EUROPEAN COMMISSION
EUROSTAT

Directorate C: National accounts, prices and key indicators
Task Force EPSAS

EPSAS WG 17/15
Luxembourg, 03 November 2017

EPSAS Working Group
To be held in Luxembourg

on 21-22 November 2017, starting at 09:30

<u>Item 7 of the Agenda</u>

Collection of additional and updated information related to the potential impacts of EPSAS

Report by EY on behalf of Eurostat
- for discussion

Service contract No. 02113.2015.005-2015.798

Task 2 – Findings on the long term benefits of EPSAS and public accounting harmonisation

Final report

November 2017

Building a better working world

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Background

1. This work is part of Eurostat's effort to assess the benefits of adopting harmonised accruals-based public sector accounting standards in the EU, namely the European Public Sector Accounting Standard (EPSAS). It aims at assessing, to the extent possible, the economic impacts associated with a move toward the adoption of accruals-based accounting standards in the European Union.

2. This report is provided in the context of two previous studies[1]. The 2012 study provided an overview of public sector accounting practices in the EU. It highlighted the broad diversity in public sector accounting approaches and standards across and within Member States (MSs) and the need for harmonisation. The 2014 study assessed the costs of implementing EPSAS for each MS. While doing so, it also laid down the foundation for the assessment of the long-term benefits of EPSAS for MSs.

3. This study is presented in the following sections:

    - **Part 1 – Update on the current state of play of public accounting systems.** This part provides an update of the current state of play of public sector accounting reform in selected MSs, since 2014.
    - **Part 2 – Qualitative analysis of EPSAS long term benefits.** This part describes the expected impacts of a move to harmonised accruals-based accounting standards as established by previous research. Qualitative insights were gathered from interviews with representatives of organisations and/or entities which have already moved to accrual accounting. It also draws on experts' views to highlight the factors influencing the transition to accruals-based accounting standards.
    - **Part 3 – Quantitative analysis of EPSAS long term benefits.** This part assesses existing data to propose a framework for quantifying long-term benefits associated with the implementation of EPSAS. Leveraging on this framework it characterises what impacts accruals-based harmonised public sector accounting standards could have on growth, investment expenditure (both public and private) and job creation. These quantitative results have been augmented with experts' views. Finally, using long-term benefits estimates, opportunity costs for not adopting EPSAS are estimated.
    - **Part 4 – Specific analysis of EPSAS impact on sovereign debt markets.** This part summarises the likely impact of EPSAS on the development of capital markets in the EU, and by extension the Capital Markets Union (CMU). It seeks to highlight how harmonised accounting standards could contribute to the development of capital markets, through an analysis of sovereign debt's "safe assets" role. This part is based on publicly-available information and experts' views.
    - **Part 5 – Specific analysis of EPSAS impact on democratic accountability and scrutiny.** This part, examines the link between public trust in institutions - a pre-condition for democracy to exist as a political system - and EPSAS.

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[1] "Overview and comparison of public accounting and auditing practices in the 27 EU Member States", EY, 2012, and "Collection of information related to the potential impact, including costs, of implementing accrual accounting in the public sector and technical analysis of the suitability of individual IPSAS standards", PwC, 2014

Part 1. Update on the current state of play of public accounting systems

4. This part reviews recent developments in public finance reforms[2] in 6 MSs, since 2014: Germany, Greece, Italy, Luxembourg, Malta, and The Netherlands.

1.1 Germany

Background

5. Public administration in Germany is subdivided into three levels of government: federal (central), state (regional) and municipalities (local). Mainly due to the federal structure, the framework used for governmental budgeting and accounting at all three levels of government differs. Whereas some local level governments (municipalities, cities and counties) were required by the respective state governments to implement accruals based accounting, the federal and the majority of state governments still use a cash based accounting system. However, due to the decentralised approach towards the implementation of accrual basis accounting there are variations in the accounting rules even between local level governments[3] and for this reason the reform process is not yet completed everywhere.

Changes since January 2014

6. Due to the diverging developments in governmental accounting in Germany and by aiming to capture a more complete picture on the progress regarding the implementation of the accrual basis accounting, Eurostat has selected four different contact points in Germany for collection and analysis of information for this study:

- Federal Ministry of Finance of Germany – representing the federal government level;
- Federal state of Bavaria – representing the state that is among the least mature states in the implementation of accrual accounting in Germany;
- Federal state of Hamburg – representing a leading state in the implementation of accrual accounting;
- Federal state of North Rhine-Westphalia - representing the state that has started to implementation process of accrual accounting the earliest.

Changes at federal government level

7. In June 2014 a new process for revenue and expenses review has been introduced in public federal government accounting system. A unit for Spending Reviews was created within the Federal Ministry of Finance carrying regular selective spending reviews for the federal level. The first round of reviews has started in July 2015 and it is planned to be completed in spring/summer of 2016. However, it is worth pointing out that the new process is not related to the implementation of accrual basis accounting at federal

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[2] The information on public finance management reforms were collected between February and October 2016.

[3] The reason for that is that the states in Germany independently set the accounting requirements for their municipalities. The heterogeneity within a state partly results from long transition periods, so even in states requiring their municipalities' to change, some larger municipalities have already implemented whereas smaller cities/villages are waiting until the end of the transition period (e.g. in Baden-Württemberg).

government level. Despite the fact that there is a specific unit within the Ministry of Finance and Federal-/State-Working Group that follows the EPSAS developments at federal government level since 2014 and federal government public officials are involved in the work of the Cell on Principles related to EPSAS standards, no changes have occurred and/or no official documents related to the strategy to implement accruals-based accounting in the public sector have been approved.

Costs at federal government level

8. There is no official data on the costs estimations related to the possible changes with regards to the implementation of the accounting reforms as there are no formal plans to reform the accounting system at federal government level.

Changes in Federal state of Bavaria

9. In Bavaria no changes have occurred in government accounting and public financial management since January 2014. From a political perspective, the Bavarian government and parliament are not favourable towards any changes of the current cash based accounting system (Kameralistik), which, based on the respondents' view, meets all Bavarian needs. Nevertheless, each local government in Bavaria is allowed to decide independently, which system they want to apply or introduce. They can freely decide between national cash based (Kameralistik) and national accruals-based (Doppik) accounting systems, however the state of Bavaria has not made any changes to their current cash-based accounting system with regards to the implementation of accruals-accounting.

10. Regarding the implementation of EPSAS/IPSAS at state level (but also further down at local government level), the Bavarian state does not see any legal basis for a European standardisation and refers to its subsidiarity. Furthermore, the public officials in Bavaria have an opinion that the costs-benefits-ratio of the implementation of accruals-based accounting system indicates that benefits do not outweigh the costs and for this reason the conclusion is to remain with the current national cash-based accounting system (Kameralistik).

11. Also regarding the requirements of financial statistics on Federal and European level in terms of quality and quantity, Bavaria assumes that it fulfils them by using either national cash based (Kameralistik) or national accruals-based (Doppik) accounting systems. The Bavarian government has doubts whether the aim of improving the quality and comparability of data for the purpose of preventing financial and economic crises can be achieved by introducing EPSAS. In their perception, the current cash-based accounting system does not present an obstacle to other public financial management reforms.

Costs in Federal state of Bavaria

12. There is no official data on the costs estimations related to the possible changes related to the implementation of the accounting reforms as there are no formal plans to reform the accounting system in Bavaria.

Changes in Federal state of Hamburg

13. The Federal state of Hamburg is one of the most advanced states in Germany regarding the implementation of accruals in government accounting and public financial management. Hamburg has been publishing accruals-based financial statements since 2006 and consolidated financial statements since 2007.

14. For this reason during the period since January 2014 the government of Hamburg has implemented only some adjustments and modernisation projects related to the accrual accounting reform. Hamburg has made adjustments related to the accounting process resolving former deviations from the national private sector accounting law (Handelsrecht, HGB) and reducing major simplifications used for the transition period (e.g. value thresholds). The process changes also included the adjustments for the accounting of paid grants (currently referencing to the multiannual obligations), the measurement of financial assets (currently using the equity method) and the measurement of pension provisions (changed from a simplified towards to a fully comprehensive actuarial valuation). Also since 2014 the measurement of derivative transactions and related impending losses has been performed as well as a new statistical process has been applied allowing to account all estimated tax refunds. Simultaneously comprehensive guidelines (manuals) and other guidance material have been also issued or adjusted to support financial managers with the changes adopted in the accrual accounting system.

15. Despite a number of changes that Hamburg has implemented in accounting process since 2011 the focus of Hamburg has primarily been laid on the reform of the budget composition. From 2011 to 2015 Hamburg gradually introduced the use of accrual data for budgeting and completed the reform on 1 January 2015. Since then Hamburg has fully adopted the accruals-based accounting system (Doppik) for the core administration also implementing a new accruals-based State Budgetary Code (Doppische LHO) and several related and supporting administrative accounting regulations (VV Bilanzierung, etc.). Together with the implementation of an accruals-based budget process, Hamburg introduced a new standardised and centralised invoice workflow in which the officials administering the appropriations can only make accounting suggestions but the booking of the invoices is performed by one central service provider (LB Kasse HH). The process of creating business partners in the accounting system was also centralised and complemented with an automated duplicate check.

16. Due to the implementation of the accruals-based budget and accounting system, the major part of the Hamburg's administration had to migrate to the new accruals-based budget and accounting information system. It fully operates from 1 January 2015. Until then Hamburg performed a parallel accounting operation in two IS: the former cash-based system (Kameralistik), which was the primary system, and the accruals-based system that was operating for "selection areas" as a parallel system for testing and quality assurance purposes.

17. Furthermore, in order to successfully adopt the new budget and accounting information system until 2015, Hamburg has adjusted, replaced and/or modernised diverse IT procedures and applications with regards to the requirements of the new budget and accounting system. Also a special focus was put on the interface integration between the applications and the new information system.

Costs in Federal state of Hamburg

18. It is estimated that Hamburg has incurred around 26.25 million Euro of costs related to the changes in public accounting system since January 2014. The costs (in thousand EUR) related to the reform and implementation of SNH-Project (Strategic realignment of the budget system / Strategische Neuausrichtung des Haushaltswesens) are described in the table below. However, there may be additional costs related to the adoption of EPSAS depending on its specific requirements (whether EPSAS would be fair value oriented or not, include segment reports or not, etc.).

Table 1: Costs of the accounting reform in Hamburg (in thousand euros)

Type of costs	2014	2015	Subtotal
Non-IT related costs			
Personnel costs	2,631	2,143	4,774
Basic and advanced training	1,015	694	1,709
Consulting services	7,320	6,743	14,063
Support for authorities	1,169	273	1,442
Material costs	1,154	782	1,936
Internal costs for the preparation and revision of rules are estimated on the basis of cost rates for staff	660	690	1,350
IT related costs			
IT costs for the interface adjustments between the diverse applications for special procedures and the new IS	537	437	974
TOTAL	14,486	11,762	26,248

<u>Changes in the Federal state of North Rhine-Westphalia</u>

19. The Federal state of North Rhine-Westphalia (hereinafter – NRW) is also one of the federal states in Germany that has been taking active steps regarding the implementation of accruals in government accounting and public financial management. NRW was one of the first federal states in Germany that created the legal basis for the local governments to move to accrual accounting by passing an Act in 2004. In 2006 the Government of the state of NRW took a decision to follow the local governments by an approach titled EPOS (Einführung von Produkthaushalten zur output-orientierten Steuerung - Implementation of product-based budget for output-based management) as an accruals-based accounting system ("Doppik") for external (accruals-based accounting directed to external stakeholders like taxpayers, media etc. (e.g. through annual financial statements)) and internal accounting (cost accounting directed at internal stakeholders of the public administration) purposes. However, the process of drawing up budgets and the cash receipts and payments accounts refers to cash accounting data.

20. In 2009 and 2010, the Government of NRW initiated the first development phase of the accruals-based IT System called "EPOS.NRW" and awarded SAP as its ERP system provider. Currently, the EPOS.NRW is in the second development phase that started in 2011. ERP (enterprise resource planning) and BI (business intelligence) functionalities, including the accounting of fixed assets and their depreciation, operate in over 27 budget units, enabling accruals-based budgeting as a parallel system. Simultaneously in 2013, comprehensive guidelines (manuals) were prepared and issued to support successful adoption of the new accounting system.

21. Furthermore, from an accounting perspective, EPOS is implemented in 400 governmental agencies. The implementation of the new accounting framework in the

remaining 150 governmental agencies should be finalised by the end of 2018 when the second development phase of EPOS.NRW is planned to be finished.

22. Also since 2015, budget units in NRW are required to prepare balance sheets, statements of financial performance and annual output-based accounts ("Jahresproduktberichte").

23. After the completion of the second development phase of EPOS.NRW in 2018, the Government of NRW will decide whether to initiate the third development phase. Based on the actual plan, the third development phase would comprise establishment of an output-based budget and consolidated financial statements (Gesamtbilanz). Additionally, other SAP modules (e.g. HR module) should also be integrated with EPOS.NRW.

Costs in the Federal state of North Rhine-Westphalia

24. The costs that have been incurred since January 2014 cannot be determined exactly by the Ministry of Finance of NRW. However, it estimates that the total costs for the period of 2007 to 2018 would be around 191 million Euros. This sum includes costs of hardware and software, consulting fees, internal personnel costs for the accounting system (framework) roll-out as well as operating costs. However, this cost estimation does not include start-up costs and the operating expenses incurred by governmental agencies while using EPOS. Originally, no additional personnel capacity had been planned; nevertheless, several first-level support jobs have been established at the governmental agencies over the period since the start of EPOS development.

Summarised situation in Germany

25. To summarise, the diverse situation related to the implementation of accruals-based accounting across all three levels of the government determined by German federalism has not changed since 2014. At the Federal government level there have not been any changes regarding the accrual accounting reform. It leads to a conclusion that the established unit within the Ministry of Finance and Federal-/State-Working Group is mainly playing the role of observers, following EPSAS development progress at the EU level. However, recently the federal government officials have become actively involved in the work of the Cell on Principles related to EPSAS standards.

26. Furthermore, the results of the analysis indicate that there are still large disparities within the same level of government. While the federal state of Bavaria advocates clearly against accrual accounting and EPSAS implementation in government accounting and public financial management, the Federal state of Hamburg has already successfully adopted the accruals-based accounting system. Finally, the Federal state of North Rhine-Westphalia, which is the largest state in terms of inhabitants in Germany, is actively moving forward with the implementation of accruals-based accounting.

1.2 Greece

Background

27. In 2011 the Greek government adopted a modified cash-based accounting system (Greek Central Government's accounting system) taking the first step towards the implementation of accruals-based accounting. Nevertheless, accounting systems still lack standardisation due to different laws that establish the standard accounting procedures followed by the main public institutions. Also, it must be pointed out that

hospitals (about 98), municipalities (about 325) and a few general government entities are keeping their accounts in accordance with the accruals-based accounting principles; however, budgeting in all of the public sector is done on cash basis and the presentation of the budget lines is made in an item-by-item format.

<u>Changes since January 2014</u>

28. In 2014 due to sovereign debt crisis and the need to have higher quality financial information of the government, the Greek Central Government's accounting system was proposed to be changed. For this reason, among other initiatives related to IPSAS implementation, the public tender was launched for the development of the accrual accounting IT system and the design of the new chart of accounts for the entire general government. Unfortunately, the tender was cancelled in 2015.

29. In the period of 2014-2015 two documents were officially approved stating a plan to implement a more harmonised accounting system in the public sector. Specifically, the obligation of Greece to materialise and implement a single chart of accounts applicable for the entire public sector emerges from both Article 156 of the Law 4270/2014 and sub-paragraph 2.4.1 of paragraph III of the Law 4336/2015 on Management of Public Finance - Memorandum of Understanding, Threefold ESM Program, which state that the government of Greece will develop harmonised budget classification and chart of accounts structures for the government (planned deadline September 2016), in time for the preparation of the central administration budget for 2018.

30. In 2015, under the decision of the Ministry of Finance, a working group was formed, which was responsible for successful creation and implementation of a single chart of accounts that is set in the two documents mentioned above, and recently, it has prepared the first draft of the new chart of accounts and the related accounting rules. The working group is composed of public officials from the Ministry of Finance (General Accounting Office), the Hellenic Court of Auditors, the Hellenic Accounting Standardisation Committee and accounting professors from Athens University of Economics and Business (AUEB).

31. The working group is responsible for the following tasks:

    - Analysis of the current accounting framework (specifically, the chart of accounts and the budget classification code) for all the general government entities
    - Submission of proposals for the development of a single chart of accounts that will be applicable to all the entities at both central and local government levels and will be in full alignment with the new budget classification code
    - Examination of the best practices of public sector accounting systems on the EU level
    - Evaluation of the possibility to apply IPSAS in the Greek public sector
    - Putting forward proposals for the financial statement consolidation processes for the financial statements of general government and for the development of the required IT system that will support the suggested changes best.

32. The result of the effort of the working group is the first draft of the new chart of accounts and the relative accounting rules. So far, any progress that has taken place relates to the work done by the above-mentioned working group in accordance to its objectives. In summary, the Greek government has put efforts to reform the public accounting by harmonising it since 2014. Nevertheless, Greece currently does not use accrual accounting uniformly and to the full extent, it only has informal plans leading

towards the implementation of the accrual accounting system across central and local governments.

Costs

33. There is no official data on the costs due to the possible changes related to the implementation of the new chart of accounts and accounting reforms.

1.3 Italy

Background

34. In 2009, the Italian Parliament passed a law to introduce fiscal federalism, which includes the principles of harmonisation of accounting processes at municipal, provincial and regional levels (local authorities). To meet the accounting harmonisation objectives of this law the central government issued a harmonisation decree in 2011. The decree envisaged the provision of a unitary accounting system for local authorities combining accrual-basis and cash-basis accounting.

Changes since January 2014

35. In 2014 the testing phase of the new unitary modified cash based accounting system has been finished. It took 3 years (from 2012 to 2014) and has involved 400 out of 11,000 of local government institutions. The central government has decided to start a transition to new unitary accounting system across all local authorities in Italy from 2015, with a vision of full implementation of the system from the fiscal year 2016. Nevertheless, it is worth mentioning that the new unitary modified cash based accounting system is used as a primary public accounting, while accrual information has a role of complementing budgetary accounting data.

36. Based on the validation results of the new unitary accounting system in the period 2014-2015 some minor changes have been done to original rules of the accounting reform (law of 2009 and decree of 2011) simultaneously updating the accounting procedures on the basis of specific reporting needs of the individual local authorities (for example, changes to the VAT registration criteria following the introduction of the split payment for public authorities purchase, etc.).

37. Since 2014 the central government has approved no new official documents related to the strategy or plans to implement accrual accounting in the public sector. However, in 2015 the Ministry of Finance of Italy has established a working group in order to analyse the current Italian accounting legislation with regard to its compliance with the new public accounting structure required by the European Union to the member states and proposed EPSAS implementation. The working group is exclusively composed by academics as Ministry of Finance of Italy needed to acquire technical and professional contributions from experts that are not influenced by opinions and points of view rooted within the public finance institutions and having new insights for creation/review of the various accounting systems during the implementation of the accounting reform.

38. In summary, since 2014 most changes related to government accounting and public financial management have occurred only in the local government. The unitary accounting system designed for local authorities harmonises their accounting procedures on modified cash basis, however, a step towards the implementation of accrual accounting system across both central and local governments has not been taken.

