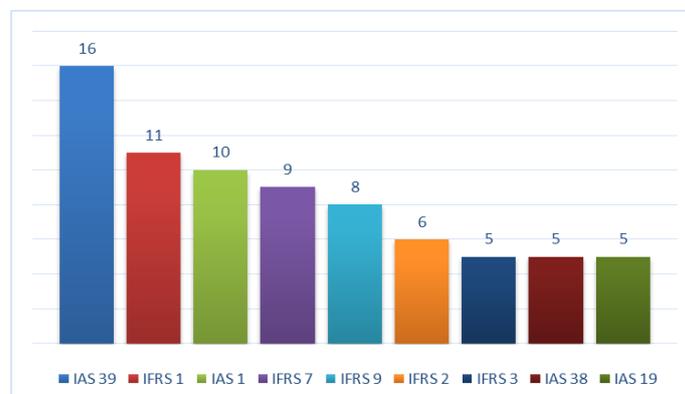


Figure 2. Standards with most amendments

Source: Own projection based on research on Deloitte website (www.iasplus.com)

Additionally, we observe a visible concern of IASB towards disclosure topics, seen not only on the revisions performed on the existing standards, but on projects included on the current Work Plan as well (e.g. Better Communication in Financial Reporting core project, that include two projects IASB pay special attention for the next few years, namely Primary Financial Statements and Principles of Disclosure), or on the recently revised standards (Burca, 2015).

Having this overall image presented, we consider a study analyzing the impact of those changes on the macroeconomic indicators is essential. Our rationale start from the basic point that Governments' policies are drawn-up against a consolidated budget. This consolidated budget use mainly financial information disclosed by reporting entities. How those changes affect the Gross Domestic Product? Is it accrual accounting relevant for the State, as it is for private financial entities? Are there any inconsistencies between entity-based financial information and aggregate macroeconomic financial information, in terms of recognition, classification, or measurement? Have IFRS adoption generated any significant changes on the GDP structure? Those questions are just some of a longer list that have not been answered yet, or at least have not been sufficiently debated, in the last decade.

We will try to emphasize some controversies concerning the relation between national accounts and entity-based financial statements, in order to understand if the aggregation process deter somehow the quality of the financial information, either because of technical inconsistencies between national accounting methodology and microeconomic accounting, because of the variation generated by different financial reporting framework, or just because of the heterogeneity of sector-based level practices.

Literature Review

As consequence of accounting convergence and regional accounting harmonization, there have been tested several hypothesis concerning the impact of IFRS adoption on the main macroeconomic indicators.

Cai & Wong (2010) have confirmed that, once with IFRS adoption, it has been reached a higher capital market integration. A single global accepted financial reporting framework has facilitated the cross-border movements of capital, through the institutional investors that followed short-term portfolio optimization strategies. The correlation between local capital markets indices proved to be higher in case of jurisdictions adopting IFRS, compared with countries that have not adopted the international financial reporting framework. The positive impact on capital markets integration is even higher between the highly developed EU capital markets, like Germany, U.K., France and Italy. This could emphasize the positive complementary effect of the EU accounting harmonization process, conducted by EFRAG. This way, the investment component from the GDP, could lead to an increase on GDP in case of efficient capital allocation. On those circumstances, the national accounting methodology should take out the effect of earnings manipulation practices, led by the balance of the capital markets incentives.

Beneish et. al. (2015) have confirmed an increase on international debt contracting, as IFRS provide more relevant financial used for usual contracting covenants. This translate into higher financial capital available for companies and government financing needs that potential allow economic growth, through an efficient investment policy. The GDP is affected, not only through the investment component, but the other components as well, like the consumption and the government purchases. In case of a competitive national economy, the debt investments could be allocated to productive production sectors that result into increase on export as well. However, there are voices that raise vivid discussion concerning the accuracy of economic relevance of the financial information used for debt covenants calculation. As underlined by Dechow & Schrand (2004), professionals tend to make use of real manipulation (manipulation on timing of transaction, e.g. lease-back, in-substance-defense) or artificial manipulation (manipulation on timing of disclosure, e.g. big-bath accounting, bill-and-hold transactions). If managers decide in one direction or another, it is clear the effect of those transactions on the financial information is transferred automatically on the national accounts as well, after the aggregation process.

Marquez-Ramos (2014) reveal the strong relation between the decision of countries to adopt IFRS and the increasing level of direct investments. If in case of debt contracting there is an explicit cost of capital, through foreign direct investments can be created new production facilities with no explicit cost of capital. Omitting the fact that strategic investors follow potential gains generated by economic regional

disparities, they prove a positive perception of the IFRS adoption. Investors observe lower costs of financial statements preparation, as financial reporting consolidation does not involve any more reconciliations cause by different individual financial reporting frameworks. With this, the cost of audit decrease as well. Nonetheless, investors perceive positively the due process of IASB, that involve a large range of stakeholders interested on accounting standard-setting, reason why IFRS are considered an output with higher quality than what national standard-setters could provide.