Costs

39. There is no official data on the costs related to the changes in public accounting system since January 2014. It can be presumed that local authorities have experienced some costs related to the reform but information on the investments had not been collected, because the legal reform requirements state that public accounting reform in Italy must be implemented at zero cost.

1.4 Luxembourg

Background

40. Luxembourg applies a mixed accrual and cash multiannual budget building process authorising expenditures and non-tax revenues on a commitment basis, while tax revenues and financial transactions are still authorised on a cash basis. As a result, Luxembourg has a partial view of accrual finances.

Changes since January 2014

41. No changes have been made since January 2014 in Luxembourg's public financial management and accounting with regard to accrual principles implementation in accounting. Also no official document (plans, visions, strategies) has been approved as currently the government of Luxembourg has no formal plan to convert to full accrual accounting or any international accounting standards. The government does not see an urgent matter to implement EPSAS or IPSAS because the Luxembourg's public finances are well supervised and the level of government debt is low. Also present public accounting framework fully satisfies the needs of the government.

42. However, Luxembourg would agree to implement changes leading to accruals-based public financial management, if a common decision had been made at the EU level. Also it is important to have a common agreement among EU member states to use uniform accrual accounting standards in order to collect complete and reliable fiscal data that is comparable across all EU member states.

43. As well, there are some internal considerations among government representatives to implement accrual budgeting in a full scope. Discussions are carried out on determining:

- The possible scope of changes to the current IT accounting system
- The reasonable schedule for the implementation of the changes
- The number of personnel that would require trainings in order to be prepared to apply accruals-based budgeting procedures

44. Most of the discussions are focused on deciding if the current IT accounting system that is used since 1999 should be changed adding new components or a new IT system should be developed. There is an opinion that newly developed IT accounting system taking into considerations government's current needs and requirements of IPSAS would be more functional and stable compared to the updated old IT accounting system. However, it is worth mentioning that the change of the system is determined by the usual IS cycle and stability threats, and not by the requirement to comply with accruals-based accounting principles.

45. In summary, no changes have been made since January 2014 with regards to accruals principles implementation in Luxembourg and its government has no formal plan to reform the currently used modified cash accounting system. However, Luxembourg would agree to implement changes leading to accruals-based public accounting, if a common decision had been made at the EU level.

Costs

46. There is no official data on the costs estimations related to the possible changes with regard to the implementation of the accounting reforms as there are no formal plans to reform Luxembourg's accounting system.

1.5 Malta

Background

47. First steps towards adaptation and implementation of the accrual accounting system in the Maltese Public Service began in 1999, when the Ministry of Finance of Malta issued the first circular on government accrual accounting. As a result, later this allowed the existing cash accounting reports to be supplemented by additional accruals-based information[4]. Nevertheless, the quality of the information provided was not sufficient, and for this reason in 2013 the Government of Malta approved a project leading to the implementation of IPSAS compliant accrual accounts for all government departments and ministries by 2019.

Changes since January 2014

48. In 2014, the Government of Malta appointed an IPSAS Project Board and an IPSAS Project Team that have been committed to the implementation of IPSAS. This was done by implementing one of the recommendations provided in the report that has been prepared by the Institute of UK-based Chartered Public Finance and Accountancy (CIPFA) and presented in November 2013 under the contract agreement with the Government of Malta.

49. In 2014, the IPSAS Project Board approved the IPSAS Implementation Plan outlining a strategy for the successful implementation of IPSAS in the Central Government[5]. The plan covered three groups of activities:

- Development of legislation and accounting methodology;
- HR capacity building areas;
- Replacement of accounting information system.

50. Since 2014, the IPSAS Project Team has been engaged in analysing practices of other countries in IPSAS implementation and Maltese public sector specifics in order to prepare the suitable approach for IPSAS adoption by Maltese government. Based on the analysis results, the IPSAS Project Team developed and published their variations of five IPSASs (IPSAS 13 Leases, IPSAS 17 Property, Plant & Equipment, IPSAS 21 Impairment of non-Cash Generating Assets, IPSAS 26 Impairment of Cash

[4] https://www.ifac.org/system/files/uploads/IPSASB/A-Closer-Look-at-Malta.pdf

[5] https://circabc.europa.eu/webdav/CircaBC/ESTAT/EPSAS/Library/Working%20Group%20EPSAS/Agenda%20item%2010%20-%20MT%20Eurostat%20Grant%20Agreement%20Malta%20projects.pdf

Generating Assets, IPSAS 31 Intangible Assets) along with the guidelines (manuals) that could be adopted by the Maltese Government. All the propositions have been already approved by the IPSAS Project Board. However, it is important to note that the above mentioned approved accounting standards are currently being published solely for the Maltese government departments' and ministries' to start familiarising themselves with related provisions prior actual implementation of the standards.

51. Furthermore, various trainings are also organised aimed at raising the awareness of the public sector personnel on the accrual framework requirements. However, it is worth to point out that at this stage trainings are not centralised and do not cover all public institutions of Malta. In addition, Government of Malta has currently engaged CIPFA to do a scoping study on the development of government finance profession.

52. Despite the fact that the efforts are being put to build HR capacity, IPSAS will come into force only when a new framework is fully developed and a new IT accounting system is implemented.

53. The tender for the development and implementation of new accounting information system was published in 2014. Currently it is planned that the winner shall be announced in July 2016, after a successful hands-on evaluation by the evaluation committee. It is projected that the new accounting IS shall have all functions necessary for keeping the accounting records complying with the requirements of accrual accounting standards. In addition to the financial management module, it is also planned that the accounting IS will have an additional module dedicated for the management of the budget (the Budgetary Administration System and Commitment Authorising and Tracking System).

54. To summarise, the government accounting reform is moving forward following the approved plan to implement IPSAS in Maltese public sector. However, Malta is still at the preparation phase and practically maturity of the public sector accounting has not improved yet.

Costs

55. It is estimated that the Government of Malta has incurred approximately 100 thousand Euro costs related to the changes in public accounting system since January 2014. The entire amount is related to the fees for external suppliers on various studies and presentations. Other costs are not being considered (for example, wages of public sector employees that are appointed to implement the accounting system reform).

56. It is planned that the implementation of IPSAS will require around 13-20 million Euros in the next 3 years. The biggest part of the budget, around 10-15 million Euros, will be allocated for the development and implementation of the new accounting IS. The remaining 3-5 million Euros are planned to be spent for external suppliers for trainings and various studies.

1.6 The Netherlands

Background

57. In the Netherlands the central government and executive agencies apply modified cash based accounting with some exceptions, while at local level governments apply a modified accruals-based accounting. Furthermore, it is worth to point out that the central government applies a number of unique modifications to the cash based accounting. In 2000 the Dutch government had plans to implement accruals-based

accounting system in the whole central government, however, the economic and political conditions did not permit to make a comprehensive move to a new accounting system.

Changes since January 2014

58. By the law that was passed by the central government in 2014 newly established central government executive agencies have an option to choose whether they want to apply accruals-based accounting or modified cash based accounting system. This change has been encouraged by the Minister of Finance in order to save costs as the implementation of accruals-based accounting had not brought the advantages that were expected. However, already existing agencies have to apply accruals-based accounting.

59. The government of the Netherlands has no formal plan to change the currently used modified cash based accounting system. Only recently a study group of representatives of the Ministry of Finance and the Court of Audit was established to analyse the potential advantages and disadvantages of adding elements of an accrual accounting system to the commitment-cash based accounting of the central government.

Costs

60. There is no official data on the costs estimations related to the possible changes with regard to the implementation of the accounting reforms as there are no formal plans to reform the Dutch accounting system.

1.7 Summary of findings

61. The state of play shows different rates of progress in reforming public finance management in the six selected MSs surveyed (Germany, Greece, Italy, Luxemburg, Malta and the Netherlands).

Part 2. Qualitative analysis of EPSAS long term benefits

62. The qualitative analysis makes an inventory of the expected benefits identified by previous research. Qualitative insights on the expected impacts of EPSAS, collated through interviews with public accounting experts, supplement this inventory.

2.1 Expected benefits of a move to harmonised accruals-based accounting standards

63. This section summarises the long-term benefits of harmonising public sector accounting in the EU based on EPSAS. It builds on the previous study by PwC (2014)[6] and on other selected research papers[7].

<u>Summary of the expected benefits of EPSAS</u>

64. The previous study on EPSAS[8] - commissioned by Eurostat - identified and described the benefits for each stakeholder of moving to accrual accounting. They are presented in Table 2 below:

Table 2: Economic benefits per stakeholder of a move toward accrual accounting in Europe[9]

Benefits \ Stakeholders	Ministry of Finance	Audit authorities	Public managers and non-finance staff	Policy makers	Taxpayers and service recipients	Media	Financial markets and rating agencies	EU institutions and national statistical offices	Other
Transparency and comparability	+	+	+	+ +	+ +	+ +	+ +	+ +	+
Harmonization and fiscal surveillance		+	+	+	+	+	+ +	+ +	+
Long-term fiscal view	+ +	+	+	+ +	+ +	+	+ +	+ +	+
Accountability			+ +	+ +	+ +	+ +	+	+	
Decision-making	+ +		+ +	+ +	+	+	+	+	+
Cost accounting and performance measurement	+ +		+ +	+	+	+			
Best practice reform driver	+		+	+			+	+	+
Audit and internal control	+	+	+ +	+	+				
Administrative cost and burden	+ +	+	+	+	+			+	+

65. As shown in the table, the benefits are mostly public goods, categorised by type and by impacted stakeholder. The strongest benefits stem from the first five types of long-term benefits, namely (i) transparency and comparability, (ii) harmonisation and fiscal surveillance, (iii) a long-term fiscal view, (iv) accountability and (v) decision-making. These benefits mostly impact the following stakeholders: (i) policy-makers, (ii)

[6] "Collection of information related to the potential impact, including costs, of implementing accrual accounting in the public sector and technical analysis of the suitability of individual IPSAS standards", PwC, 2014.

[7] See Appendix A for the full list of papers that were considered as relevant and were reviewed. Ultimately only papers that were sufficiently relevant for the purpose of the report were retained and analyzed here.

[8] See footnote 6.

[9] In Table 2 the number of "+" signs illustrate the amplitude of the positive impact. Empty fields indicate that the specified benefit would not be observed for the specific stakeholder.

taxpayers and service recipients, (iii) financial markets and rating agencies, and (iv) EU institutions and national statistical offices.

Desk research findings on long-term benefits

66. Few papers deal directly with the expected impacts of harmonising public sector accounting in the EU based on EPSAS. Some research papers focus on the economic impact of fiscal transparency (see papers #2, #3, #4, #5, #6, #8, and #9). For instance, research paper #6 in Table 3 below highlights a correlation between fiscal transparency and the level of public debt. However, it does not establish a relationship between the public accounting system in place and the level of transparency. Other papers do examine the relationship between the implementation of accrual accounting and the increase in fiscal transparency (see papers #1, #7, #10, and #11).

Table 3: Relevant research papers to identify expected long-term benefits of EPSAS

#	Author	Date	Title	Aspects relevant to the report
1	Kopits and Craig	1998	Transparency in government operations	How accrual accounting promotes fiscal transparency
2	Tanzi	1998	Corruption around the world	Long-term economic benefits derived from transparency
3	Kilpatrick	2001	Transparent framework, fiscal rules and policy-making under uncertainty	Long-term economic benefits derived from transparency
4	Heald	2003	Fiscal transparency: concepts, measurement and UK practice	How accrual accounting promotes fiscal transparency
5	Alt and Dreyer Lassen	2006	Fiscal transparency, political parties and debt in OECD countries	Long-term economic benefits of transparency
6	Teig	2006	Fiscal transparency and economic growth	Long-term benefits derived from transparency
7	IMF	2007	Manual on fiscal transparency	How accrual accounting promotes fiscal transparency
8	Missio and Watzka	2011	Financial contagion and the European debt crisis	Fiscal instability in a EU Member State can affect other Member States
9	Constâncio	2012	Contagion and the European debt crisis	Fiscal instability in a EU Member State can affect other Member States
10	Heald	2013	Surmounting obstacles to fiscal transparency	How accrual accounting promotes fiscal transparency

#	Author	Date	Title	Aspects relevant to the report
11	Brusca and Martinez	2015	Adopting IPSAS: a challenge for modernising and harmonising public sector accounting	Accrual accounting promotes fiscal transparency Long-term benefits at EU level of having an harmonised public sector accounting system

67. Few papers examine sources of long-term benefits other than fiscal transparency. In addition, existing work related to the expected benefits of accruals-based accounting provide more qualitative than quantitative results. When empirical estimates are provided, they are not related to the implementation of accrual accounting.

2.2 Experts' views on EPSAS long term benefits

68. Qualitative insights were collected from interviews with public sector accounting experts on the long-term benefits of EPSAS[10].

Experts agree with most of the previously-identified EPSAS expected benefits

69. Experts concurred with most of the previously-identified[11] EPSAS expected benefits:

- **Transparency and comparability**[12] are among the most cited benefits of EPSAS. Compared to cash-based public accounting standards, accruals-based standards improve both the scope and quality of information. They provide a complete, clear picture on all government assets and liabilities, thereby avoiding fiscal illusions regarding a country's current fiscal status.
- **Harmonisation and fiscal surveillance.** Experts agreed that adopting harmonised accruals-based public accounting standards would improve fiscal surveillance.

  Some interviewees insisted that harmonisation within countries should be prioritised, before attempting to harmonise among MSs. Harmonising accounting standards across different levels of government will permit the government to view and manage its assets and liabilities from different entities on a comparable basis. This comparability among various public entities at different levels of government would improve resource allocation. Similarly, harmonisation among MSs will also generate a comparable basis at the EU level. Therefore it will be easier to assess the impacts of EU initiatives in different MSs. Furthermore, the harmonisation process would also help countries in transition to accruals-based public sector accounting to cooperate and share experiences with each other.

  Harmonisation is also viewed as an important means to limit account manipulation. Indeed, one interviewee warned about the potential risk of information manipulation provided by accruals-based accounting. This argument rests on the fact that accruals-based accounting is more complicated to understand than cash-based accounting, and makes use of fair values, the

[10] See list in Appendix B -Table 10.

[11] See Table 2: Economic benefits per stakeholder of a move toward accrual accounting in Europe.

[12] See Part 5 for more details and experts' comment.

estimates for which are based on assumptions. A solid harmonisation that would fix clear rules and leave no room for interpretation among stakeholders would help to prevent this risk.

Experts' comments
An academic expert on public accounting: "There are two kinds of motives for wanting harmonized accounting. [One] motive is to get better fiscal information (...) The other is from a top-down European surveillance perspective, focusing on the fiscal deficits of specific countries."
An academic expert on public accounting: "There are tons of benefits: proper allocation of resources, proper allocation of actions by the European Union, measurement of the real effect of the actions taken by the European Union on the whole country. So if the European Union is going to perform an action on all the countries of the European Union, you do need to have the same system of accounting. Otherwise you cannot compare the results. So for that reason there is no doubt that it would be a great improvement to have comparable data."

- **Decision making.** According to interviewees accruals-based accounting would ensure better-informed decision-making, by providing more complete information on public finances and a clear and complete fiscal resilience picture.

Experts' comments
A Ministry of Finance expert: "Another key benefit is that it could help the decision-making process. One would see what assets each MS has, what costs for which services. This might help in making decisions at a macroeconomic level."
An international organisation expert: "Accrual accounting provides the opportunity for better decision making by providing a complete picture of public finance."
A Ministry of Finance expert: "One of the biggest benefits is just having information available to make decisions. Probably due to failures of government (e.g. to provide services), they [public entities] are turning more and more to financial statements to see what/how they are doing."

- **Best practice reform driver.** Accruals accounting could also serve as a driver for larger-scale reforms.

Experts' comments
An international organization expert: "(...) For other countries that are lagging behind, they want to catch up, use this reform to boost their accountability and transparency reforms, and be inspired by examples (...) Harmonisation within States gives you a basis of comparison. It could ease decentralization reforms/decentralized delivery of services, because you need comparable information for this."

- **Audit and internal control.** Financial statements produced under accrual accounting standards allow for detection of potential inconsistencies and problems in public entities' balance sheets. Therefore, they may provide areas of focus for audit offices in their independent assessments of public entities. For example, an important change in asset valuation could trigger an audit that will investigate the entity to see if there is a problem with its processes or its management. This will be beneficial for audit authorities in MSs that transition from cash-based public sector standards to accruals-based standards.

Experts' comments
A Ministry of Finance expert: "(…) it is important to verify whether assets still satisfy the recognition criteria (…) That does not help at macro level management, but at a lower level it is useful. The control office might, based on that value, question why there may be some material changes and identify some issues in the process or in the management."
An international organisation expert: "Audits of tax receivables were conducted by the court of audit: as they had access not only to the cash data, but also the data on accrual basis, outlining which amounts were adjusted, the quality of audits could be improved. Better data provides a better and clearer view on what is going on and it presses the necessary reforms."

- **Cost accounting and performance measurement.** Interviewees emphasised the role accruals-based standards play in cost accounting, as one of its main benefits. Indeed, accrual accounting allows for an estimate of the costs of public services delivered.

Experts' comments
A Ministry of Finance expert: "The first benefit we experienced with accrual accounting was getting good information on the costs of services being delivered. [Before accrual accounting] (…) we had a government that was determined to [bring finances under control] by cutting ineffective spending. The information that was generated at that time was not designed to enable that to happen. (…) [To do that] we asked what are the services being delivered? What are the costs? And for the costs we were looking for comparable costs, so we needed to think about the capital as well as the operating costs of those services (…) We had previously tried things like 'across the board cuts', overall baseline reviews and overall explanatory reviews, but we found that [accrual accounting] was far more effective, because we were more confident of the outcome, with the result of the impact of deciding to make those cuts."

Benefits stemming from improving tax collection

70. Experts also pointed out that accruals-based accounting standards can promote a more effective tax collection. It was noted that accrual accounting provides better visibility on tax receivables that could not be collected. New transparency on these tax receivable adjustments should encourage finance ministries to develop more efficient tax collection policies.

Experts' comments
An international organization expert: "Adjustment of value of tax receivables - money that you should get as a State, as a tax authority. You do not see the money you do not get in the budget, if you are on a cash-only basis. You can only see it if you have accrual standards through adjustment of values etc. (…) it gets much more difficult for the Ministry of Finance not to develop a policy on how to deal with people avoiding taxes, (…) it makes it much more difficult for a government to ignore that problem."

Cross-MS benefits from increased fiscal stability of EU

71. EPSAS will strengthen public finance management and thus enhance the financial robustness of the MSs. This would benefit to every MS.

Experts' comments
An academic expert in public accounting: "You need to persuade Germany that there may not be a direct benefit for them, but they have an indirect benefit from the financials of the other members of the Eurozone being more solid. The argument for Italy is that it will improve the Italian public sector. But the argument for Germany is that it will get better information on the public accounts of other countries within the EU and particularly within the Eurozone."

2.3 Factors influencing the transition to accruals-based accounting

72. The public accounting experts also identified factors influencing the transition[13]. They generally noted that the importance of long-term benefits would depend on the way EPSAS is implemented.

To achieve transparency and comparability, implementation of EPSAS should prevent too many different interpretations

73. Experts indicated that EPSAS harmonisation in the EU could have positive impacts in terms of transparency solely if the implementation does not leave too much room for different interpretations. If an EU-wide harmonisation of public sector accounting were not able to result in similar interpretations among stakeholders, the comparability between MSs' public finances would not be effective enough to ensure greater transparency. They noted however that for that purpose, EPSAS would not necessarily have to be prescriptive; they could instead be principles-based14. Some state that there should be a very sophisticated monitoring system (e.g. audit of financial statements) to ensure that interpretations among MSs are comparable.

[13] See list in Appendix B - Table 10.

[14] Principles-based accounting is a simple set of key objectives set out to ensure good reporting. It provides common examples as guidance and explain the objectives. The guidelines and rules set are not meant to be used in every situation. In contrast, rules-based accounting is basically a list of detailed rules that must be followed when preparing financial statements.

Experts' comments
A policy expert from an international organisation: "Different interpretations might have an impact on the effectiveness of comparability. The harmonisation should ensure that the comparability is strong enough to generate similar interpretations among stakeholders."
A Ministry of Finance expert: "Harmonisation of public accounting does not mean much if there is a lot of space for interpretation, thus it is very important to consider how the harmonisation is implemented."
A Ministry of Finance expert: "Standards are not enough. They can be principle-based. But then there should be a very sophisticated monitoring system; some audit of the financial statements, which would check that the interpretations in the same situations are the same, especially in material areas. Otherwise you would not be able to compare data from one country with data from another."
An academic expert in public accounting: "It is not just a question of harmonisation of standards, but it is also a question of the harmonisation of the application standards. You can get very big differences between the degree of control support for the standards and the quality of information systems that exist. You can be misinformed about how comparable the data is, and for some countries this is going to be a difficult journey."

<u>Transition should be supported by appropriate, engaging communication</u>

74. The benefits arising from more complete accruals-based financial information depends on the capacity of and incentives for stakeholders to use it.

According to experts, the benefits relating to accountability for taxpayers and service recipients would depend on improving the financial literacy of politicians, journalists, civil society representatives and taxpayers. A proper communication strategy should be designed to ensure that all stakeholders concerned have a fit-for-purpose understanding of the information produced. The example of work undertaken by Austrian authorities during the implementation of accruals-based accounting standards to educate stakeholders demonstrate good practices: journalists were invited to informal meetings where representatives of the Austrian Ministry of Finance presented the new accounting framework and its findings, in a non-technical, simple and pedagogical manner. This strategy paid off, since the participants were able to publish relevant articles using that new information.

Experts' comments
An academic expert on public sector accounting: "Lots of effort is needed to explain to people how to interpret balance sheets and financial statements."
A Ministry of Finance expert: "There is a need to think on how to disclose the information to a public that will never have the necessary financial literacy."
A public finance management specialist from an international organisation: "There is a need to define a Public Relations (PR) strategy for how your media and civil society will change the mind-set of politicians. Implementing rules/regulation (supply side) is not enough, you need demand too (politicians)."

Experts' comments
A Ministry of Finance expert: "Accruals is about building a true and fair picture of the financial status of a country but if you manage to do it in a simple and understandable way, not in a too technical way, you will find much more people who listen to you."
An academic expert in public accounting: "A lot of people got difficulties with numbers and particularly in Parliament actually people switch off and lose concentration. A very big education effort is required within each country, each institution, to help people understand numbers. The accounting can actually be quite difficult, but if you prepare properly, lots of things could be explained in a simple way. You have to put a lot of effort into explaining to people how to interpret balance sheets and financial statements. It requires a very significant public education effort. This is not something where achievement will ever be very quick."
An academic expert in public accounting: "I would see the achievement of my country on public accounting on a technical level as very high, but I would have significant doubts as to the level of public financial education of the parliament. Getting used to those statements is extremely difficult for Parliament, because what tends to happen is that the public accounts committee is quite sophisticated but a large number of the members of parliament has no understanding of these statements whatsoever."
A Ministry of Finance expert: We have been quite involved in providing some support to the local government levels. There is an association all the council members belong to, so we have actually been working quite closely with this association to provide some support to them; what we find is that the council members would change every five years through the election process. So it is an ongoing process, it is very hard to maintain all the expertise that has been built up, because there's a 4-5 year electoral cycle. It's a constant process of education.

National budget rules and targets should be expressed in accrual accounting terms

75. Experts emphasise that even in some countries where accruals-based standards have been adopted, cash-based information is still often used in decision-making. The fact that most national public finance targets and rules are defined in cash-accounting standards discourages the use of accruals-based information by decision makers. Some recommend legal enforcement of accruals-based information as a basis for national budget planning.

Experts' comments
A Ministry of Finance expert: "Many things depend on the legal enforcement. There should be some motivation in the law to use this financial information, as we currently have budget/budget execution reports on cash basis, politicians follow that kind of indicators." "The problem is that politicians and managers of the public entities are not even trying to understand what is behind the numbers in the financial statements (…) I think the major problem is that we do not have budget in accrual."
An academic expert on public accounting: "You need to have the right legal framework in order to force politicians to use the accrual information. Even if people are perfectly acquainted with accrual accounting, if they are not forced to use them, if their objectives are only budgetary or cash accounting, they will take no decisions based on accrual. Therefore objectives, targets, and the national accounting must be done in accrual."

Experts' comments
A Ministry of Finance expert: "If you try and change the way you measure performance without changing your objectives, you immediately have an issue. You cannot really get better decision making out of accrual accounting unless you change the way you make decisions."

2.4 Summary of findings

76. The existing literature focuses mostly on the link between accrual accounting and fiscal transparency, or on the link between fiscal transparency and long-term economic benefits. Thus, the following Part would be among the first attempts to quantify the impact of accruals-based public sector accounting on long-term economic benefits.

77. The desk research on long terms benefits was supplemented with insights from representatives of organisations and/or entities which have already transitioned to accrual accounting:

    - They agree with most of the previously-identified long-term benefits,
    - They also mention the benefits stemming from improved tax collection and cross-MS benefits from increased fiscal stability.

78. The interviews also revealed that long-term benefits stemming from an adoption of accrual accounting standards would depend on: (i) a design that prevents differences in interpretation, (ii) the importance of appropriate, engaging communication, and (iii) the necessity to express national budget rules and targets in accruals terms.

Part 3. Quantitative analysis of EPSAS long term benefits

79. This part develops a framework to quantify the long term benefits associated with EPSAS. It then highlights caveats and limitations of this framework. The latter is used to assess the indirect impacts of EPSAS on:

- GDP and growth,
- Private and public investments,
- Job creation.

These impacts are considered as indirect as they relate to the impact of EPSAS adoption at central government level on sovereign bond yields. Finally, using these estimated benefits, opportunity costs of not adopting EPSAS are assessed.

3.1 Framework for assessing long term benefits

80. Various elements need to be taken into consideration in defining the proper framework for evaluating the long-term benefits of harmonising public sector accounting in the EU based on EPSAS.

Proxies used to overcome data challenges

81. There are not many measures available - either in the literature or in official statistics[15] - for evaluating potential long term benefits outlined in Table 2. Likewise most of the factors identified which influence the transition – as described in Section 2.2 – are not captured in detail through available data. In the light of these data challenges, proxy variables[16] have been used, where possible. Therefore, the scope of the quantitative analysis of long-term benefits of harmonising public sector accounting has been limited to areas where proxies were available, and statistically relevant[17]:

- A proxy covering the financial markets was tested: 10-year sovereign bond yields. This proxy captures the long-term benefits on capital markets.
- For the purpose of measuring the current level of development of public sector accounting in each MS, the public sector accounting maturity score built in the previous PwC (2014) study[18], was used as a proxy. As no sub sovereign bond yield data were used, the analysis covered only the central government level[19] public sector accounting maturity.

The framework built for the quantitative analysis

82. Factors impacting sovereign bond yields reflect investors' perception of uncertainty (risk premium). By providing investors with better financial information on MSs' fiscal

[15] Measuring those benefits, which are considered as public goods, would require to regularly perform comprehensive opinion surveys targeting a representative sample of stakeholders, using a contingent valuation method. See Khaw W. M. et al, The measurement of subjective value and its relation to contingent valuation and environmental public goods, PLoS ONE 10(7) e0132842.doi:10.1371/journal. pone.0132842, 2015.

[16] In economic studies, proxy variables are traditionally used in quantitative analyses to replace/represent unobservable or immeasurable variables.

[17] For details on the statistical selection of proxies, see Appendix D.

[18] Collection of information related to the potential impact, including costs, of implementing accrual accounting in the public sector and technical analysis of the suitability of individual IPSAS standards, PwC, 2014.

[19] The 2014 study also provides public sector accounting maturity scores at state, local, and social security funds level.

positions and performance, EPSAS should reduce uncertainty for investors and rating agencies. If this is the case, a negative relationship should exist between sovereign bond yields and MSs' central government level public sector accounting maturity levels. The economic benefits arising from such a reduction in sovereign bond yields would represent a measure of EPSAS benefits.

Experts' comments
An international organisation expert: Better information leads to a better capacity to formulate fiscal policy. This would allow the markets for better understanding of the risks related to the government. Rating agencies will appreciate a lot having a full picture of government positions, beyond the cash-flow-only information (budget).
An international organisation expert: Better transparency and comparability are certainly good. Private and public investors will be better informed, this could only have benefits…. Also country ratings will be sounder with EPSAS. These ratings are used by corporates when they go to markets.
A representative of the private sector: Having high quality data (credible and sufficient) is a prerequisite condition in order to give a country a rating. In some cases, data quality is lower and it could affect the scoring, but generally the quality does not constitute a problem for European countries (as opposed to developing countries whose statistical system is not sophisticated enough). It should be noted that fiscal transparency constitutes only part of the rating. Many other factors impact the sovereign ratings
A representative of the private sector: Harmonization of public accounting practices will increase productivity for rating agencies through better data comparability. From the interviewee point of view it could increase productivity for about 10-15% (that is the share of time that rating agencies spend now for decrypting and understanding the data).
A Ministry of Finance expert: A very practical benefit of accrual accounting is that you do not have fiscal illusions on your current fiscal status which is very important, not only for the government but for the public, for rating agencies that look at the country. You really have a clear picture of what is the budget status of that particular country.

83. The framework consists in testing whether there exists a relationship between the average sovereign bond yields over 2010-2014 and the accounting maturity levels of MSs in 2010. Bond yields were averaged over 2010-2014. This is a standard procedure to capture the long-term economic benefits of public reforms[20]. Thus the framework investigates whether difference in public sector accounting maturity in 2010 can help explain average bond yields fluctuation over the subsequent years. It seeks to establish empirical evidence on the not-yet existing EPSAS by reference to past accruals/IPSAS reforms. The benefits measured are provided at an aggregated level (per MS) and cannot then be attributed to specific stakeholders.

84. The relationship assessed is to be extrapolated to quantify long-term economic benefits. This extrapolation will present long-term benefits if all MSs reached the maximum accounting maturity level. As EPSAS has not yet been developed, and as, in the words of the European Commission, "the IPSAS standards represent an

[20] Masuch, K., Moshammer, E., and B. Pierluigi, B. "Institutions, public debt and growth in Europe." (2016). *European Central Bank Working Paper Series*, No 1963, September 2016.

indisputable reference for potential EU harmonised public sector accounts[21]", the accounting maturity level is assessed by reference to IPSAS. In other words, in the modelling framework the impact of EPSAS adoption is assumed to be equivalent to an harmonised adoption of IPSAS by all MSs.

85. The 2010 accounting maturity score is proxied by the 2014 scores. This assumption was forced by data availability[22]. The impact of this assumption should be limited, because:

- MSs do not change their accounting standards frequently, and,
- Even if major accounting reforms took place between 2010 and 2014, it is unlikely that they would have already been in application during this period.

86. Therefore considering years from 2010 on when averaging sovereign bond yields appears more relevant. As for instance, the 2008 accounting maturity score would have to be proxied by the 2014 to consider the effect on the period 2008-2014. Furthermore considering a period starting from 2010 ensures a homogenous economic context, by excluding the crisis and pre-crisis years.

Description of data used

87. The data used in the framework are presented here in more detail. The proxy variables are described in Table 4.

Table 4: Proxy variables used in the quantitative analysis

Indicator	Proposed proxy variables
Long-term benefits for capital markets	10-year sovereign bond yields
Public accounting maturity	PwC (2014) scores for accounting maturity for each MS for the central government level

88. **Long-term benefits for capital markets.** 10-year sovereign bond yields are used to measure long-term benefits for capital markets. This data was imported from the IMF's International Finance Statistics (IFS) database.

89. **Public sector accounting maturity.** The 2014 PwC study provides estimates of the proximity of each MS's public sector accounting standards to IPSAS, on a scale from 1 to 100. These estimates from the 2014 study were used to approximate the degree of maturity of public-sector accounting standards. The higher the accounting maturity score, the closer the standards to IPSAS.

This score is available for the year 2014 and for each MS and each level of government – i.e. central, local, state, social security funds.

[21] European Commission (2013) Report from the Commission to the European Parliament and the Council: Towards Implementing Harmonised Public Sector Accounting Standards in Member States – The suitability of IPSAS for the Member States". 6.3.2013. COM(2013) 114, European Commission, Brussels

[22] The PwC accounting maturity score for 2014 was not used to measure the impact on the average sovereign bond yields on the period following 2014. When the study was initiated, no data were yet available for 2015 and 2016. Further research should aim to investigate this relationship.

90. **Control variables.** Further economic variables were used to control for the global economic environment and MS specificities[23]. Based on Kumar and Baldacci (2010)[24], the following control variables were introduced in the statistical model:

- GDP per capita, current prices,
- The World Bank's business development indicator, reflecting the ease of doing business in each country (the lower the score, the more conducive the regulatory environment to business operations),
- General government balance, in percentage of GDP[25],
- Government consolidated gross debt, in percentage of GDP,
- Inflation rate (consumer prices, in percentage),
- Gross domestic savings (in percentage of GDP),
- An institutional quality indicator was considered to capture the performance of each MS in terms of democratic accountability and scrutiny. As is commonly done in the literature[26,27], this indicator is built as an average of four World Bank World Governance indicators that capture the quality of economic and administrative institutions:
    - **Rule of Law** – Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
    - **Government Effectiveness** – Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
    - **Regulatory Quality** – Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development[28]. This indicator is used because it measures, among others, bureaucratic inefficiency and/or opacity and the

[23] See Appendix C for sources.

[24] Kumar, M.S. and Baldacci, E. "Fiscal deficits, public debt, and sovereign bond yields". No. 10-184. International Monetary Fund, 2010.

[25] The general government balance data used in this statistical model is provided by Eurostat statistical database. The general government deficit/surplus is defined in the Maastricht Treaty as general government net lending (+)/net borrowing (-) according to the European System of Accounts. The general government sector comprises central government, state government, local government, and social security funds. It is the difference between the revenue and the expenditure of the general government sector. The government debt is defined as the total consolidated gross debt at nominal value at the end of the year in the following categories of government liabilities (as defined in ESA 2010): currency and deposits, debt securities, and loans. At the national level, data for the general government sector are consolidated between sub sectors.

[26] Alonso, J.A., and C. Garcimartín. "The determinants of institutional quality. More on the debate." *Journal of International Development* 25.2 (2013): 206-226.

[27] Masuch, K., Moshammer, E., and B. Pierluigi. "Institutions, public debt and growth in Europe." (2016). *European Central Bank Working Paper Series*, No 1963, September 2016

[28] Private sector development in the international development industry refers to a range of strategies for promoting growth and reducing poverty in developing and low-income countries, by strengthening private sector companies. These interventions could target specific companies, professional organisations, or the regulatory environment.

risk that fines and penalties for non-compliance are levied with a tax code that is disproportionate or manipulated for political ends.

  - **Control of Corruption** – Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

- Indicator variable for Greece: This variable is equal to 1 for values of Greece, and 0 for all others. It aims at capturing possible specificities of this MS' sovereign bond yields,
- Indicator variable for the Eurozone: This variable aims at capturing possible specific effects on interest rates in Eurozone countries,
- Indicator variable for countries with high Foreign Direct Investment (FDI) net inflows (annual FDI higher than 10% of GDP).

Modelling procedure

91. An ordinary least squares (OLS) regression, linking public sector accounting maturity to sovereign bond yields, was undertaken. This is a standard econometric approach.
92. Supporting correlation analysis was conducted, aiming at assessing potential endogeneity issues, through:
    - Bi-variate regressions, in order to identify statistically plausible channels of impact,
    - Correlation tests, in order to define whether adopting accruals-based public accounting standards is correlated with specific economic variables.
93. The technical aspects of the modelling procedure were reviewed and challenged by an independent economist from EY, specialised in macroeconomics and econometrics[29].
94. The modelling procedure is presented in detail in Appendix D.

3.2 Caveats and limitations

95. Largely due to data limitations, the approach presented here covers partially the expected long-term benefits of EPSAS. The only quantified significant impact is the decrease in sovereign bond yields and its related effects on GDP, growth, investments, and jobs. In the identified benefits summed up in Table 2, this corresponds to the impacts on capital markets.

    The approach is heavily constrained by data scarcity, as the most pragmatic option is a cross-country regression with only 28 observations. This limits the robustness of estimations as they are run on a small sample. As the statistical approach measures average effects, estimates are more robust at EU level than at MS level. The analysis is based upon the information collected, and the limitations of the data used must be borne in mind when interpreting the findings. Had more data been available, findings would have been based on more comprehensive material and conclusions drawn on the findings would not necessarily have been the same.

    When interpreting the results following limitations should be taken into account:

[29] This quality reviewer holds a PhD in econometrics and is also an Assistant Professor at the Warsaw School of Economics.

- These results should be viewed as indicative only, as is the case for all prospective analysis.
- In addition, data regarding accounting maturity is only available for 2014. This resulted in using the 2014 accounting maturity score as a proxy for the 2010 accounting maturity level.
- Exceptional country-specific economic environments may have biased results. In the case of Greece, these biases have been dealt with by using specific indicator variables to capture those peculiarities.
- To relate change in sovereign bond yields to other economic aggregates such as growth, investment and jobs, an existing empirical study that analyses the relationships between growth and public finances for 40 years starting in 1970[30] was used (referred as the Checherita model hereinafter). As these relationships have been drawn out of a sample of EU countries, these results may not apply to all MS. Likewise, EU sovereign bond markets yields have shifted quite dramatically since 2014 and the model results may not apply in current market conditions taking into consideration low or zero interest rate policies which bound sovereign debt fluctuation.
- As no sub sovereign data were used the analysis was limited to central government only. The model results thus do not cover potential impacts of other government levels' public sector accounting maturities.
- In this analysis, the not-yet-existing EPSAS were proxied by IPSAS. Once EPSAS are defined, it will be necessary to assess their proximity to IPSAS and use this to extrapolate the long-term benefits of EPSAS.

3.3 Results of the modelling procedure

Table 5 below presents the statistical results of these procedures. It displays only the explanatory variables that are statistically significant.

Table 5: Stepwise regression results on 10-year sovereign yields, with central government level public sector accounting maturity

Number of observations	27*		
Adjusted R-squared	0.82		
Explanatory variables	Coefficient	T-statistic	P-value
General government balance (in % of GDP)	-0.242	-3.57	0.002
Public accounting maturity at central government level	-0.015	-1.72	0.099
Indicator variable for Greece	5.325	4.36	0.000
Institutional quality indicator	-1.502	-4.54	0.000
Constant	5.350	7.58	0.000

[30] Checherita-Westphal, C., and Rother, P. "The impact of high government debt on economic growth and its channels: An empirical investigation for the euro area." *European Economic Review* 56.7 (2012): 1392-1405.