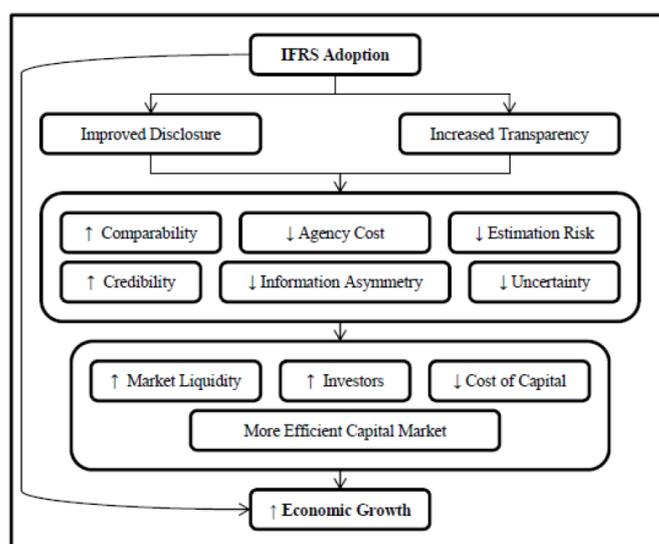


Figure 3. Impact of IFRS adoption on GDP dynamics

Source: Zaidi & Huerta (2014), IFRS Adoption and Enforcement as Antecedents of Economic Growth, p. 3, International Journal of Accounting and Financial Reporting

The capital markets integration proven by Cai & Wong (2010) has behind various factors. One of the factors amplifying this integration is the facilitation provided to the companies for international cross-listing. Through IFRS adoption, Chen et. al. (2015) confirm an increase on companies that have listed, not only the local capital markets, but on cross-border capital markets as well. This result is strongly related with the impact of implementing fair value for accounting valuation purpose. Moreover, those cross-listed entities expand their possibilities of financing, with lower international cost of capital.

IFRS adoption seem to bring benefits in the intensification of the trade relations as well, with high impact on the commercial balance, included on the GDP composition as well. Marquez-Ramos (2014) and Ramanna (2015) underlined the fact that countries having the similar accounting systems reach higher commercial relations. This would impact significantly the consumption, either we talk about households or

government purchases. The reason behind this conclusion is the fact information cost incurred by trade transactions, is reduced.

Another interesting macroeconomic IFRS adoption effect is the increase on international acquisition and mergers, as shown on Francis et. al. (2016) study. The reduction in information cost and the dynamics in the international strategic investment decisions have led to this result. Moreover, once a company acquires a cross-border company, managers realize the cost of future consolidated financial statements preparation will be lower as well.

Direct impact of IFRS adoption on economic growth was studied, as well. Vivian (2011), Zaidi & Huerta (2014), Ghajar & Saedi (2016), Ozcan (2016), or Park (2018), have conducted studies that revealed the positive causal relation between GDP and IFRS adoption dummy variable.

IFRS adoption seem to be positively perceived also within the financial institutions, like emphasized in ECB (2016) report. This report conclude the main benefit of IFRS adoption on the banking systems is the consolidation of financial stability. This is explainable, as the banks and investment funds have placed big part of the available financial capital into local and cross-border financial investments. From this point of view, the financial system get lower cost of financial statements preparation and certification. Also, they perceive international accounting standards are less probable to be frequently changed, compared with the local accounting standards. Nonetheless, they are part to the due process, thorough different professional associations.

Those studies consider in the econometric model only macroeconomic indicators. Some studies use the classical linear regression model, while others use dummy regression models (like Probit). In the end, the signs of the regression coefficients are the most relevant. However, all those studies have to be carefully analyzed, as there are additional factors conditioning the effects generated by the adoption of IFRS. Endorsement process could lead to significant differences between original IFRS and local adopted version of IFRS. The role of enforcement framework is also extremely important, influencing significantly the way capital markets incentives are balanced by enforcement costs (Barth & Israeli, 2013).

All the studies mentioned above reflect a clear connection between the economic system and the accounting system. The question is how the microeconomic financial information is transferred to the aggregate macroeconomic data. For instance, Zaidi & Huerta (2014) have analyzed the causal relation between a 3 years average GDP pre and post IFRS adoption, with a series of country-level factors (economic: level of development, foreign direct investment, or institutional factors: level of education, corruption, political stability, or EU membership quality). Nevertheless, this model just establish a relation between the decision to adopt IFRS and previously mentioned country-level factors.

Nothing is mentioned about the quality of the financial information disclosed by financial statements, information that led to the macroeconomic indicators and the economic growth itself, after aggregation process. Exception could be considered the studies of Konchitchki & Pataoukas (2014a), Gaertner et. al. (2015), Lechien (2017) or Nallareddy & Ogneva (2017).

Konchitchki & Pataoukas (2014a) reveal in their study that aggregated accounting earnings growth can predict future GDP growth, especially considering only one quarter ahead. Unfortunately, the authors underline the fact that the macroeconomic analysts are not able to incorporate complete information of accounting earnings growth, just information that is available in real time.

Gaertner et. al. (2015) designed their study in order to bring some insights about the accounting conservatism the macroeconomic forecasters exert. They confirm that negative aggregate accounting earnings predict future GDP growth, while positive aggregate accounting earnings do not. Similar to the prospect theory, the aggregate accounting timeliness take a leading place on the construction of a GDP growth forecasting model. Unfortunately, similar to Konchitchki & Pataoukas (2014), this study underline the fact that the macroeconomic analysts do not react sufficiently on the signals given by negative aggregate accounting earnings, attitude translated into the amplitude of GDP growth forecasts as well.

Similar conclusions, as in Konchitchki & Patatoukas (2014b), are emphasized by Leichen (2017), on the European Union economy. The study underline the fact that macroeconomic forecasters do not fully rely on available accounting information. The study focus on specific financial ratios, like ROE, Net Profit Margin, Asset Turnover, or Interest Burden that are related to GDP future growth forecasts. What is interesting is the fact that the study underline the role given by macro experts to the stock returns evolution on explaining future GDP growth, as an essential aggregate earnings measure modeled by capital markets behavior.

At last, but not the least, the study of Nallareddy & Ogneva (2017) focus on the problem of GDP forecast restatements. They suggest that actual GDP forecasting models do not fully incorporate all information available on the economy, because of limitations on methodology used and inaccurate sources of information considered. In their study, the authors underline the marginal positive effect on improving GDP growth estimates, especially through the value relevance of aggregate accounting earnings dispersion that reflect the dynamics encountered in the economy, in terms of capital and labor.

All those studies bring insights of how aggregate accounting earnings variations affect the GDP forecast accuracy. Along the time, the importance of the announcements on GDP forecast is proven essential, as it reflect partially the future expectation from various stakeholders, like investors, policy makers, analysts etc. The literature is currently limited, even there still are several questions to be

answered. How is the aggregation process adjusting the quality of the microeconomic financial information? Do the national accounts reflect the true and fair view of the national worth and the macroeconomic performances? Which are the mechanisms that generated, through IFRS implementation, the positive macroeconomic effects?

As most of the studies have analyzed the impact of initial IFRS adoption, we think there is needed a post-IFRS adoption analysis on a larger timeframe. Such analysis suppose, as a first step, the construction of the model of causality between microeconomic financial information, changes made to IFRS and the macroeconomic data, incorporated in indicators, such as Gross Domestic Product, Gross Value Added, Gross Fixed Capital Formation etc. Afterwards, there can be, more easily explained the causal relation modeled through various econometric models.

Methodology Research

Our study will be limited to the economic subjects of the Romanian national economy. Otherwise, we would get inconsistencies in the aggregation process of the microeconomic financial information. For instance, the private sector report their financial position and performance, using IAS/IFRS as financial reporting framework. On the other side, the public sector refer to IPSASs as financial reporting framework. Based on recent information disclosed by IPSASB (2018) on their regular progress report IPSAS-IFRS alignment dashboard, there are underlined differences between the two financial reporting framework. In order to analyze the marginal effects of each change on a financial reporting standard, we will start from ESA 2010 national accounts structure. The new SNA has been adopted on EU level on 2014, as a consequence of the EU Regulation 549/2013.

Table 1. Production Account of an Entity from Macroeconomic Perspective

Production Approach (1)	Expenditure Approach (2)	Income Approach (3)
+ Sum of values added at basic prices of all producers + Taxes on products - Subsidies on products	+ Final consumption expenditure + Gross fixed capital formation + Changes in inventories + Exports of goods & services - Imports of goods & services	+ Compensation of employees + Taxes on production and imports - Subsidies on production + Operating surplus / mixed income
= Gross domestic product (GDP) at market prices (I)		
- Consumption of fixed capital = Net domestic product		