**Please note that 10-year sovereign yields data for Estonia are missing. This explains why there are only 27 observations for this analysis.*

96. Statistically significant variables are the general government balance, public sector accounting maturity at central government level, the indicator variable for Greece, and the institutional quality indicator. The signs of the estimated coefficients are consistent with economic theory[31]:

    - An increase in general government balance (i.e. decrease in deficit or increase in surplus) decreases sovereign bond yields. An improvement in the general government balance sends a positive signal to capital markets on the financial performance of the country under consideration. This, in turn, decreases the risk premium, and therefore sovereign bond yields.
    - Sovereign bond yields are higher in the specific case of Greece. In statistical terms, Greece is an outlier. It exhibits excessively high sovereign bond yields in comparison with other MSs. In statistics, handling such specific cases requires indicator variables, otherwise the results will be biased[32].
    - The better the institutional quality of a country (as measured by the World Bank World Governance Indicators), the lower its sovereign bond yields. Again, a higher quality of institutions sends a positive message to capital markets about the functioning of the economy as a whole, and decreases the risk premium on sovereign debt.

    In particular, the central government-level public sector accounting maturity score appears to be statistically significant. This means that the central government accounting maturity level of a MS helps explain sovereign bond yields. The negative sign of this linear relationship confirms that more mature public sector accounting standards contribute to a decrease in the risk premium, and in turn in sovereign bond yields. Moreover, this relationship can be viewed as empirical evidence of the potential positive effect of EPSAS on capital markets.

97. Figure 1 presents the estimated impact of EPSAS adoption on sovereign bond yields for each MS.

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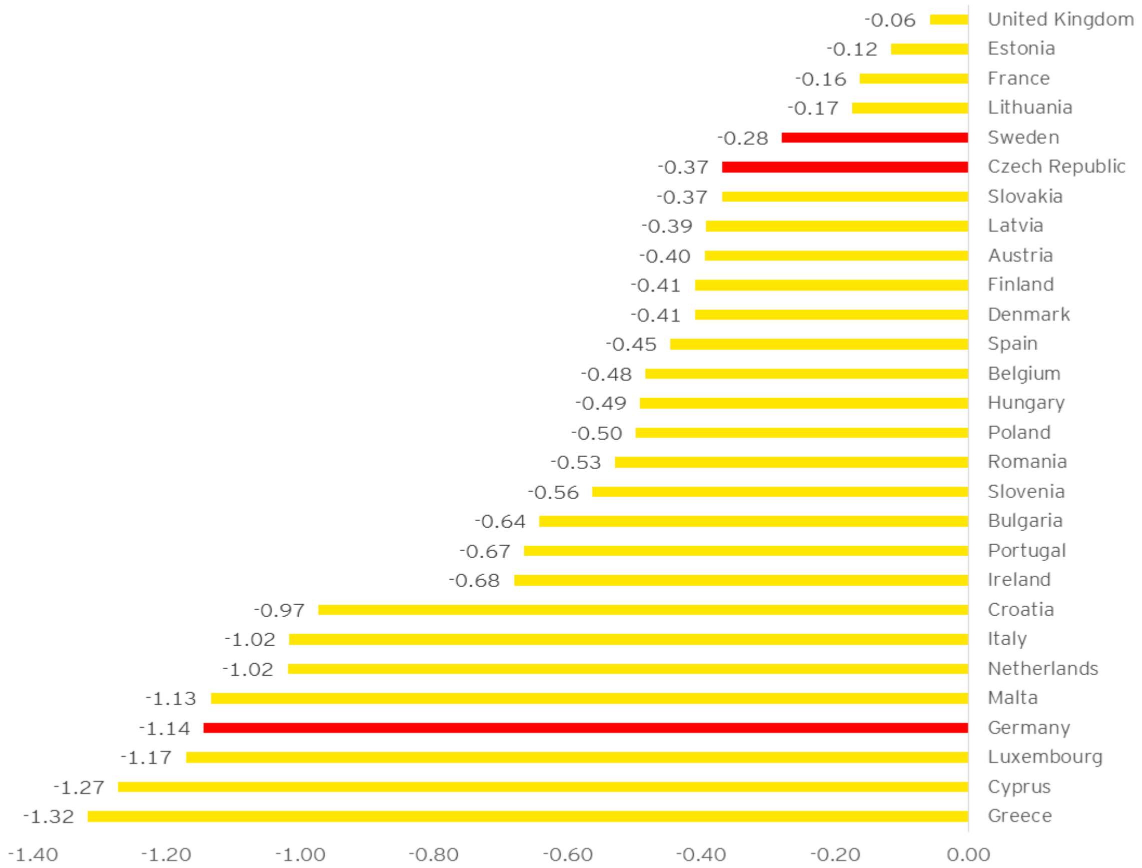
[31] Findings are in line with those of Kumar, M.S., and Baldacci, E. "Fiscal deficits, public debt, and sovereign bond yields". No. 10-184. International Monetary Fund, 2010.

[32] Greene, W.H., "Econometric Analysis", *Upper Saddle River*, N.J.: Prentice Hall, 2000.

Figure 1: Decrease of sovereign bond yields associated with EPSAS adoption (in percentage points)



MSs highlighted in red in this figure are those for which the model's prediction performance is low from a statistical standpoint. See appendix D for details.

98. According to the estimated results, if all MSs were to adopt EPSAS, the decreasing impact on 10-year sovereign bond yields would range between 0.06 points (6 basis points) for the United Kingdom and 1.31 points (131 basis points) for Greece. For instance, the result for Ireland (-0.68) is interpreted as follows: If Ireland had fully adopted EPSAS - if its central government level public sector accounting maturity score went from 54 (level in 2014) to 100 - its 10-year sovereign bond yields could have been decreased by 0.68 points. More specifically, its sovereign bond yields would decrease from 5.53% (2010-2014 average) to 4.85%. For government bonds worth €1 billion, this decrease in Irish sovereign bond yields would generate savings of €6.8 million.

    MSs which would benefit the most are the least mature countries in terms of public sector accounting practices (Greece, Cyprus, Luxembourg, Malta, Germany, Netherlands, Italy and Croatia). In other words, higher gains are realised when the gap between the current state of public sector accounting maturity and EPSAS is the widest.

99. A majority of experts highlighted the fact that the transparency of public finance information would facilitate the assessment of sovereign bonds, and have a positive effect on sovereign bond yields as suggested by the results. In particular experts noted that:

    - The adoption of accruals-based standards has positive effects on credit ratings. For example, Austria's transition to accruals-based accounting made the public finance information more transparent, by revealing negative net assets of about €448 billion at central government level, excluding pension liabilities which add €300 billion more in negative net assets to this number. However, although negative net assets were revealed by the transition towards accruals-based public sector accounting standards, rating agencies took into account the fact that Austria's public finances became more transparent, when assessing the performance of this country.

- Crises, like in Greece, were mostly due to insufficient information. Accruals-based public sector accounting standards would have made available to PFM the information necessary to prevent such crises. This would be done *via* the accounting of contingent liabilities, relating to various risks (e.g. financial sector, natural disasters, other sector-specific risks etc.).

100. Representatives from rating agencies and investment companies interviewed for this study welcomed the increased transparency that EPSAS harmonisation would provide. While they did not reject the existence of a relationship between MSs' central government level public sector accounting maturity and sovereign bond yields, they were more nuanced about establishing a direct causality. Indeed they currently make limited use of direct information and data about government financial statements when making their credit rating analysis. They prefer to rely on data and information provided by national accounts (e.g. GDP growth, public deficit, unemployment rate, public spending etc.).

3.4 EPSAS impact on growth, investments and jobs

101. This section aims to further analyse how EPSAS could stimulate growth, investment and job creation. It builds upon the results of the modelling procedure and experts' interviews. These impacts are considered as indirect, because they relate to the fluctuations in sovereign bond yields associated with EPSAS adoption.

102. Since the global economic and financial crisis, the EU has been suffering from low levels of investment. Collective and coordinated efforts at European level are needed to put Europe on the path of economic recovery. The investment plan for Europe adopted in November 2014 was the first major initiative of the Juncker Commission. Its objective is to bring investments back in line with its historical trends[33]. The target is to generate €500 billion in investments before 2020[34]. In 18 months this plan has triggered €138.3 billion in new investment, 290 000 SMEs can expect to benefit from better access to finance and more than 100 000 new jobs have been created[35].

<u>EPSAS impact on growth</u>

103. The results of the modelling procedure above are used to relate to indirect impacts on growth. This extrapolation is based on the Checherita model[36]. It makes it possible to

[33] https://ec.europa.eu/commission/priorities/jobs-growth-and-investment_en

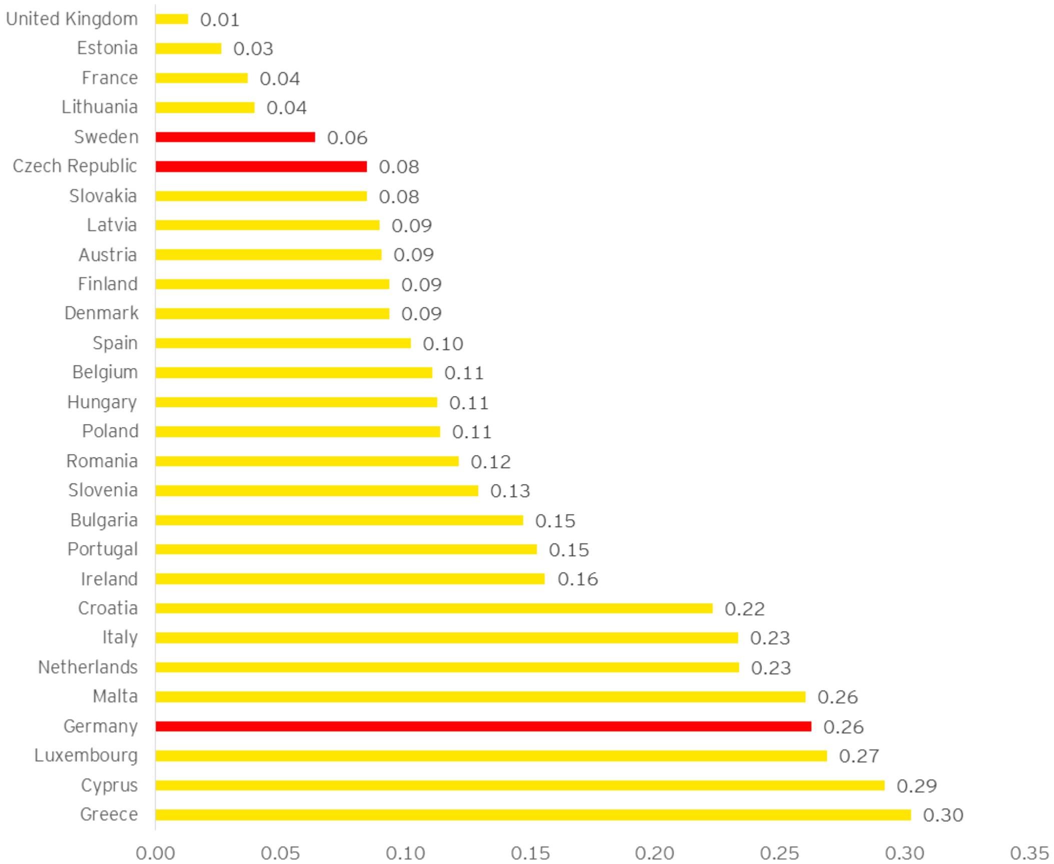
[34] Jean-Claude Juncker, State of the Union Address, European Parliament, 14 September 2016.

[35] https://ec.europa.eu/commission/sites/beta-political/files/2-years-on-investment-plan_en_2.pdf

[36] See Section 3.2.

relate changes in sovereign bond yields into GDP per capita growth[37]. The results are presented in Figure 2[38].

Figure 2: Impact of EPSAS adoption on GDP per capita growth (in percentage points)



MSs highlighted in red in this figure are those for which the model's prediction performance is low from a statistical standpoint. See appendix D for details.

104. If all MSs were to adopt EPSAS, the positive impact on GDP per capita growth would range between 0.01 point (1 basis point) for the United Kingdom and 0.30 points (30 basis points) for Greece. Taking Ireland as an example again may be useful in the interpretation of these figures. Ireland's average annual GDP per capita growth rate was 1.72% between 2010 and 2014. As shown in Figure 2, if Ireland had adopted EPSAS, its GDP per capita growth rate could have been increased by 0.16 points (16 basis points). In other terms, adopting EPSAS could increase the Irish GDP per capita growth rate from 1.72% to 1.88%.

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[37] Estimates of the impact of sovereign bond yields on GDP per capita growth were done in real terms in the Checherita and Rother model (2012), while our initial results were estimated on nominal sovereign bond yields. Therefore, we deflated the variation on sovereign bond yields using a GDP deflator (percentage, at current prices) to calculate real sovereign bond yields, as previously done by the authors in their own paper. We used the GDP deflator provided by the World Development Indicator database of the World Bank.

[38] In the simulation it is assumed that sovereign bond yields is the only factor impacting GDP per capita growth. The potential impact of sovereign bond yields on other explanatory variables of the Checherita and Rother model (2012) are not considered. Therefore it should be noted that the results presented here provide only a partial view of the potential impacts of EPSAS on the wider economy and society. More details are available in Appendix D to this report.

105. The model expressing the decrease in sovereign bond yields in gains in GDP per capita growth is linear in the parameters. This is why the ordering of countries in terms of impact amplitude is the same as in Figure 1. The least mature countries in terms of public sector accounting practices (Greece, Cyprus, Luxembourg, Malta, Germany, Netherlands, Italy and Croatia) benefit the most in terms of GDP per capita growth. Again, higher gains are realised when the gap between the current state of accounting maturity and full-scale EPSAS is the widest.

106. Experts confirmed the existence of an indirect link between accruals reforms/EPSAS and growth. While increasing GDP is not among the primary objectives of EPSAS, EPSAS could have an indirect impact on GDP via better information for policy and decision making.

Experts' comments
A Ministry of Finance expert: "Accrual accounting provides an opportunity for better decision-making by providing a complete picture of public finance."
An international organisation expert: I do not agree with this line of argument [that EPSAS' objective is not to promote growth]. Accrual accounting is not an end in itself, but a means to achieve an end. The ultimate purpose of the public sector is to achieve sustainable growth.

107. Some experts questioned the direction of the relationship between EPSAS and GDP growth, claiming that GDP might have an impact on the adoption of accruals-based public sector accounting. In other words, in fast-growing, rich economies, adopting EPSAS could be easier. However, statistical analysis[39] does not support the existence of such a relationship.

Available data support an increasing impact on investment

108. Regarding public investment[40], the cost of implementing EPSAS itself represents an investment[41]. To understand the importance of these costs, the weight of EPSAS implementation costs in total public investment is calculated. Figure 3 below presents the increase that EPSAS harmonisation would generate in fixed public investment, through its implementation costs[42].

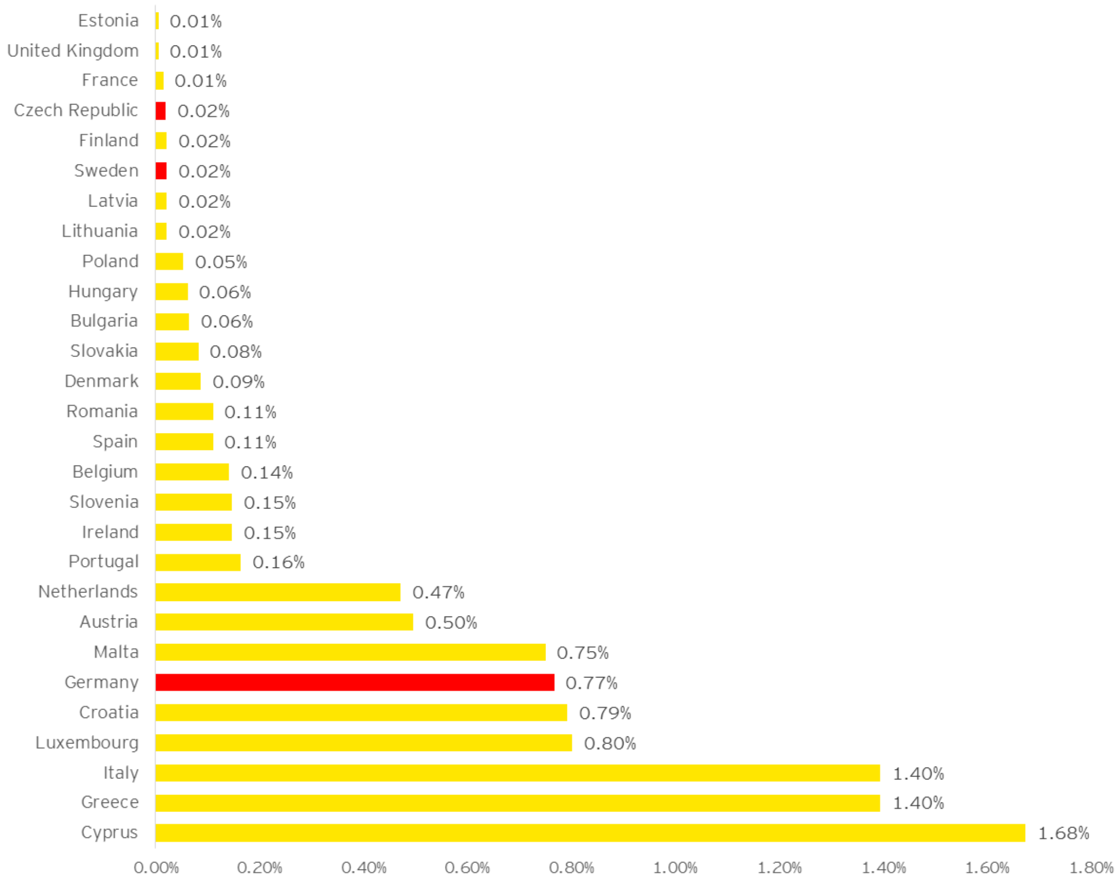
[39] See Appendix D.

[40] Public investment is of four broad types: infrastructure including transport and telecommunication, in human capital (i.e. education and training), in technical progress (i.e. research and development) and in plant and equipment. Private investment is of two types: the replacement of the existing capital stocks held by the private sector and the creation of additional capital stock embodying new technology. See Public and Private Investment in the European Union, Directorate-General for Research, WORKING PAPER Economic Affairs Series ECON 113 EN 1999.

[41] It should be noted that not all of EPSAS' cost may be recognised as public investments under either national accounting or financial accounting rules. Therefore, Figure 3 may overestimate the impact of EPSAS implementation on public investments.

[42] Fixed public investment data is provided by Eurostat. Costs are estimated in the PwC study (2014), and cover a five-year period. Therefore the costs were spread linearly in this calculation.

Figure 3: Increase in public investment due to EPSAS implementation (as a percentage)



The increases range from 0.01% for Estonia to 1.68% for Cyprus. This view makes it possible to account for the amounts of existing public investments. Italy and Germany are the two countries where the EPSAS implementation costs are the highest, requiring public investments of €2.6 billion, and €2.4 billion respectively, spread over a period of five years[43]. However, Cyprus and Greece are the two countries that will witness the highest increase in their public investment level. This is also due to a scale effect, because total public investment levels are lower in Cyprus and Greece than in Italy and Germany.