Source: Eurostat (2014), *Essential SNA: Building the basics*, p. 74

Starting from this matrix, we will draw-up some practical examples from the total list of accounting treatment changes, in order to highlight the way GDP is impacted. In order to illustrate practical impact on GDP because of changes in financial reporting standards, we will choose three examples:

first example will illustrate the impact of a new standard, recently issued; for this we will analyze the impact IAS 17 Leases is superseded by IFRS 16 Leases, focusing on the main difference expected to generate high changes on the financial position of the entities; according to IFRS 16, operating lease transactions will be accounted same as financial leasing transactions; on our example, we will underline the effect of the off-balance sheet assets transferred to the financial position statement;

second example will illustrate the impact of a recent change on one already existing financial reporting standard, in order to emphasize the relevance of such changes on the dynamics of the key financial ratios of each entity affected; for this, we will analyze the impact on GDP of the amendment included on the Annual Improvements 2010–2012 cycle for IAS 16 and IAS 38, that forbids using depreciation method based on revenue.

Result and Discussions

The change on any financial reporting standard translate automatically into the macroeconomic indicators, with a significant impact or a lower one. This reality has been perceived by professionals in national accounting as well, through the converged efforts profile regional and international institutions have made to revise a global/regional acceptable system of national accounts (Bos, 2009). In spite of all those efforts, they are still inconsistencies between the value relevance of the microeconomic financial information and the aggregated macroeconomic data.

To illustrate this, we propose to make a short inventory of some of the well-known inconsistencies between the macroeconomic accounting system and the entity-level accounting system. Most of them refer to GDP weaknesses, as this macroeconomic indicator is widely used to measure the evolution of an economy (Fluerbaey & Blanchet, 2013), even they are enough voices that contradict its value relevance, proposing alternative economic growth measures:

GDP incorporate the accounting earnings, without any concern on the need to reflect the economic earnings (e.g. the depreciation method used to amortize a fixed asset, which is part of the gross fixed capital formation on the GDP composition, can impact the GDP by using linear method instead of production-based depreciation method); moreover, we remind earnings smoothing practices (real manipulation transactions, artificial manipulation transactions);

Inventory valuation adjustments affect GDP, especially in case of adjustments that do not imply any stock movements (e.g. obsolete inventory is adjusted on a regular basis, based on entity accounting policy, in order to reflect an estimated accounting value, even if there is no physical transaction involved);

Final consumption represents the sum of all production factors, excluding the corresponding indirect taxes and subsidies;

In case of regional trade operations, part of GDP is explained by tax rate or labor cost rate regional disparities, resulting into an increased artificial net value added (e.g. transfer pricing raises plenty of discussions and controversies of how those disparities should be shared through countries, as the market is extremely volatile, production processes are highly complex and there cannot be made a clear estimation on anything);

In the light of increasing role of accounting estimates in financial statements preparation, GDP is directly affected (e.g. impairment tests, fair value valuation, reserves estimations, basing on assumptions that later one cannot be verified anymore, because of missing historical data);

The valuation treatment of assets and liabilities might depend of the class they are included (e.g. the difference between assets accounted under IFRS 5, compared with the assets accounted under IAS 16, might differ just because of management intention of use of sale, leading to different valuation basis); moreover, we underline the difference generated on GDP by the assets generated internally, as they are to be recognized to the cost of production, compared to the acquired similar assets that are accounted to the equivalent of market price;

There are difficulties on incorporating some intangible assets into the GDP value (e.g. human capital expertise is hard to be measured); moreover, there has been (until ESA 2010 was implemented), an inconsistency concerning the development costs accounting treatment (on entity-level, the expenses incurred on the development phase can be capitalized on the asset value, while in national accounts they are recognized as expenses of the period).

Though those inconsistencies still persist, we have to underline some of the main changes brought together with the implementation of the ESA 2010 framework, as evidence there are efforts on regional and international level towards harmonization between business accounting system and national accounts framework (EU Commission, 2014):

expenditure on research and development is classified as investment, reason why is integrated in the gross fixed capital formation aggregate; it is important that we underline the fact there is still inconsistency with IAS 38, as expenditure in research cannot be capitalized; but, there is a positive change on GDP composition if we refer

to the expenditure on development, which is much higher than the research expenditure;

the value of goods sent abroad for processing will have no more an impact of the gross exports and imports, as there will be accounted only the processing service (without physical movements); this change will get more closer the ESA 2010 framework in terms of inventory, as prescribed by IAS 2;

an increase in disclosure requirements for pension schemes analysis is made.

Table 2. ESA 2010 Non-Financial Private Sector Aggregation Accounts

<i>Production Account</i>		
Allocations	Resources	
Consumption	Production	Production for trade purpose
<i>Gross Value Added</i>		+ Production for internal consumption
<i>Operations Account</i>		- Consumption
		= <i>Gross Value Added</i>
Wages	<i>Gross Value Added</i>	- Wages
Other taxes on production		- Other taxes on production
Subsidies on production		+ Subsidies on production
Gross Operating Surplus		= <i>Gross Operating Surplus</i>
Allocation of Primary Income account		- Interests (net)
Interests	<i>Gross Operational Excedent</i>	- Distributed revenues (net)
Distributed Income	Interests	- Other revenues of property (net)
Property Income	Distributed revenues	= <i>Primary Income</i>
<i>Primary Income</i>	<i>Property Income</i>	- Current taxes on income
Secondary distribution of income account		- Net social contributions
Current taxes on income	<i>Primary Income</i>	- Other current transfers (net)
Net social contributions	Social benefits	+ Social benefits
Other current transfers	Other current transfers	= <i>Gross Disposable Income</i>
<i>Gross Disposable Income</i>		- Social transfers
Redistribution of income		= <i>Gross Savings</i>
Social transfers	<i>Gross Disposable Income</i>	- Fixed Asset Capital Formation
<i>Gross Savings</i>		+ Δ Inventories
Use of Income account		- Acquisitions less disposals of valuables
Fixed Assets Capital Formation	<i>Gross Savings</i>	- Acquisitions less disposals of nonproduced assets
Δ Inventories	Net lending (transfers in capital received)	+ Net lending
Acquisitions less disposals of valuables		+ Net borrowing
Acquisitions less disposals of nonproduced assets	Net borrowing (transfers in capital paid)	= <i>Self-financing capacity</i>
<i>Self-financing capacity</i>		+ Δ Payables
Financial account		- Δ Receivables
Changes in assets	Changes in debts	= <i>Fixed Capital Formation</i>
Δ Receivables	<i>Self-financing capacity</i>	
<i>Fixed capital formation</i>	Δ Payables	

Source: Tabara (2008), *National Accounting. Concepts. Systems. Models*, p. 77, own revision, based on ESA 2010 adjustments

Generally, the macroeconomic indicators are affected, mainly by changes on accounting valuation models and techniques. For instance, the use of fair value, as

valuation basis for financial reporting purpose, has raised vivid discussion among the researchers, standard-setters and political factor, as some of them considered the use of fair value one of the leading factors of the global recent financial crisis (Laux & Leuz, 2010), while others considered it as an amplifier of the negative effects (Kothari & Lester, 2012). This discussion is actual even today, in spite of the effort made by IASB that has published IFRS 13. However, there remain numerous questions in terms of model valuation, as they are frequent cases that are subject to level 3 valuation data, meaning assets/liability valuation based mainly on estimations. This basis for valuation affect directly most of the components of the GDP, reason why it is extremely relevant to analyze the causal relation between those two.

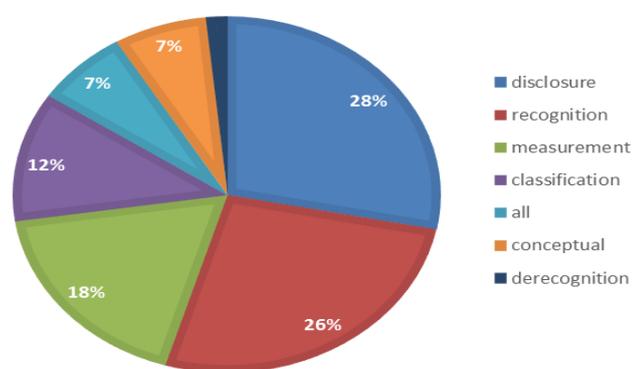


Figure 4. Types of Amendment on IASs/IRSS

Source: Own projection based on Deloitte website (www.iasplus.com)

However, classification differences between national accounts and microeconomic accounts exist as well. Conclusive example is the case that we will analyze on our study, concerning operating leases, which under IAS 17 were reported as a off-balance sheet elements, while under IFRS they are reported as financial leases.

In terms of recognition, we expect no significant differences are noted on our study, as the accounting principles used on microeconomic accounting are valid as well for macroeconomic accounting as well. The only impact on GDP, in terms of assets/liabilities recognition, is generated by the off-balance sheet elements, like the contingent liabilities and contingent assets, as defined on IAS 17 Provisions, Contingent Liabilities and Contingent Assets. However, there could come significant differences caused by the timing of the transactions, in terms of timing on assets/debts recognition, as between national accounts and microeconomic accounts there is a lag.

Nonetheless, changes on accounting standards, concerning disclosure requirements, do not affect directly the macroeconomic key figures, just give a better image of how

the microeconomic financial information is obtained. However, specialized institutions base their process of data collection, mainly on surveys and transfer of data from institutions engaged on collecting primary data. Hence, they do not focus on details revealed by additional disclosure requirements, as they want just an overall image of the economic national balance.