The previously used Checherita model (2012) does not establish a statistically significant relationship between sovereign bond yields and public investment levels. This may be explained by the fact that cheaper public financing does not necessarily induce higher public expenditure. Depending on the strategy applied, governments may, for example, prefer to reduce their debt levels, instead of increasing them to use cheaper funds.

109. Regarding private investment, a recent empirical study[44] published by the National Bank of Austria shows that long-term sovereign bond yields have a significant, positive and substantial impact on long-term fixed-rate bank lending rates on loans to the private non-financial sector. For example, in the long run, an increase of the

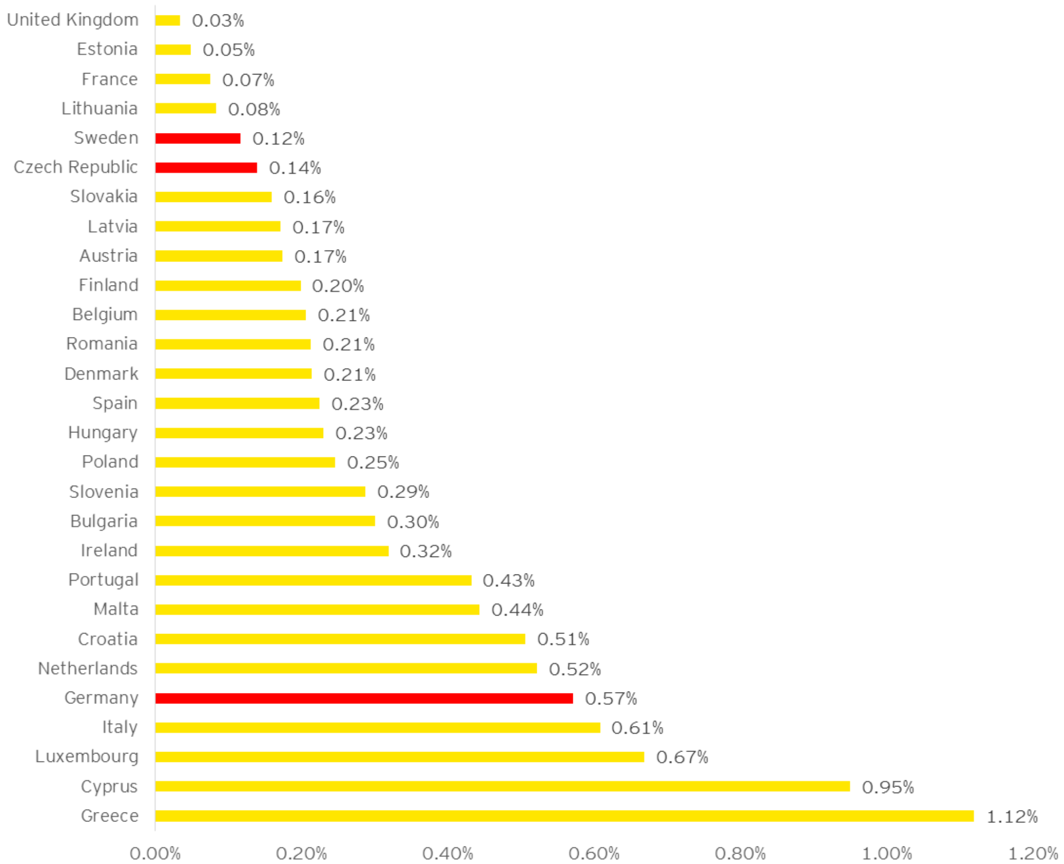
[43] PwC Study (2014).

[44] Eller, M., and T. Reininger. "The influence of sovereign bond yields on bank lending rates: the pass-through in Europe." *Oesterreichische Nationalbank*, Focus on European Economic Integration, Q2 2016.

government bond yield by 100 basis points leads to a rise in the long-term lending rate by 50 basis points in France, 70 basis points in Germany and about 100 basis points in Italy. The influence of government bond yields on these lending rates was not just a crisis-related or post-crisis phenomenon. It was already present before the start of the 2008 Recession. This suggests that the likely decrease of sovereign bond yields related to EPSAS development[45] would increase private investment.

110. This is confirmed by the Checherita model that establishes a relationship between the ratio of private sector gross fixed capital formation to GDP and long-term real sovereign yields[46]. This result, coupled with the relationship established in Part 3, is used to extrapolate the potential effect of the harmonisation under EPSAS on private investment. The impact is illustrated in Figure 4.

Figure 4: Impact of EPSAS harmonisation on private sector Gross Fixed Capital Formation to GDP (as a percentage)



MSs highlighted in red in this figure are those for which the model's prediction performance is low from a statistical standpoint. See appendix D for details.

[45] See Section 3.3.

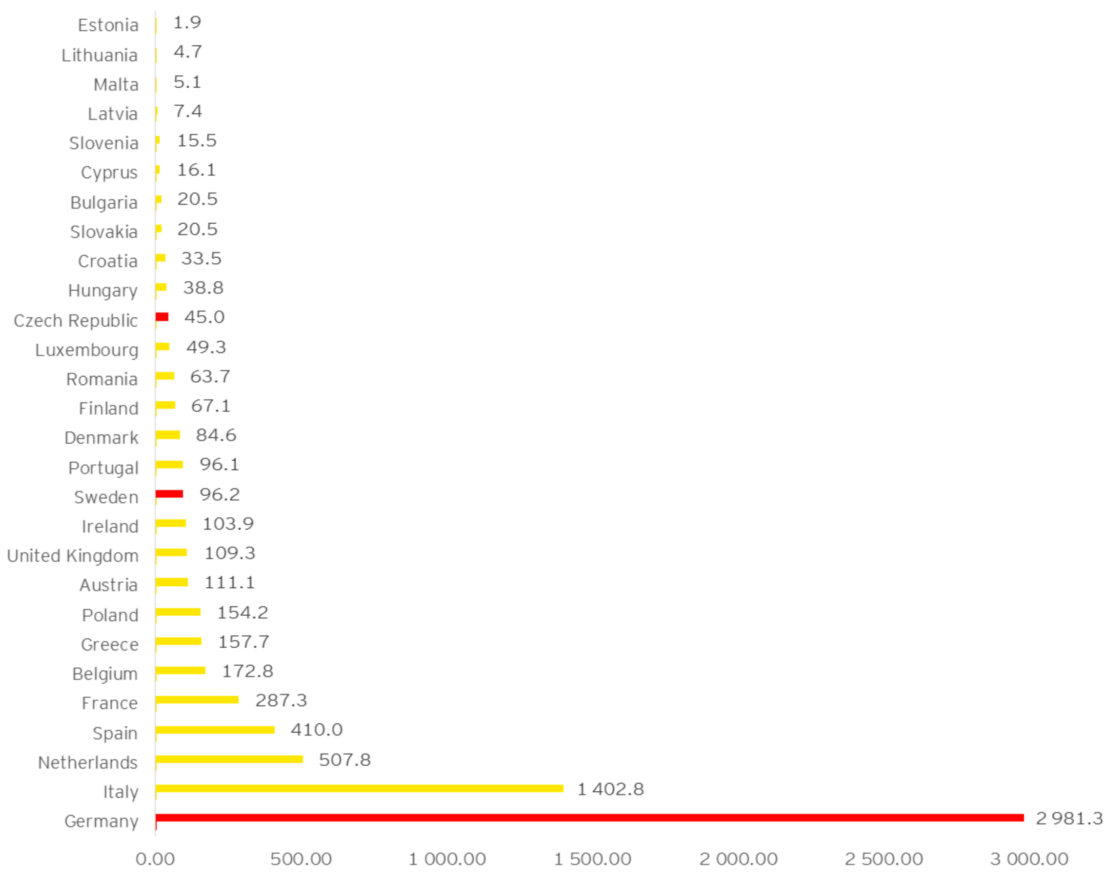
[46] According to this model, sovereign yields have a statistically significant impact on private investment to GDP ratio.

111. According to the Figure 4 simulations, a reduction in sovereign bond yields will increase investment to GDP ratios, which will range from 0.03% for the United Kingdom to 1.12% for Greece[47].

112. Figure 5 presents the same results expressed in millions of euros[48]. The simulations of gross fixed capital formation range between €1.9 million for Estonia and €2 981.3 million for Germany. For instance, if Austria had fully adopted EPSAS - if its central government level public sector accounting maturity score had risen from 73 (level in 2014) to 100 (maximum level) - its private investment level (gross fixed capital formation) would have been increased by €111.1 million.

At EU level, the simulated annual impact is about €7.06 billion. However, the significant weight of Germany in the EU-wide results should be stressed. The impact on Germany appears high compared to the impact on other MSs because the current level of private investment is higher in Germany.

Figure 5: Impact of EPSAS harmonisation on private sector gross fixed capital formation (in € million)



MSs highlighted in red in this figure are those for which the model's prediction performance is low from a statistical standpoint. See appendix D for details.

[47] The bars in red represent countries for which the model developed in Part 3 performs poorly – i.e. the prediction error is above 40%.

[48] This is done by multiplying the private sector gross fixed capital formation data (level) for the year 2014, by the impact calculated as a percentage and presented in Figure 4. The data is provided by Eurostat.

Experts suggest that the quality of public investment will improve

113. According to experts, EPSAS will have an impact on the management and quality of public investment.

114. EPSAS could improve public investment through better asset management. Accrual accounting provides reliable and complete information about public sector assets. For instance, in Austria, during the transition from cash to accruals-based accounting, balance sheets were analysed and a complete inventory of assets was produced. Many assets that were not accounted for were discovered during this process. The valuation of assets through accrual accounting could therefore optimise government resource allocation, and thus improve the quality of public investment.

115. Given the fact that EPSAS will use the accrual-basis IPSAS as a point of reference, EPSAS may improve the accounting for service concession arrangements in the area of infrastructure. Whereas under a cash-based accounting framework only cash outflows related to the service concession arrangement and no assets and liabilities will be presented in the financial statements, under the accrual-based IPSAS framework also the infrastructure asset (so-called: service concession asset) and the corresponding liability would have to be shown in the grantor's financial statements under the condition that the grantor controls the service concession asset[49].

116. As underlined by one interviewee, the production of accruals-based public sector financial statements could also increase direct public financing by banks. This is due to the fact that banks are more inclined to finance projects of borrowers who are able to provide a clear view of their financial position. A more complete government financial position could therefore attract more financing from banks. This potential increase in public financing would thus generate possibilities of increasing public investment.

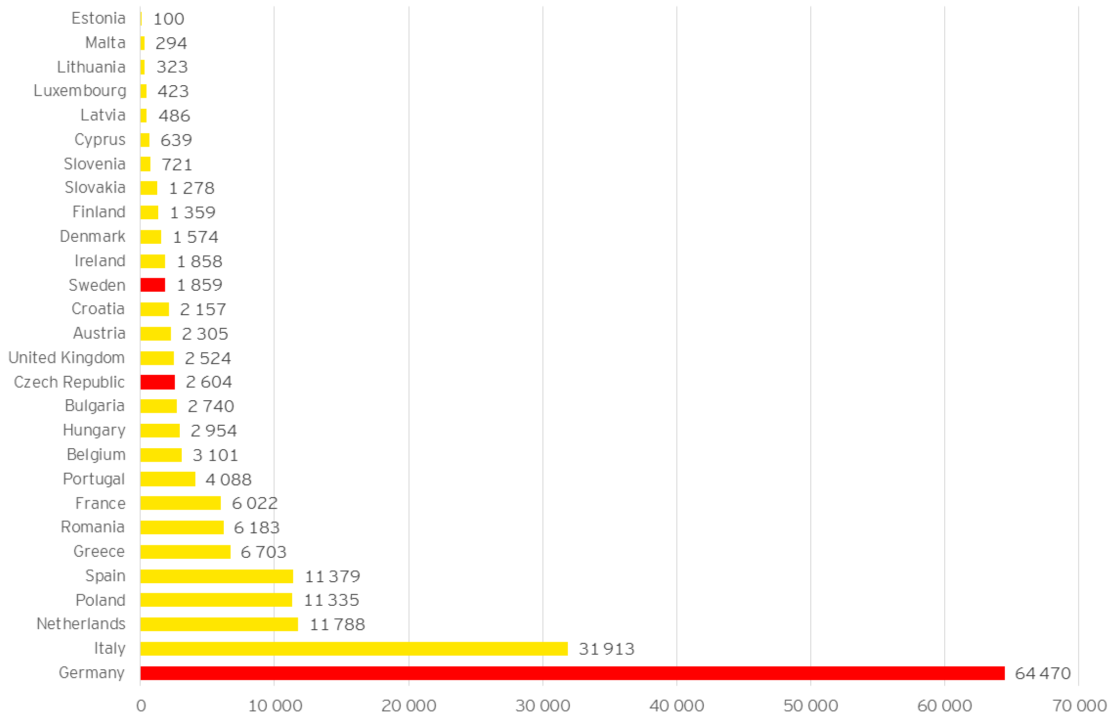
Experts' comments
An international organisation expert: "Information about public assets would be more reliable in an accrual accounting system. We could therefore imagine a situation in which government resources could be saved for other investments allowing for better allocation of government resources. "
An academic expert on public accounting: "Detecting wrong investments: e.g. I have City rails. And I overpaid the station. In cash accounting since you will not look at the depreciation, this kind of mistake will not appear. Regarding maintenance. e.g. a council that does not do maintenance of the roads will look better in a cash accounting setting. In accrual accounting, a council that is not doing maintenance will have important impairment losses."
An international organisation expert: "Through accruals you have better information on what you have, so you could better manage public investment in infrastructure/fixed assets."
An academic expert on public accounting: "In my country there has been the issue of the use of public-private partnerships. To a large extent this has been resolved, the accounting machine got to grips with that when we moved to accrual accounting".

[49] For details refer to IPSAS 32, Service Concession Arrangements: Grantor.

Available data suggest the creation of more than 180 000 jobs

117. The employment-to-GDP elasticity in euro area MSs has been 0.62 since the second quarter of 2013[50]. This means that, on average, if the GDP increases by 1%, employment will increase by 0.62%. This elasticity is used together with the impacts on GDP per capita growth, presented in Figure 2, in order to deduce the employment increase rate[51]. Figure 6 presents the indirect impact of EPSAS harmonisation in terms of additional employment, for each MS. Those theoretical estimates are subject to the same caveats and limitations explained in Section 3.1.

Figure 6: Impact of EPSAS harmonisation on employment (in number of individuals)



MSs highlighted in red in this figure are those for which the model's prediction performance is low from a statistical standpoint. See appendix D for details.

118. The indirect impact of EPSAS on EU jobs ranges from 100 for Estonia to 64 470 for Germany. The impact at EU level is estimated at about 180 000 additional jobs. For instance, if Denmark had adopted EPSAS - if its central government level public sector accounting maturity score had risen from 72 (level in 2014) to 100 (maximum level) - its employment level would have been increased by about 1 600.

Experts suggest EPSAS would lead to an improvement in workforce qualification

119. On the one hand, accruals-accounting means producing more financial statements in comparison with cash-based systems. This requires a larger number of accountants and

[50] ECB Economic Bulletin, Issue 6 / 2016 – Article, The employment-GDP relationship since the crisis.

[51] Eurostat data (2015) on employment were used to estimate the increase in employment in numbers of persons.

higher levels of accounting expertise. On the other hand, in many cases the adoption of accruals accounting also requires the improvement of IT systems. This may lead to a more integrated and more efficient financial department. Labour-intensive tasks such as reconciliation and bookkeeping would be automated. This should reduce the size of the workforce.

Experts' comments
A Ministry of Finance expert: "We cannot say that the size of the work force was reduced, because there is a lot of information to treat: for budget execution, financial statements, for statistical purposes etc."
A Ministry of Finance expert: "When we moved to the new system, because they had all the benefits of corporate accounting software built on efficiencies, the finance department in the government shrunk. You might have one accountant and ten section clerks and 50 accounting clerks, and you went from that to having 5 accountants and 10 clerks. It reduced your finance division by half or a third, but the third you had were much more technically skilled and much more able to communicate with the rest of the business."

120. Experts unanimously agree that accrual accounting will raise the quality of the workforce in Finance Departments. For a successful transition, it is necessary to hire highly skilled staff, or to train existing staff. It was mentioned that the education systems will have to adjust, to supply the new set of skills needed.

Experts' comments
An academic expert in public accounting: "Accruals change the needs for the professional workforce in accounting functions. If governments want to improve they need to hire the right staff. If they don't hire the right staff, they will have disasters with the IT systems for example."
A Ministry of Finance expert: "The impact was quite positive (...) Some people changed, some people left, some came in, but the overall qualifications for the people that worked on the financial statements improved (...) it improved in some levels of the ministry like in big agencies, but not in small entities (...) We have a better understanding and better qualifications of the people working in accounting."
A Ministry of Finance expert: "You can also start at university level, by teaching people the skills for common standards. This would help a lot."

<u>Experts identified strategies to increase skills</u>

121. To address the need for more qualified accountants, the Ministries of Finance adopted various strategies. Some hired private sector accountants. Others focused on capacity building leveraging on existing staff. To build the required capacity, the implementation of shared service systems is often undertaken. Within this system a centralised team of qualified accountants provides support to other public sector entities. Qualified accountants may have already been hired or have come from the national court of audit. This strategy is especially helpful for small public sector entities which often struggle to hire qualified staff.

Experts' comments
A Ministry of Finance expert: "At local government level, the people that were employed obviously did not have the requisite skills. To deal with the new budget reform and the new accounting reform, a Minimum Competency Framework was introduced. If for example you want to be the Chief Financial Officer of a city, you need to demonstrate all the skills displayed in this framework. Using this framework, local public entities do assessments, and identify the skills gaps. Currently they are in the process of upskilling these people. They remained employed at the municipalities, but they are now going to educational and capacity building programmes to make sure that now they have the right skills."
An international organisation expert: "This was a huge challenge. Normally, the staff working on budget departments of Finance Ministries do not know anything about accruals. Even people who learned about accruals in universities and did not use it in the public sector had difficulties. It is very hard to switch from a cash only perspective to an accrual perspective. Comprehensive education and training programmes were conducted. Few staff were skilled in accrual accounting. These staff trained other staff, and the latter trained other staff etc. in a snowball effect. Lots of courses were held, with different levels for different stakeholders."
A Ministry of Finance expert: "We need to do some centralisation - some kind of shared services centre - to have this high-level experience in some centralised centre. We have lower quality in the smaller entities, and higher quality in ministries. The problem is the disbursement of these qualifications. The problem with small entities is not their regulation or accounting standards, we have other problems: we have low salaries in those entities, and high turnover of people in those positions. This is why we are thinking about the shared services centre, in order to have a smaller number of people working there, but with more specialised qualifications."
A Ministry of Finance expert: "[About the hiring of accountants from the private sector] Actually I am not sure, because we did not have such statistics. But actually I noticed that there were fewer problems at the beginning in those agencies or public entities that had an accountant with experience in the private sector."
An academic expert in public accounting: "One of the advantages my country had, is the presence of very strong professionalised accounting practices. When my country went to accrual accounting, a lot of people came in from the private sector to work for the government, but this would not be true for several other countries. You can get people in quickly who actually have that knowledge, and can share that with the people that already work there. Of course this is also related to the capacity to afford these people."
A Ministry of Finance expert: "At the Ministry of Finance there is a specific unit within the Office of the Accountant General that is established to provide audit, develop accrual based policies, and provide guidance support, etc. And within that, there is also a unit focusing on capacity building with regard to accrual accounting. They employed chartered accountants, but these are people who are trained in the private sector and they have quite a lot of public sector experience. They were used to capacitate this unit. It has improved a lot in the last three years. At the beginning, there was not a good understanding or the capacity to adopt accrual standards. It was really difficult initially. The people employed were not able to apply the standards. They were used to rules-based approach to accounting. If they didn't have a book saying "you did this and created this" they would not understand."