At last, but not the least, we consider the conceptual differences between national accounts and microeconomic accounts will persist, as long as the aggregation is not aligned with microeconomic financial statements objective. For instance, even if the materiality concept was recently defined more accurately, the aggregation process of the microeconomic financial figures make irrelevant, in most of the cases, the split of an element on the financial statement into specific structure.

Table 3. Count of Changes on Standard Level

Area of reporting	Standard	Description	No. changes
Assets reporting	IAS 16	Property, Plant and Equipment	4
	IAS 2	Inventories	0
	IAS 36	Impairment of Assets	3
	IAS 38	Intangible Assets	5
	IAS 40	Investment Property	3
	IAS 41	Agriculture	2
	IFRS 5	Non-current Assets Held for Sale and Discontinued Operations	3
	IFRS 6	Exploration for and Evaluation of Mineral Assets	0
Compensation reporting	IFRS 8	Operating Segments	2
	IAS 19	Employee Benefits	5
Consolidated reporting	IFRS 2	Share-based Payment	6
	IAS 24	Related Party Disclosures	2
	IFRS 10	Consolidated Financial Statements	4
	IFRS 11	Joint Arrangements	3
	IFRS 12	Disclosure of Interests in Other Entities	4
Fair value measurement	IFRS 3	Business Combinations	5
	IFRS 13	Fair Value Measurement	2
Financial Instrument reporting	IAS 32	Financial Instruments: Presentation	4
	IAS 39	Financial Instruments: Recognition and Measurement	16
	IFRS 17	Insurance Contracts	0
	IFRS 7	Financial Instrument: Disclosures	9
	IFRS 9	Financial Instruments	8
Financial Policy reporting	IAS 20	Accounting for Government Grants and Disclosure of Government Assistance	1

	IAS 23	Borrowing Costs	3
	IFRS 16	Leases	0
Reporting framework	IAS 1	Presentation of Financial Statements	10
	IAS 10	Events After the Reporting Period	0
	IAS 29	Financial Reporting in Hyperinflationary Economies	1
	IAS 33	Earnings Per Share	1
	IAS 34	Interim Financial Reporting	3
	IAS 7	Statement of Cash Flows	3
	IAS 8	Accounting Policies, Changes in Accounting Estimates and Errors	1
	IFRS 14	Regulatory Deferral Accounts	0
	IFRS 15	Revenue from Contracts with Costumers	1
	IAS 27	Separate Financial Statements	6
Tax reporting	IAS 12	Income Taxes	4
Transition guidance	IFRS 1	First-time Adoption of International Financial Reporting Standards	11

Source: Own projection, based on Deloitte website (www.iasplus.com)

In the light of recent studies, we underline the need of more studies that analyze how GDP and other macroeconomic indicators can be predicted based on microeconomic financial information. Studies like the ones of Konchitchki & Pataoukas (2014), Gaertner et. al. (2015), or Nallareddy & Ogneva (2017) reveal econometric models that check how microeconomic/aggregate earnings variation impact the GDP forecast accuracy. However, in order to understand the source of GDP forecast accuracy, it is essential for us to understand how microeconomic data is reflected on the GDP methodology of calculation.

It is obvious that the process of aggregation can affect financial information accuracy. This can be detected through gradual economic models construction, associated to each step of aggregation and considering different panels of data that enclose homogenous groups of data. This is way we believe, as a first step, we need to understand how any change on an accounting standard translate in the national accounts. For this, we will proceed with three illustrative examples, through which we will make the correlation between the microeconomic financial information and the main macroeconomic indicator.

Operational Leases recognition issue and impact on GDP

In order to illustrate such an example, we will refer to one of the main changes made once IFRS 16 has superseded IAS 171. This amendment ask the operational leases

¹ beside this change on leases accounting standard, there are enhancements on disclosure requirements, as well, in order higher financial information comparability to be ensured; in the end, especially in case

to be accounted same as financial leases. This means the entity will report higher total fixed assets value and proportional increase in long-term debts, as under IAS 17 those elements were reported as off-balance sheet elements. Those changes are integrated in the value of gross fixed capital formation national account.

Let's consider an example. On date 01.01.N, entity Trevis SRL is selling an industrial equipment to entity Vigos SRL, through an operational leasing contract, for an annual payment of 12,011 lei. The contract is signed for 6 years. The interest rate of the leasing contract is of 5.5%. Concerning entity's Trevis SRL financial position, we have available the following information:

Fixed assets	210.000
Current assets	180.000
Equity capital	120.000
Long-term debts	145.000
Short-term debts	125.000

The payments involved by this contract are similar with a long-term debt contract, with constant annual payments. The relation that give the value of the annual payment is $A = \frac{C \cdot d}{1 - (1+d)^{-n}}$, where A – annual payment, C – discounted value of the debt, d – interest rate and n – period of the debt contract. From this, we obtain the discount value of the debt to be reimbursed, given by relation $C = \frac{1 - (1+d)^{-n}}{d} \cdot A$.

In our case, entity Trevis SRL will pay along the operational leasing contract the sum of $C = \frac{1 - (1+0,055)^{-6}}{0,055} \cdot 12.011 \text{ lei} = 72.064 \text{ lei}$. Under IAS 17, this value was just disclosed on the notes to the financial statements. However, based on IFRS 16 requirements, this value has to be capitalized to PPE (Plant, Production, and Equipment) on the financial position statement, as shown in Table 4. Such a change on the financial position imply an increase on the leverage Trevis SRL is described by, increasing from a value of 1,21 to 1,71. This rate, used frequently as covenant by banks for debt contracting conditions, will increase and deteriorate entity's perspectives for better cost of debt contracting. But this change has to be analyzed in parallel with the change on the fixed assets value, which increase with the value of 72.064 lei.

of transnational corporations, together with IFRS 16, decision-making process in the area of optimal financing decision is improved, as a better and more qualitative tracking is possible;

Table 4. Annual Payments Generated by the Lease Contract

Year	Annual payment	Interest	Principal	Balance
N	-			60.000
	12.011	3.300	8.711	51.289
N+1	12.011	2.821	9.190	42.099
N+2	12.011	2.315	9.695	32.404
N+3	12.011	1.782	10.229	22.176
N+4	12.011	1.220	10.791	11.385
N+5	12.011	626	11.385	0
Total	72.064	12.064	60.000	

All those changes translate, automatically, into the national accounts as well. The value of the discounted debt payments will affect P.2 Intermediate Consumption national account, with an annual increase of 5.000 lei in total value. However, let's observe those payments are not included on the P.51g Gross Fixed Capital Formation account, like is the case of the acquisitions through financial leasing contracts. Hence, the treatment on the national accounts still follow the model drawn-up by IAS 17, in terms of recognizing an asset from operational leasing contract. That is why we have to underline the criteria of classification for assets and liabilities is essential.

Table 5. Trevis SRL Financial Position

Value reported	Under IAS 17	Under IFRS 16
Fixed assets	210.000	270.055
Current assets	180.000	180.000
Equity capital	120.000	120.000
Long-term debts	145.000	205.055
Short-term debts	125.000	125.000
Leverage rate	1,21	1,71

If we refer to the impact of GDP of operational leases, let consider for analysis the expenditures approach of GDP definition, as given on Table 1. We observe easily that the treatment of recording on the accounting an asset derived from an operational leasing contract does not affect GDP. But this is explained by the fact that GDP itself is an aggregate measure of flows in the economy. Instead, the stock accounts are affected as P.51g Gross Fixed Capital Formation national account has an increase with the sum of all discounted payments for this leased asset, namely 72.064 lei. On those circumstances, the rate of investment, determined by relation $R_i = \frac{\text{Self-financing capacity}}{\text{Gross Domestic Product}}$ will decrease, relating to the arithmetical model described on

The topic of economic earnings versus accounting earnings, underlining the negative effect of the accounting choice on economic value added reporting, represent one controversial aspect of IAS 16 and IAS 38 accounting standards. The difficulty raise from missing an accurate model that ensure proper correlation between the benefits obtained from using an asset and the corresponding expense with depreciation for a specific time period (IAS 16, par. 60).

On the Annual Improvements 2010–2012 cycle has been included an amendment to IAS 16 and IAS 38, that forbids using depreciation method based on revenue. In order to reflect the effects of such a choice, we will proceed to consider the previous problem, but with some additional information. Because of IFRS 16, the leaser has to consider depreciation expenses as well. Additional information is given about production volumes and market price evolution. Also, the entity reported on the annual report the information that production equipment family is described by an average 6 years economic lifetime. Instead, the sector the entity operate in announced statistics revealing an average of 4 years economic lifetime.

Table 5. Depreciation method and financial information value relevance

Year	Production on PBU	Price evolution	Turnover on PBU
N	12.000	1,30	15.600
N+1	14.000	1,50	21.000
N+2	20.000	1,60	32.000
N+3	18.000	1,65	29.700
N+4	14.000	1,65	23.100
N+5	10.000	1,60	16.000
Total	88.000		137.400

The calculation determined bellow reveal an essential conclusion, using income-based proportional depreciation method could deter financial reporting quality. The volumes that the equipment can produce are clear, from the specification catalogue, concerning maximum lifetime in terms of maximum units of production. In addition, the entity has under control the level of volumes that are planned to be produced with the equipment. Instead, the entity does not have complete control on product market price (only in case of monopoly), reason why the estimation generated using depreciation based on income patterns are described by higher variation (lower quality) on an yearly basis (higher coefficient of variation with approximately 4,46%). Moreover, in case of hyperinflation, the accounting treatment for depreciation expenses become even more complex and volatile.