3.5 Opportunity costs of non-EPSAS

122. This section aims to assess the opportunity costs of non-EPSAS. It builds on the results of the modelling procedure to evaluate gross impacts in terms of GDP – i.e. without considering implementation costs. When assessing the opportunity costs different scenarios for public sector accounting development are considered.

Estimation of EPSAS gross impacts

123. The indirect impact of EPSAS on GDP per capita[52] was also extrapolated on aggregate GDP[53]. Values in the first column in Table 6 below correspond to the gross impact on aggregate GDP, per MS, of a move toward EPSAS. The second column corresponds to implementation costs estimated in the previous study commissioned by Eurostat.

Table 6: Gross impact of EPSAS implementation on aggregate GDP and associated implementation costs (in € million)

Country	Gross impact of EPSAS implementation in aggregate GDP (€ million)	Implementation costs (PwC 2014, Scenario 2B) (€ million)
EU-28	€19 174	€6 885
Austria	€297	€244
Belgium	€444	€67
Bulgaria	€63	€7
Croatia	€96	€61
Cyprus	€52	€26
Czech Republic	€133	€6
Denmark	€247	€44
Estonia	€5	€
Finland	€191	€9
France	€789	€60

[52] See Section 3.4.

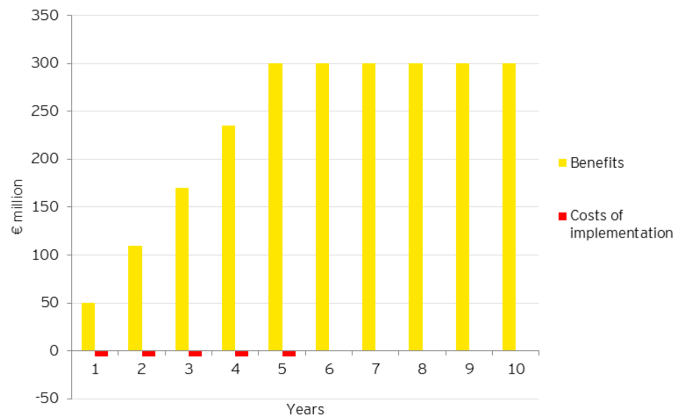
[53] This extrapolation was done in two consecutive steps: (i) by multiplying the MS's 2014 GDP per capita levels at current prices (data collected from Eurostat), by the estimated variation in per-capita GDP growth (see Figure 2). This initial calculation provided the impact on GDP per capita levels. (ii) Multiplying the calculated impact on GDP per capita levels by population levels in 2014 (data collected from the 2014 PwC study). This last calculation provided the impact on aggregate GDP levels.

Country	Gross impact of EPSAS implementation in aggregate GDP (€ million)	Implementation costs (PwC 2014, Scenario 2B) (€ million)
Germany	€7 774	€2 356
Greece	€545	€456
Hungary	€119	€17
Ireland	€300	€31
Italy	€3 715	€2 568
Latvia	€22	€1
Lithuania	€15	€1
Luxembourg	€129	€72
Malta	€22	€11
Netherlands	€1 542	€549
Poland	€471	€49
Portugal	€266	€28
Romania	€185	€35
Slovakia	€64	€13
Slovenia	€48	€14
Spain	€1 067	€123
Sweden	€273	€20
United Kingdom	€300	€17

124. For example, if the EU had fully adopted EPSAS - if the public sector accounting maturity score of each MS at central government level rose progressively to 100 (maximum level) - its aggregate GDP level could have been gradually increased by €19 billion. As illustrated in Figure 7, once the maximum score is reached, every year EU's GDP level would be €19 billion higher than compared to when EPSAS was not adopted. The implementation costs have been estimated to €6.9 billion over five years[54].

[54] "Collection of information related to the potential impact, including costs, of implementing accrual accounting in the public sector and technical analysis of the suitability of individual IPSAS standards", PwC, 2014.

Figure 7: Illustration of cumulative benefits and costs of EPSAS for Ireland (in € million)



125. As shown in Table 6, the gross impacts of EPSAS adoption on European GDP is estimated at around €19 billion. It is important to emphasise that this impact should be interpreted carefully, as it is dependent on the quality of the proxies used as well as on the caveats and limitations listed in Sections 3.1 and 3.2, respectively.

126. The comparison of the gross impacts of EPSAS with recent estimates of implementation costs supports the argument that EPSAS could generate positive net gains – i.e. the gross impacts should be greater than the implementation costs.

127. The opportunity costs of not adopting EPSAS were estimated against different likely scenarios for public sector accounting developments. Indeed, even if EPSAS is not adopted, it is likely that MSs will improve their public sector accounting practices. Four scenarios have been considered:

- Accounting maturity at 2014 levels. This scenario assumes that MS accounting standards will not evolve unless EPSAS is implemented.
- Achievement of at least 70% accounting maturity. Unlike the previous scenario, this scenario considers a non-harmonized moved toward IPSAS in the absence of EPSAS.
- Achievement of at least 80% accounting maturity. Likewise, this scenario considers a non-harmonized moved toward IPSAS in the absence of EPSAS.
- Achievement of at least 90% accounting maturity for all MSs. Again this scenario considers a non-harmonized moved toward IPSAS in the absence of EPSAS.

The latter three scenarios have been considered to show the evolution of the opportunity costs when countries move toward accruals based accounting standards.

MSs with maturity scores that are already higher than the assumed final maturity level would maintain their scores. For example, the United Kingdom has an accounting maturity score at 96% in 2014. In all scenarios, its accounting maturity score remains unchanged, and therefore its opportunity cost is equal to the potential gross GDP it would gain from a move from a maturity score of 96% to 100% - i.e. €300 million.

On the contrary MS with an accounting maturity scores under 70% will see the opportunity costs of moving to EPSAS decrease in all scenarios as their accounting maturity increases. For example, Croatia has an accounting maturity score at 34% in 2014. Its opportunity costs decrease in different scenarios as its accounting maturity raises from 34% to 70% and then to 80% and 90%.

Finally MS with accounting maturity scores between 70% and 90% will see their opportunity costs decrease only in scenarios where their accounting maturity will rise. For example Denmark has an accounting maturity score at 72% in 2014. Thus its opportunity costs will only decrease in the 80% and 90% scenarios, while it will remain unchanged in the 70% scenario.

Table 7: Opportunity costs of non-EPSAS (in € million)

Country	2014 Accounting maturity scores	Opportunity costs of not implementing EPSAS (in € million)			
		Accounting maturity at 2014 level	Accounting maturity at 70% or higher	Accounting maturity at 80% or higher	Accounting maturity at 90% or higher
EU-28		€19 174	€10 510	€7 538	€4 257
Austria	73%	€297	€297	€220	€110
Belgium	67%	€445	€404	€269	€135
Bulgaria	56%	€63	€43	€29	€14
Croatia	34%	€96	€44	€29	€15
Cyprus	14%	€52	€18	€12	€6
Czech Republic	75%	€133	€133	€106	€53
Denmark	72%	€247	€247	€177	€88
Estonia	92%	€5	€5	€5	€5
Finland	72%	€191	€191	€137	€68
France	89%	€789	€789	€789	€717
Germany	22%	€7 774	€2 990	€1 993	€997
Greece	12%	€545	€186	€124	€62
Hungary	66%	€119	€105	€70	€35
Ireland	54%	€300	€196	€131	€65
Italy	31%	€3 715	€1 615	€1 077	€538
Latvia	73%	€22	€22	€16	€8
Lithuania	88%	€15	€15	€15	€12
Luxembourg	19%	€129	€48	€32	€16

Country	2014 Accounting maturity scores	Opportunity costs of not implementing EPSAS (in € million)			
		Accounting maturity at 2014 level	Accounting maturity at 70% or higher	Accounting maturity at 80% or higher	Accounting maturity at 90% or higher
Malta	22%	€22	€8	€6	€3
Netherlands	31%	€1 542	€670	€447	€223
Poland	66%	€471	€416	€277	€139
Portugal	55%	€266	€177	€118	€59
Romania	63%	€185	€150	€100	€50
Slovakia	75%	€64	€64	€51	€26
Slovenia	62%	€48	€38	€25	€13
Spain	70%	€1 067	€1 067	€711	€356
Sweden	81%	€273	€273	€273	€144
United Kingdom	96%	€300	€300	€300	€300

128. The opportunity costs capture the gross economic impacts in terms of aggregate GDP without considering implementation costs[55].

Benchmarks with other empirical findings[56] and experts' comments on results[57]

129. The previous results are coherent with the findings of two other studies estimating the economic benefits of strengthened EU integration:

- According to an empirical study by Frunza (2014)[58] entitled "The Cost of Non-Europe of an incomplete Economic and Monetary Union", in a sovereign debt crisis scenario, the opportunity cost of not having integrated the financial functioning of the EU is estimated at €85 billion.

[55] Implementation costs have only been computed for a 100% adoption scenario. Under alternative adoption scenarios those costs should be reduced.

[56] In the absence of empirical studies directly analysing the long-term benefits of a move towards accruals-based public accounting standards, it was not possible to provide a statistical meta-analysis by compiling results from previous studies.

[57] See list in Appendix B - Table 10.

[58] Frunza, M. "The Cost of Non-Europe of an incomplete Economic and Monetary Union to prevent future crises", *European Parliamentary Research Service*, European Value Added Unit, PE 536.365, October 2014.

The quantified gross impact of a full-scale harmonisation of public accounting standards under EPSAS on aggregate GDP[59] is equivalent to 23% of the gains maintained in a sovereign debt crisis situation, thanks to integrated financial functioning within the EU.

- In a similar study, Pataki (2015)[60] investigates the cost of non-Europe due to a failure to fully achieve the Single Market. By completing the Single Market in the areas of free movement of goods, free movement of services, public procurement, the digital economy, and the body of consumer law known as the consumer acquis, Pataki estimates potential economic gains ranging between €651 billion and €1 100 billion per year.

  Therefore, the potential net impact on aggregate GDP of a full-scale harmonisation of public sector accounting standards at central government level in the EU based on EPSAS represents 1.7% to 2.9% of the potential impact that would stem from the completion of the Single Market.

3.6 Summary of findings

130. There are not many measures available, either in the literature or in official statistics, for evaluating potential long-term benefits related to EPSAS. A framework was developed to test the existence of a negative relationship between sovereign bond yields and the central government level public sector accounting maturity levels of MSs.

131. A relationship between accounting maturity and sovereign bond yields has been statistically characterised, based on available data. This relationship tends to confirm that EPSAS will improve the functioning of capital markets by reducing sovereign bond yields.

132. To relate the effects of EPSAS on sovereign bond yields in terms of growth, investments, and jobs, an existing empirical study was used. The calculated indirect impact on growth also enabled the assessment of the opportunity cost of non-EPSAS. This quantitative analysis was supplemented by qualitative input provided by experts in public accounting.

133. Regarding growth, EPSAS would indirectly generate a positive impact on GDP per capita growth ranging between 0.01 point for the United Kingdom to 0.30 points for Greece.

134. Regarding investment, EPSAS would increase private and public investment and improve public investment management. Available data support an increase of private investment, through EPSAS' impact on capital markets. Experts underline that EPSAS should improve the allocation of public funds, help to cope better with complex arrangements such as service concession arrangements.

135. Regarding employment, EPSAS should foster job creation through its impact on GDP growth. It should also modify the qualification structure and level of the public sector accounting workforce. Estimates based on available data suggest that EPSAS could create up to 180 000 jobs at EU-level. Experts also stressed that adopting accruals-

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[59] See Table 6.

[60] Pataki, Z. "The Cost of Non-Europe in the Single Market. 'Cecchini Revitised', An overview of the potential economic gains from further completion of the European Single Market", *European Parliamentary Research Service*, European Value Added Unit, PE 510.981, September 2014.

based public sector accounting standards necessitates more skilled accounting professionals. To address this requirement, some countries opt for transferring private sector skills, others implement centralised shared services to effectively build capacities, leveraging on internal skills.

136. Finally, not adopting EPSAS would lead to an opportunity cost of €19 billion at EU-level. This estimate is plausible in the light of existing benchmarks.

137. These estimates are theoretical and should be viewed as indicative only, as is the case for all prospective analysis.

Part 4. Specific analysis of EPSAS impacts on sovereign debt markets

4.1 Presentation of the summary report

<u>Purpose of the summary report</u>

138. This summary report aims to examine the mechanisms by which EPSAS may help support the development of the capital markets for sovereign debt securities and the role of European sovereign debt markets in the EU's Capital Markets Union (CMU) project.

139. A CMU action plan has been developed by the European Commission to achieve a better direct matching of savings and investment, with a focus on equities and debt securities within and across MSs' boundaries. A particular attention has been paid to Small and Medium-sized Enterprises (SMEs). Sovereign debt securities, and public sector accounting are not covered by that plan.

140. Taking into account publicly available information and experts' views, this summary report investigates if EPSAS could provide a tool that facilitates the direct investment of savings in debt securities of public sector entities, not only within MSs but also across MSs and from outside the EU, through enhancing trust in sovereign debt securities. In this sense, EPSAS could support the development of sovereign debt markets in Europe and thus complement the CMU.

<u>Approach adopted</u>

141. First, the prominent economic role of sovereign debt in the development of the financial system was demonstrated using papers and policy reports. Then, areas where harmonised accruals-based public sector accounting standards could strengthen the sovereign debt market were considered using the latest state-of-the-art research. Finally, the effects of EPSAS on public finance management, government revenue and MSs' fiscal profiles were examined using the same approach. Relevant publications on capital markets were selected by Nicolas Véron[61] in his capacity as lead expert in CMU. Other papers were identified through desk research. Interviews with public accounting experts were performed based on an initial list of contact points provided by Eurostat. Capital market experts identified by the lead expert in CMU were also interviewed. These interviews made it possible to refine the potential impacts. Directions and comments were provided by Nicolas Véron throughout the production of this summary report.

[61] Nicolas Véron is a Senior Fellow at Bruegel and at the Peterson Institute for International Economics. His research is mostly about financial systems and financial reform around the world, including global financial regulatory initiatives and current developments in the European Union. Mr. Véron's contributions to the public debate on CMU have been widely reported in international and financial media.

Sovereign debt considered as the main category of safe assets

142. Risk-free assets are those whose rate of return is seen as certain and are generally defined as high quality government bonds[62]. The Bank for International Settlements uses the term risk-free to describe assets associated with a sufficiently high probability of creditors being repaid to allow credit risk not to be explicitly taken into account in investment decisions by market participants[63]. In theory, a risk-free asset provides a certain return in each state of the world. Safe assets is a catch-all term for financial contracts that market participants treat as if they were risk-free[64].

143. While many assets have some safety attributes, what investors view as potentially safe assets are dominated by sovereign debt. Only governments have the capacity to collect taxes and regulate the economy, which may explain predominance of sovereign debt in the safe assets category. As of the end of 2011, AAA-rated and AA-rated OECD government securities accounted for €33 trillion or 45% of the total supply of safe assets[65].

Sovereign debt plays a central role in capital markets

144. According to the IMF[66], sovereign debt is the "cornerstone of financial systems". As safe assets, it plays several broad-based roles in international capital markets:

- **Portfolio construction.** This refers to investment decisions that rest on the fact that a share of the portfolio is guaranteed. Portfolio construction theories assume that any given investor preference for risk can be satisfied with a mix of risk-free and non-risk-free assets[67]. Safe assets are a desirable part of a portfolio from an investor's perspective, as they provide full protection from credit, market, inflation, currency and idiosyncratic risks. They are also highly liquid, allowing investors to liquidate positions easily.
- **Collateral.** In many markets, sovereign debts are widely used as collateral. Without sovereign debts, many financial transactions would simply not take place. The use of sovereign debt securities as collateral to secure a financial transaction is a practice that is increasing. In 2001 the Bank for International Settlements[68] presciently noted that the use of collateral in capital markets had become so widespread that it could outstrip its supply[69]. Furthermore, markets such as the repurchase agreement (often referred to as a repo) market which

[62] http://lexicon.ft.com/Term?term=risk_free-asset&mhq5j=e1

[63] Gourinchas, P. O., & O. Jeanne, O. (2012). Global safe assets, *BIS Working Paper* No. 399.

[64] Gelpern, A., and E.F. Gerding., "Inside Safe Assets." *Yale J. on Reg*. 33 (2016): 363-655.

[65] Iorgova, S., et al.., "Safe assets: Financial system cornerstone?" *Global Financial Stability Report*. International Monetary Fund (2012).

[66] See footnote 65.

[67] Tobin, J., "Liquidity preference as behavior towards risk." *The review of economic studies* 25.2 (1958): 65-86.

[68] Bank for International Settlements. 2001. "Collateral in wholesale financial markets: recent trends, risk management and market dynamics". *Committee on the Global Financial System*

[69] Gorton, G., and G. Ordonez., "The Supply and Demand for Safe Assets". No. 18732. *National Bureau of Economic Research, Inc*, 2013.

rely heavily on sovereign debt securities to secure financial transactions have become of systemic importance[70].

- **Prudential requirements.** Sovereign debt contributes to the formulation of prudential requirements such as those set out in the Basel Accord, pertaining to the regulation of credit risk and liquidity management[71].
- **Benchmark securities.** The yield curves of government debt are often used as a benchmark for several types of financial transactions. The prices of most financial assets are established relative to sovereign debt security prices.

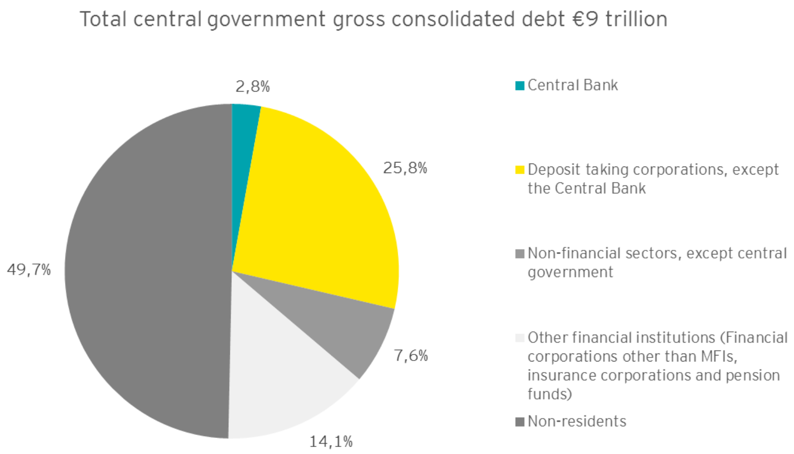
Relying extensively on recent research by the IMF[72], these four dimensions are further described hereinafter.

Sovereign debt and portfolio construction

145. Banks are the main users of sovereign debt securities. Short-term safe assets enable banks to curb unwanted maturity mismatches and manage their short-term funding needs.

Sovereign bonds are also used as a store of value by public reserve managers, sovereign wealth funds, insurance companies and pension funds.

Figure 8: Distribution of Eurozone public debt holdings –2010[73] (as a percentage)



Sovereign debt used as collateral

146. The use of sovereign debt as collateral spans private and central bank repo markets. Sovereign debt is also used as collateral in the over-the-counter (OTC) derivatives market.