Table 7. Implication of Income Patterns on Calculating Lease Asset Depreciation

Year	Annual depreciation (linear)	Asset value (net)	Annual depreciation (production based)	Asset value (net)	Annual depreciation (income based)	Asset value (net)
N		60.000		60.000		60.000
	10.000	50.000	8.182	51.818	6.812	53.188
N+1	10.000	40.000	9.545	42.273	9.170	44.017
N+2	10.000	30.000	13.636	28.636	13.974	30.044
N+3	10.000	20.000	12.273	16.364	12.969	17.074
N+4	10.000	10.000	9.545	6.818	10.087	6.987
N+5	10.000	0	6.818	0	6.987	0
Total	60000	-				
Variance in annual depreciation deflated with the asset initial value			25,39%		29,85%	

If we look on the national accounts, we realize that this amendment (rejected by IASB) does not have any impact on the consumption of fixed capital. Indeed, the depreciation method of fixed assets is quite different from the models used in business accounts. Consumption of fixed capital is estimated on the basis of the stock of fixed assets and the expected average economic life of the different categories of those goods (ESA, 2010). Gross Fixed Capital Formation account (P.51g) consist of Consumption of Fixed Capital account (P.51c) and Net Fixed Capital Formation account (P.51n). The national account of fixed capital consumption include the depreciation, but the disposals of damaged assets as well.

The depreciation of our equipment will be integrated on the aggregate account P.51c, meaning a decrease on depreciation will translate into an increase in GDP, according to the model reflected on Table 6. However, there is an inconsistency between the business account for depreciation and the national account for depreciation. The inconsistency is generated by the way the depreciation is calculated at macroeconomic level. Unfortunately, to calculate depreciation based on the stock of fixed assets and the expected average economic life of the assets, means we have to make an estimation that could incorporate the variance effect of a heterogeneity on a class of assets, for the economic lifetime. First, of all, this heterogeneity is led by entity-based specific activities. Secondly, there could be significant sector-based assets management practices, generated by different acquisition, use or maintenance of PPEs. Third, using survival analysis could help national accountants to improve depreciation measure quality, but only in case they are familiar with such data mining advanced techniques. Partial solution could be the assumption asked in ESA 2010 framework, the one that suppose assets depreciation is calculated mainly on the linear method of depreciation.

Let us consider the information that our entity has an equipment family with an average lifetime of 6 years, while the sector the entity operate in reported for similar equipment family an average lifetime of 4 years. As ESA 2010 framework assume

the depreciation is calculated using the linear method, we will consider the linear method, meaning a pro-rata of 16,67% for Trevis SRL equipment, while for the national account we will have to consider a pro-rata of 25%. This translate into a significantly higher depreciation reported on the national account, compared to the depreciation recognized on the business account.

Conclusions

The correlation between macroeconomic data and business accounts is essential for decision-making factors. Opportune and effective institutional strategies and policies can be drawn-up only if they base on accurate national balance sheet. Any adjustments within the aggregation process of business accounts has to be minimal. Otherwise, there will appear the risk the national budget will be, either overestimated or underestimated. The higher risk is even more serious in case of GDP overestimation.

In order to avoid this risk, there has to be made a reconciliation between the financial statements structure and the ESA 2010 framework, in order inconsistencies can be eliminated the inconsistencies. Only this way the microeconomic data could predict fairly the perspective of GDP, and consequently the economic growth potential. There have to be reduced the number of exceptions from general treatment prescribed by ESA 2010 framework. Both ESA 2010 framework and IFRSs have to be oriented, within the revision project, towards an improvement on reporting better economic value added information. Both pillars have to reconcile in terms of disclosure of information concerning sustainability reporting.

However, there remain questions without a clear prospective solution, like is the case of how business accounts standard-setters will start cooperating closer with national accounts standard-setters. Are they any perspectives on preparing a guideline containing a core set of tools that can ensure proper and effective controls on the quality of aggregate financial information? Is it a priority of IPSASB and IASB to reach a high degree of harmonization and which would be the timeline they consider to this objective? Is it possible a convergence of the Conceptual Framework for Financial Reporting issued by IASB with the framework derived from ESA 2010?

We invite for reflection as this area of study seem to be less important on researchers and professionals short to mid-term priorities.

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