147. The repurchase agreement (often referred to as repo) has become a key financial device. In a repo transaction one institution (the lender) agrees to buy an asset from another institution (the borrower) and sell the asset back to the borrower at a pre-

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[70] Gabor, D., and C. Ban.., "Banking on bonds: the new links between states and markets." *JCMS: Journal of Common Market Studies* (2015).

[71] Bernanke, B. S.., "International capital flows and the returns to safe assets in the United States 2003-2007." *Financial Stability Review* 15 (2011): 13-26.

[72] See footnote 65.

[73] European Central Bank, Statistical Data Warehouse.

agreed price on a pre-agreed future date. The lender takes a fee (repo) interest payment for buying the asset in question and can sell the asset if the borrower fails to honour the promise to repurchase it. A repo transaction can be viewed as short-term borrowing. The European repo market has become of systemic importance for European private and public finance[74]:

- It tripled between 2001 and 2008 to reach €6 trillion.
- 75 percent of repo transactions use sovereign debt as collateral. The repo market is thus structurally intertwined with European government bond markets.
- LCH Clearnet, a major player in the repo market, intermediated around €11 trillion of repo transactions with government bonds on a monthly basis. As a consequence, the ECB put it on the list of financial institutions to be supervised at European level in 2013.

Sovereign debt to manage prudential requirements

Sovereign debt is also used by banks to manage their liquidity risks and meet prudential requirements. Namely:

- **Capital requirements.** The Basel Capital Accords allow banks to apply a zero risk-weight to home-country government debt. Thus, a higher concentration of home-country sovereign debt in the asset portfolios of banks enables them to reduce capital requirements.
- **Liquidity requirements.** Some regulations allow for preferential treatment of sovereign debt to determine liquidity requirements.

Sovereign debt serves as a benchmark for the whole financial system

148. Safe assets play an important role as benchmarks both to judge relative performance and to assign prices to other assets. They serve (1) as an integral part of the mandates of some pensions, mutual, and sovereign debt funds globally, and as fund performance benchmarks; (2) as reference rates for the pricing, hedging and valuation of a broad range of non-risk-free assets; and (3) as indicators of monetary and financial conditions (for example, an inverted government bond yield curve may signal an incipient economic contraction).

149. Safe assets, via the government yield curve, are a traditional benchmark for the pricing and valuation of non-risk-free assets in capital markets. The establishment of a government bond yield curve is viewed as a precondition for the development of other market segments – including derivative and corporate bond markets – typically priced off the government yield curve[75].

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[74] For further details please refer to Gabor, D., and C. Ban.., "Banking on bonds: the new links between states and markets." JCMS: *Journal of Common Market Studies* (2015).

[75] In the absence of viable alternatives it is unlikely that major government securities markets would lose their benchmark role. For instance the swap curve is the principal asset pricing benchmark in the euro area given that there are no common sovereign debt instruments and no homogeneous euro area sovereign yield curve. Swap curves are based primarily on plain vanilla interest rate swaps. These describe an interest rate swap in which a floating interest rate is exchanged for a fixed rate or vice versa. Therefore they integrate market perception of average bank credit risk and interest expectations and thus explicitly embed some credit risk. However, at times of heightened sovereign risk the swap curve is linked to the yield curve in view of the linkages between sovereign and banking risks.

In summary, sovereign debt is the cornerstone of the financial system

150. Sovereign debts are conducive to the development of capital markets. As safe assets, they are used to price assets, to guarantee a minimum level of return, to secure financial transactions and to manage prudential requirements. The next sections explore how EPSAS may reduce the likelihood of a debt crisis and may contribute to the development of capital markets by strengthening the "safe asset" aspect of sovereign debt.

4.3 EPSAS may reduce the likelihood of a sovereign debt crisis

151. This section analyses how the implementation of harmonised accrual accounting standards would make the market for government bonds stronger and more resilient to crisis.

Better accounting information on government financial positions would lead to better informed investment choices on sovereign debt

152. In cash accounting, only information on cash flows is recorded. Investors only have a partial view of fiscal fundamentals, such as the level of debt. No information is provided on the composition of assets and liabilities. In addition information is lacking on how the liabilities of a government are backed by corresponding assets. A cash-based financial statement does not provide information on fiscal risks and can create a fiscal illusion[76,77].

153. According to interviewees, accrual accounting - unlike cash accounting - provides useful information on a government's fiscal position to support investment decisions:

- **The transition to accrual accounting provides information on the fiscal risks of MSs.** Accrual accounting not only considers the "real" value of tax receivables – i.e. to consider also those taxes that tax authorities will likely not be able to collect, but also provides information on the future financial burden by accounting for provisions. This information is key for investors to assess the riskiness of a sovereign debt.
- **Balance sheets and asset inventories held by all levels of government give investors a better view of net government assets.** For instance, an expert recounted how the transition to accrual accounting in their country forced a complete inventory of government assets and liabilities. Such an inventory contributes in determining the net government assets. While this process made the government aware of all the assets it owned, it also uncovered significant pension liabilities. However, future obligations leading to cash outflows, such as pension obligations, do not necessarily have to be recognised in the balance

[76] Irwin, T.C.., "Accounting Devices and Fiscal Illusions". No. 12/02. *International Monetary Fund*, 2012.

[77] Irwin, T.C.., "Dispelling fiscal illusions: how much progress have governments made in getting assets and liabilities on balance sheet?" *Public Money & Management* 36.3 (2016): 219-226.

sheet. The disclosure of pension obligations in the notes may be sufficient to depict fiscal reality and identify upcoming budget challenges[78].

<u>**Comparable public accounts would support better risk analysis**</u>

154. Credit rating agencies provide investors with help and guidance relating to the quality of their investments. Ratings provide authoritative statements about the riskiness of a particular asset. They play an important economic role as they reduce information search costs for investors[79,80]. For this role to be fulfilled effectively, it is important to avoid misalignments of ratings with the economic reality of the sovereign debt securities.

155. Before the recent European debt crisis, high credit ratings were used too often for sovereign debt and did not sufficiently differentiate across assets with different underlying qualities. For instance, the five-year probability of default associated with highest quality rated sovereign debt and high quality were both around 0.1 percent in 2007, suggesting virtually no credit risk. However, implied default rates of the markets had risen to more than 1 percent by 2011 for AAA and more than 2 percent for AA. This is illustrated in Table 8 below.

Table 8: Long-term Senior Sovereign Debt Ratings and Implied Probability of Default

		Average Implied Five-Year Probability of Default (in percent)	
Interpretation of Rating	**S&P Rating**	**2007**	**2 011**
Highest quality	AAA	0.108	1.266
High quality	AA+ AA AA-	0.110	2.423
Strong payment capacity	A+ A A-	0.213	2.684
Likely to fulfill obligations, ongoing uncertainty	BB+ BB BB-	2.795	4.240
High -risk obligations	B+ B B-	4.041	18.410

Sources: Standard & Poor's, and IMF staff estimates

Note: For each country, the implied probabilities of default are estimated from its observed CDS spreads.

The probabilities of default shown here are averages for countries whose ratings fall within specific S&P rating ranges.

156. Overreliance on credit ratings may have deterred investors from examining fiscal and macro fundamentals directly when making their investment decisions. Recent evidence suggests that credit ratings played a greater part in explaining sovereign bond price

[78] EY, Accounting treatment of employee benefits (pensions) with a view to financial reporting requirements under the future EPSAS, 2016

[79] Gelpern, A., and E. F. Gerding., "Inside Safe Assets." *Yale J. on Reg*. 33 (2016): 363-655.

[80] Arezki, R., Candelon, B., & A. N. R. Sy, (2011).) Sovereign rating news and financial markets spillovers: Evidence from the European debt crisis.

fluctuation before the crisis. Following the financial crisis, investors relied more on the examination of economic fundamentals in determining sovereign bond prices[81].

157. EPSAS will contribute to the improvement of the quality of the national accounts data supporting economic analysis of sovereign bonds. National accounts are prepared using government primary accounts. Currently some of these accounts are prepared on a cash basis, so adjustments are necessary to obtain accruals-based statistics and may materially affect the quality of those statistics[82]. Harmonised public accounting standards will ultimately enhance the quality of the statistics[83].

158. Harmonised accounting standards will strengthen the process for the evaluation of the riskiness of sovereign and sub-sovereign bond markets:

- **It will provide investors with another source of high quality information on sovereign markets.** As confirmed by interviewees, common standards across and within MSs would make the financial information provided on government assets and liabilities more comparable. It would also shed light on differing public asset management practices. This comparable accounting information will be valuable for investments in sovereign debts, as it may act as a safety label in addition to credit ratings.

- **It will provide a valuable source of information for the sub-sovereign market.** As was pointed out by an interviewee, the lack of harmonised data at local government levels makes the evaluation of sub-sovereign debt difficult. Dedicated rating agencies spend a lot of time on these markets to analyse local government financial statements. Harmonised accounting standards at all levels of government will translate into important productivity gains. This may foster investment and the development of this market, which in Europe amounts to €1.2 trillion, of which German sub-sovereign bonds represent 72%[84] . While the US and EU markets are hardly comparable[85], the US municipal bond market amounts to €3.8 trillion.

Experts' comments
An international organisation expert: "[Public sector financial statements] were not sufficiently used. They relied on the usual macroeconomic and cash related views, which is what they are used to dealing with (…) Rating agencies took into account the fact that our finances became more transparent with accrual accounting, even though their balance sheet was highly in the red."
An academic expert on public accounting: "Having an EPSAS label on public debt would ensure better information for capital markets."

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[81] Afonso, A., Arghyrou, M., and A. Kontonikas., "The determinants of sovereign bond yield spreads in the EMU". *Business School-Economics*, University of Glasgow, 2012.

[82] Jesus, M. A., and S. Jorge, (2015). "Governmental budgetary reporting systems in the European Union: is the accounting basis relevant for the deficit reliability?". *International Review of Administrative Sciences*, 81(1), 110-133

[83] European Commission (2013) Report from the Commission to the European Parliament and the Council: Towards implementing Harmonised Public Sector Accounting Standards in Member States – The suitability of IPSAS for the Member States". 6.3.2013. COM(2013) 114, European Commission, Brussels

[84] Deutsch Bank Research https://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD0000000000338741/Small_is_beautiful%3F_Capital_market_funding_for_sub.pdf

[85] http://blogs.reuters.com/muniland/2011/12/23/the-municipal-bond-market-and-the-eu/

Experts' comments
A Ministry of Finance expert: "There is nothing in that information [GDP information used to support credit ratings] that tells you what you've done with the debt, if you've used it to pay for the groceries, or whether you've used it to pay for infrastructure. Quite often that number doesn't include all your financial obligations, pension schemes, things like that. You do not get good information through GDP comparison."
An international organisation expert: "For investors, comparability is a big issue. When investing, you want to see what your options are. And therefore your options should be based on comparable information."

<u>Accrual accounting does provide some form of assurance to investors</u>

159. Mechanisms have been put in place to guarantee the safety of sovereign debt. For instance, the European Financial Stability Facility (EFSF) is one instrument that provides guarantees. Accrual accounting might provide some form of assurance in the following two ways:

- **It will provide information on a country's fiscal resilience.** This was illustrated by interviewees as follows. For instance, New Zealand is prone to natural disasters such as tsunamis and earthquakes. The transition to accrual accounting made it possible to provision for these disasters in the government budget as well as the financial statements. Investors can thus obtain information on the country's fiscal resilience. Likewise in Lithuania, the government accounts for all government assets including natural resources. This provides investors and credit rating agencies with a clear view of the country's resilience to fiscal shocks.
- **Accrual accounting makes it harder for all stakeholders, including investors, to ignore fiscal reality and upcoming budget challenges.** Public accounting experts mentioned that accrual information makes these budgetary challenges more explicit. For instance, financial statements based on accrual accounting account for pension obligations.

Experts' comment
A Ministry of Finance expert: "This is a much more macroeconomic benefit. Up until the reforms, macroeconomic policymaking had been based on economic stabilisation, like other countries. …. There were some real problems with this economic policy pursuing stability objectives, because you don't know what is going to happen, you don't know the turning points in time, fiscal policy cannot respond in a timely way because it was acceptable to boost the economy during a downturn and tighten during an upturn… . Once we had a government balance sheet, what it gives you is a kind of snapshot of your fiscal resilience. My country started making decisions on fiscal policy on the basis of using resilience as an objective … We need to think quite hard to see how resilient we are, and this really becomes the main factor in setting our fiscal policies. Each month we got a balance sheet that shows a snapshot about how we are doing. It is a clear objective for the public to understand, and supported by the accrual based information, and it works."
A Ministry of Finance expert: "We talked to some of the users of financial statements, people who might provide funding or loans to the local governments. They said that they used this information because they give a good idea of what revenues could be generated by the municipalities. Usually loans are given on the basis that it will be repaid, so there must be revenues. This gives a view on

Experts' comment
what the asset base is, how well they are maintained, how often it is being replaced. This provides information on the quality of future revenues."
An international organisation expert: "Accrual accounting introduces provisions, in case of a probability of more than 50% of materialising the risk. While in pure cash setting, you do not have this warning signal for fiscal risks. Provisions make a difference for steering the budget successfully, because you can see fiscal risks that you do not see under cash accounting." "Railway infrastructures are paid 30 years ahead in tranches. In a cash flow statement you would just have the expenses that have occurred today and you would not see the burden for the budget for the future years. In the accrual world, you would have to disclose this burden for the future." "A very practical benefit of accrual accounting is that you do not have fiscal illusions on your current fiscal status which is very important, not only for the government but for the public, for rating agencies that look at the country. You really have a clear picture of what is the budget status of that particular country."

In summary, EPSAS would strengthen the architecture aiming to prevent debt crises

160. Misperception by investors regarding the degree of safety of an asset can have important economic consequences, as revealed by the recent debt crisis[86]. With a view to enforcing the "safe asset" aspect of sovereign bonds, the implementation of harmonised accrual accounting standards should strengthen the government bond markets in three ways. EPSAS could:

- Provide more information to investors on the safety of sovereign debt,
- Reinforce the evaluation of the level of riskiness of sovereign debt by supplementing and improving existing information provided by credit rating agencies, and,
- Act as an assurance mechanism by shedding light on a country's fiscal resilience.

161. These findings are in line with recent research, which shows the importance of these three approaches in supporting the safety of sovereign debt and in turn reducing the likelihood of a debt crisis, as recently witnessed in the EU[87].

4.4 The development of EPSAS would contribute to the development of capital markets

162. This section summarises the findings from interviews with experts on the linkage between accrual accounting, public finance management, the effects on government revenues and, by extension, its implication for an MS's fiscal profile.

[86] Arezki, R., Candelon, B., & A. N. R. Sy (2011). Sovereign rating news and financial markets spillovers: Evidence from the European debt crisis.

[87] See footnote 64.

Accrual accounting standards improve government asset and expenditure management

163. Interviews highlighted the fact that EPSAS will improve public finance management in several ways:

- **The balance sheet associated with accruals-based public sector accounting standards is a prerequisite for asset management**. As previously mentioned, it will prevent fiscal illusion. Financial statements prepared on an accrual basis enable users to assess the accountability for all resources the entity controls and the deployment of those resources. The balance sheets shows the financial position of an entity and changes in its financial position. In this context, the statement of financial performance shows the resource consumption of the entity by displaying depreciation/amortization and impairment. The entity is therefore able to demonstrate successful management of its resources. The generated accrual information also contributes to plan for future funding of asset maintenance and replacement[88].
- **Financial information on costs and revenues at their commitment date makes it possible to put in place performance-based financial management practices**. New Zealand's transition to accrual accounting was motivated by the need to rationalise government services. To support this, it was necessary to identify the costs associated with each service. The costing system and information required by accrual accounting made it possible to streamline services according to their performance. Ultimately, the implementation of this performance-based approach to asset management enabled the reduction of the deficit.
- **Likewise, accrual accounting improves decision-making.** Accrual accounting information shows the impact of financing decisions on net assets, and public sector entities are forced to take a longer term view when making financing decisions than is generally required when relying on cash or modified cash information. For instance, in privatisations, decision-makers have a complete view of the resource consumption associated with such transactions and thus make informed choices. The experiences in Austria for example have shown, that in significant investment decisions, the focus is now more on the total cost of ownership of assets.

Experts' comments
An academic expert on public accounting: "Accrual accounting is supportive of better understanding of the public finances, and that will actually lead to more fiscal discipline."
A Ministry of Finance expert: "Before the reform, local governments only accounted for assets for which they paid. We found out that the assets were completely understated. They had no idea what assets they had, no idea what they were going to use them for, no idea on how much they needed to budget for their maintenance, and no idea how much they needed to budget to replace these assets over time. They had no idea on the key things used to provide services. This was the biggest benefit, but also the hardest challenge to overcome."

[88] IPSASB, Study 14, Transition to the Accrual Basis of Accounting: Guidance for Public Sector Entities, 3rd Edition, January 2011, p. 12.

Experts' comments
An academic expert on public accounting: "The use of derivatives (…) e.g. in my country, local councils bought tons of derivatives, without realising they were not evaluating these derivatives at market value. Using a cash basis, there is no way to see how huge their liabilities were becoming."

164. As a consequence of improved public finance management, more sustainable fiscal positions are achieved more often by countries adopting accruals-based public sector accounting standards. All else being equal, this will raise a country's fiscal profile. As indicated by Alt and Dreyer Lassen (2006), it is observed that countries with accruals-based public sector accounting standards exhibit a higher level of fiscal transparency and discipline. These translate into more sustainable fiscal positions for these countries.

Accrual accounting standards are conducive to higher government revenues

165. Accrual accounting should enable a government to increase its revenue by limiting tax evasion:

- First, it will provide taxpayers with a clear view of the use made of their taxes by the government. It has been shown that this provides citizens with an incentive to pay taxes[89].
- Second, interviewees indicated that accrual accounting provides a clear picture of tax receivables and therefore enable more effective tax collection. Increasing transparency in tax receivable adjustments should be conducive to more efficient tax collection policies.

166. It should also be noted, as indicated by one interviewee, that the preparation of financial statements increases direct financing by banks. Banks have more incentive to finance projects of borrowers who provide a clear view of their financial position.

Experts' comments
An academic expert on public policy: "If there is any corruption, the government will have lower tax returns etc. Countries with high political trust would mostly have high tax returns. Thus political trust could help improve the income of the government."
A Ministry of Finance expert: "Some of the funding given to big cities is actually overseas funding. International banks fund them as well as national banks. Before, they did get loans, but it was more from local domestic banks. There could have been e.g. government guarantees. Now some of them actually issue their own bonds, and they get a credit rating on those, on the basis of their financial information. So thanks to accrual, local governments can get better access to funding, and from overseas as well. Before there was no international funding."
An international organisation expert: "Adjustment of value of tax receivables - money that you should get as a State, as a tax authority. You do not see the money you do not get in the budget,

[89] For a review of this literature see Torgler, B. (2002). "Speaking to theorists and searching for facts: Tax morale and tax compliance in experiments". *Journal of Economic Surveys*, 16.5 (2002): 657-683.

Experts' comments
if you are on a cash-only basis. You can only see it if you have accrual standards through adjustment of values etc."

167. The safety of sovereign debt is directly linked to the fiscal profile of an MS. This profile is determined by its level of debt, liabilities and revenues. As argued above, in the longer run the adoption of accrual accounting standards should translate into better public finance management and in turn a more sustainable fiscal position.

Furthermore, it may also raise the level of revenue of an MS. More transparency on the use of taxpayers' money could have positive effects on government revenues.

Therefore, in the long run one could expect the fiscal profile of an MS to improve and thus the proportion of safe sovereign securities would increase.

In summary, EPSAS would foster the development of capital markets

168. As highlighted in section 4.2, sovereign debt, as safe assets, plays an important economic role, contributing to the development of capital markets. Therefore, an increase in the proportion of assets considered as safe should in the long term foster the development of capital markets as a whole. As shown empirically, financial crises are more likely when the quantity of high quality sovereign debt is low[90].

4.5 Summary of findings

169. Sovereign debts are described as the cornerstone of capital markets as they are conducive to their development. As safe assets, they are used to price assets, to guarantee a minimum level of return, to secure financial transactions and to manage prudential requirements.

170. The introduction of EPSAS, will make it possible to strengthen the safety of sovereign debt and thus improve financial stability. Misperception by investors regarding the degree of safety of an asset can have important economic consequences, as revealed by the recent debt crisis. Due to the financing arrangements between central governments and state/local governments, also subordinate governments would benefit from the safety of sovereign debt. EPSAS would therefore strengthen the architecture aiming to prevent debt crisis. Harmonised accrual accounting standards should strengthen the government bond markets in three ways:

- Provide more information to investors on the safety of sovereign debt,
- Reinforce the evaluation of the level of riskiness of sovereign and sub-sovereign debt by supplementing and improving existing information provided by credit rating agencies, and,
- Act as an assurance mechanism by shedding light on a jurisdiction's fiscal resilience.

171. Finally, EPSAS should promote better assets and liabilities management by all public sector reporting entities. These in turn should enhance the proportion of safe assets

[90] Krishnamurthy, A., and A. Vissing-Jorgensen. "Short-term Debt and Financial Crises: What we can learn from US Treasury Supply", *Working Paper, Northwestern University* 2012.

supplied in capital markets and by extension support the development of capital markets.

Part 5. Specific analysis of EPSAS impact on democratic accountability and scrutiny

5.1 Presentation of the summary report

Purpose of the summary report

172. The recent public finance crises in Europe have clearly undermined the confidence of European citizens in their institutions. In some countries (Greece being the most egregious example), inadequate or unreliable public accounting systems have significantly contributed to shortcomings in public trust, government capacity, and sovereign credibility. In December 2014, Jean-Claude Juncker, the president of the European Commission, considered the "public negativity about politics and politicians, the resentment" to be the biggest problem facing the European Union[91]. A trust crisis has severe consequences for the quality and stability of democracy, its institutions and its stakeholders[92]. A democratic system cannot survive for long without the support of a majority of its citizens[93].

173. This summary report is prepared with the aim of analysing the potential impacts of implementing harmonised accruals-based public sector accounting standards on democratic accountability and scrutiny. It explores the link between the quality and transparency of public accounting on the one hand, and citizens' trust through enhanced democratic accountability and scrutiny on the other hand.

Approach adopted

174. Citizens' trust encompasses various political aspects such as government capacity, government legitimacy and public acceptance, as well as democratic development. Democratic accountability is one of the main determinants of citizens' trust[94]. To establish trust, governments have to "provide accurate and complete information on expenditures and transactions in order to demonstrate accountability and stewardship, and to reinforce their own credibility"[95].

175. Democratic accountability also calls for a good level of scrutiny, i.e. "an active and vigilant citizenry with a healthy scepticism of government and a willingness, should the need arise, to suspend trust and assert control over government – at a minimum by replacing the government of the day"[96]. Scrutiny ensures that decision-making processes are clear and visible to the widest public.

176. This report starts with a brief historical perspective which illustrates the relationship between accounting development and democratic accountability. Based on findings from existing research and on the views of public accounting experts, it examines the

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[91] Zmerli, S., and T.WG van der Meer, eds. "Handbook on Political Trust". Edward Elgar Publishing, 2017.

[92] Russell, J. "Dalton, Democratic Challenges, Democratic Choices." (2004), *Oxford University Press*: 31-48.

[93] Miller, A. H. (1974). Political issues and trust in government: 1964–1970. *American political science review*, 68(3), 951-972.

[94] Van der Meer, T., and A. Hakhverdian. "Political Trust as the Evaluation of Process and Performance: A Cross-National Study of 42 European Countries." *Political Studies* (2016): 0032321715607514.

[95] Nicholson, J., "Accounts of Pennsylvania", 1795.

[96] Mishler, W., and R. Rose. "Trust, Distrust, and Scepticism." *Journal of Politics* 59.2 (1997): 418-451.

role that EPSAS could play in strengthening democratic accountability and scrutiny. Lastly, best practices identified by experts are listed.

5.2 Accounting development and accountability: a brief historical perspective

Historically, accounting has supported government legitimation and citizens' trust

177. According to Professor Soll[97], accounting was central in the rise and fall of several societies; he explains that accounting is a tool of good administration. He shows how Jean-Baptiste Colbert, King Louis XIV's finance minister, succeeded in "introducing method and good order into the collection and expenditure of the public revenue" through his skills as financial manager, tax collector and accountant.

178. Accounting and publication of financial numbers is not only a tool of management, but also a tool of legitimation: accounting and public auditing is at the heart of democratic government[98]. When account books are well kept and published, stakeholders (ministries, parliaments, taxpayers, etc.) can draw conclusions on a state's financial stability based on its financial position and performance. Accounting provides stakeholders with a reliable basis for audit and control over policy performance: government resources, obligations and commitments can be monitored closely. Accounting constitutes the starting point for public auditors to conduct an independent assessment of the financial position and the performance of the government; indeed the "balance book can be used to judge and hold accountable a political administration"[99].

179. Soll provides several examples of the use of public accounting to build public trust. For instance, in 16th century Holland, public trust was built on consistent good civic financial management through an accounting system and constant audits. Likewise, after the War of Independence, in the United States, accounting and audit processes helped provide the public with the proof that governors, such as Washington, did not profit from the war; in 17th century England, Edmund Harley, the Auditor of the Imprests, was responsible for verifying the expenditures of state ministers; audits and verifications led to public trust as policy makers could be held accountable for their actions. This examination of public accounts certifies that the information disclosed in these aforementioned accounts is correct and trustworthy[100].

In the 1980s democratic accountability motivated the adoption of accrual accounting in some countries

180. Traditionally public sector accounting has been cash-based. Adoption of accruals-based accounting standards started in the 1980s, for example in Australia and New Zealand. While the level of adoption differs depending on the country, adoption of accruals-based accounting standards has often been motivated by a call by society for new

[97] J. Soll is a professor of history and accounting at the University of Southern California

[98] Soll, J. "The reckoning: Financial accountability and the rise and fall of nations". *Basic Books*, 2014.

[99] See footnote 98.

[100] See footnote 98.

accountability requirements - the public seeking more transparent, open government[101].

181. This is confirmed by public accounting experts having recently supervised accrual accounting reforms.

Experts' comments
A Ministry of Finance expert: "When the Constitution was promulgated, there's a key part of our Constitution that outlined that there should be sort of a fair or equitable and transparent process of managing the resources that governments have, just to make sure that whatever resources are available in the country are really used to provide services to everyone in the country."
A Ministry of Finance expert: "But we also thought of the citizen as the owner of the government. And again to be a good owner of government, and to manage the ownership interests, you need a good knowledge of the assets and of the obligations, not just the debt, but also other obligations. So that was our driver,"
An academic expert on public accounting. "Better accountability also has a purpose to inspire trust in people, good relations between the people."

A recent shift toward more performance-based reporting

182. The move to accrual accounting answered the existing system's inadequacy in addressing government performance.

Experts' comments
A Ministry of Finance expert: "There was a reform [Move to accrual accounting] that moved the decision-making on performance expectations to ministers which moved the accountability to perform to the bureaucracy. Part of that was accounting for their performance. When we defined performance at that time, we defined it as performance from the point of view of a citizen as a user of government services, and therefore we wanted to know the costs of the government services that were being delivered (…)."

183. In Australia, the adoption of accrual accounting as part of the Financial Management Improvement Program (introduced in 1984) received widespread support. While the cash-based system was seen to be necessary for government fiscal policy purposes, it could be manipulated to provide a misleading picture. More importantly, the cash-based system did not report a wide range of financial information required for public sector performance assessment. Numerous examples were identified[102]:

- The full costs of programmes and of departmental activities were not recorded. This information is necessary for determining budget priorities and for efficient management of operations (e.g. costs of using existing assets).
- No record of the stock of government's non cash assets and its non-borrowing liabilities.

[101] Barrett, P. (August 2004). "Financial management in the public sector-How accrual accounting and budgeting enhances governance and accountability". In CPA Forum: Challenge of change: Driving governance and accountability. Singapore.

[102] See footnote 101.

- No measurement and reporting to parliament and to the public of the performance of management with respect to efficient cost control, asset and liability management and service delivery. Performance measurement under the cash-based system limited to budget expenditure compliance.

184. This historical perspective shows that accounting is closely linked with democratic accountability. Robert Behn distinguishes three main dimensions of accountability[103]:

- Financial accountability – Public entities have been entrusted with taxpayers' money. They are under the obligation to use it wisely and are to be held accountable for doing so.
- Accountability for fairness - Public servants award contracts, decide about social benefits, impose fines and exercise much discretion. Rules and regulations are in place to hold them accountable.
- Accountability for performance - Citizens should be able to assess the effective use of resources by government.

185. With the increasing complexity of the public sector, the citizens' focus has shifted toward a more performance-based accountability[104].

In summary, historical accounting developments have been the basis for stronger democratic accountability

186. Accounting development has supported government legitimation by providing tools for good public management. Good accounting fosters public trust. More recently, the development of accrual accounting was associated with a demand for modern democratic accountability and the need to evaluate government performance.

5.3 How EPSAS would strengthen democratic accountability and scrutiny

187. Accountability and scrutiny are intertwined notions – without scrutiny there cannot be accountability. This section examines the role that EPSAS may play in strengthening democratic accountability and scrutiny.

Better control by citizens

188. Accruals-based accounting standards such as EPSAS provide a true and fair view of public entities' financial information, and it is widely recognised that accrual accounting is the most appropriate accounting basis to provide citizens with this true and fair view[105]. Accrual accounting captures "all transactions which occur in a budget year, irrespective of whether they have involved the movement of cash"[106].

189. By improving the transparency of information on public finance, accrual accounting would help citizens evaluate public entity activities. Accrual accounting makes it

[103] Behn, R. D. (2001). "Rethinking democratic accountability". *Brookings Institution Press*.

[104] See footnote 103.

[105] Accountability transparency and financial literacy, ICAEW PWC 2014.

[106] Funnell, W., and K. Cooper. "Public sector accounting and accountability in Australia." *UNSW Press*, 1998.

possible for public entities "to be held accountable for the wise management of all assets and all liabilities under their control"[107] as they must provide a wider range of information on their performance throughout the budget period. Christine Lagarde highlighted the important role that fiscal transparency can play in global efforts to combat the misuse of public funds[108].

Experts' comments
A Ministry of Finance expert: "(…) before adopting accrual accounting we had no information about long-term financial assets and long-term financial liabilities, we did not have information on the provisions and we did not have this kind of procedure of intercompany balance sheet reconciliation, and now we are performing this kind of consolidation. It is a good control when you do a consolidation and when you reconcile intercompany transactions, so it is full information, it is better control."
An academic expert in public policy: "(…) there are all sorts of clientelism which is a major source of distrust. That's a major source of the resentment (…) The Greek government did not have a well-functioning bureau of statistics; it is a major source of distrust in many countries (but in my country too), because the public opinion does not know what's happening with the money. This is the major source of rise of Eurosceptic parties (…)

Scrutiny by new stakeholders: supranational institutions, financial markets and older/younger generations

190. According to experts, with EPSAS, supranational institutions will be able to review government accounts more consistently. Comparisons at subnational, national and international level would be made easier, thanks to the implementation of common accounting standards in the EU. Information about the effective use of taxpayers' money would be not only disclosed, but also standardised across MSs. Governments could then be held accountable not only by citizens, parliaments and ministry members, but also by supranational institutions.

191. The adoption of EPSAS may also foster scrutiny by financial markets. As previously seen[109], harmonised information about government fiscal performance will increase the use of financial accounts data by investors and credit rating agencies[110].

192. In addition the generalisation of accrual accounting would allow better intergenerational analysis. Accrual accounting ensures accountability for the downstream effects of policies on liabilities to be met by future generations – i.e. a clearer emphasis on the measurement of intergenerational equity[111].

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[107] See footnote 106.

[108] London Anti-Corruption Summit, 2016.

[109] Please refer to Part 4.

[110] "Greater scrutiny of the underlying financial position of governments by financial markets could be a significant driver for greater government accountability" - Government Accountability and Reporting: Citizen's Attitude and Financial Markets Scrutiny, Summary of discussion on 9 December 2014, Joint ICAEW-PWC series, 2015.

[111] Guthrie, J. (1998). "Application of accrual accounting in the Australian public sector-rhetoric or reality." *Financial accountability and management*, 14(1), 1-19.

Experts' comments
A Ministry of Finance expert: "(…) even the European Commission, in one of their reports, they identified that there is no information on the costs of decommissioning/dismantling a nuclear power station. So there are some examples, if you do not find any information in the budget execution, then the financial statements are an additional source of information to look at. Maybe it is not a very usual source of information, but other institutions could find some answers to their questions in the financial statements."
A Ministry of Finance expert: "Yes we do provide the information to the rating agencies, and we have a pretty good rating, AAA for agency, and AA+ for the another one, which is pretty good for a small country like our country. The rating agencies have their own models and their own approaches, and they are kind of looking at the level of fiscal adjustment that they think would be necessary to be sustainable and they are making almost a political judgement about how capable a government is in making such fiscal adjustments...Rating agencies and capital international organisations have been surveyed to make the financial statements more understandable by and useful to them."
An academic expert on public accounting: "Even if the information is not used within the country, it is used and has benefits at a European level."

Facilitated evaluation of public policies

193. The comprehensiveness, clarity, reliability, timeliness and relevance of public reporting on the past, present and future state of public finances provides higher quality data and information on public accounts, not only to decision-makers but also to taxpayers, therefore allowing for a better-informed debate about the design and results of fiscal policy[112]. Transparent public finances would properly reflect the performance of economic policy. Hence, it would alleviate "informational asymmetries between voters and politicians"[113]. Transparent public financial management would allow citizens to influence and to adjust political institutions[114]. Max Weber explained that accounting is a tool to "rationalise" every form of economic activity. From this angle, accrual accounting can be seen as a means to rationalise and justify decision-makers' choices in the allocation of taxpayers' money[115].

Experts' comments
A Ministry of Finance expert: "A specific unit at the ministry of finance actually goes over all the financial statements of local governments, because they make decisions about financing. This unit at the Ministry is currently implementing a uniform Standard Chart of Accounts at the municipal level, in order to improve the comparability of the information that is used for financial statement purposes. This chart will be used to process all the information in order to aggregate the financial statements. They are trying to eliminate possible inconsistencies. They would want to have a look at all municipalities and understand why there are differences,

[112] Granickas, K., "Fiscal transparency and open government data", *European Public Sector Information Platform*, Topic Report No 2013/11

[113] Alt, J. E., and D. D. Lassen, (2006). "Fiscal transparency, political parties, and debt in OECD countries". *European Economic Review*, 50(6), 1403-1439.

[114] Leiderer, S., and P. Wolff. "Gestion des finances publiques: une contribution à la bonne gouvernance financière." *Annuaire suisse de politique de développement* 26.2 (2007): 175-195.

[115] Weber M., "The Protestant Ethic and the Spirit of Capitalism", (1905)

Experts' comments
when they make these decisions. This impacts funding and introducing certain policies at local government level. Without this information, it would not have been possible."
An international organisation expert: "Asset management was not an issue before. An accrual accounting system forces a country to have a look at how it manages its assets. If you have harmonised standards for valuing assets at all levels of government, you have much more comparability, it's easier to create common policies for the entire government. It is important to make sure that asset management is done on a comparable basis, which for instance applies for the ministry of transport, and applies as well for the Ministry of Defence, of agriculture etc."

Enhanced audit quality

194. Harmonised accruals-based public accounting may serve to improve the efficiency and effectiveness of public audit[116]. In 1780, four years after the founding of the United States, Hamilton, in a letter to lawyer and politician James Duane, laid out his vision for federalist government, based on a centralised financial and auditing system. Congress, he insisted, "should have complete sovereignty", in particular over each state's spending[117]. By allowing for comparisons between MSs, EPSAS would facilitate audit execution and thus provide a control over government activities.

195. Having identical standards across all MSs would also allow auditors from one MS to audit accounts in another MS without having to be trained for it. Economies of scale could be achieved in auditor education. As Morris wrote, "every account ought to be first stated in one certain form, so that a person once acquainted with that form, could go through the public accounts with equal facility"[118].

Experts' comments
A Ministry of Finance expert: "The new financial statements are mainly used for the control [by the National Court of Audit], because they can capture the full information only in these financial statements. These are the basis to see more information and maybe there is even some impact from this process for other financial processes, because you can also see some legal validation issues, some control issues." "For example, State land. We have big variations in the value of land. Now we are looking more deeply into what is the problem. Financial statements are that instrument which shows that something is wrong with the accounting management of State."
An academic expert in public accounting: "I do think that one of the critical success factors in our change was the support we had of the audit office. They were committed to the improvement in accountability that you get from information that more fairly reflected the economic substance of what was going on. This kind of commitment doesn't seem to exist in many other countries."

[116] "Towards implementing harmonized public sector accounting standards in Member States – The suitability of IPSAS for the Member States", Report from the Commission to the Council and the European Parliament, 2013.

[117] See footnote 98.

[118] Morris, R., "A general View of Receipts and Expenditures of Public Monies", 1782.

<u>In summary, EPSAS would improve means of control by a wider group of stakeholders</u>

196. By promoting better control by citizens and new stakeholders, and by making public policy evaluation and audit execution easier, EPSAS could play a significant role in fostering democratic accountability and scrutiny.

5.4 Best practices to ensure effective scrutiny

197. The information disclosed about public spending and the allocation of taxpayers' money within an accrual accounting framework is not always understood properly by all stakeholders. For the purpose of democratic accountability and scrutiny, stakeholders should be able to benefit from the content of public accounts[119]. Views of experts on the best practices to achieve better account readability are shared below.

<u>Simplify communication to reach a wide audience</u>

198. The interviewees stressed that information should be simplified and provided in a pedagogical and consistent way to ensure appropriation by a wide audience of stakeholders. New technologies can provide new ways to disseminate information in a pedagogical manner. To the extent possible, the same format should be used for different sources.

Experts' comments
An academic expert in public accounting: "One of the things that helps in the UK is that the budgeting and reporting is done in the same way. The institute of fiscal studies to which a wider public and the media look to try to find what the government is producing, just produced a green budget and that is a very valuable document."
An international organisation expert: "Accruals is about building a true and fair picture of the financial status of a country but if you manage to do it in a simple and understandable way, not in a too technical way, you will find much more people who listen to you".
An international organisation expert: "Simplify accruals-based information to make it understandable by users/decision-makers. For politicians, prepare simplified, consolidated financial statements. (like in the private sector)"
An academic expert on public sector accounting: "Simplification is important if you want to reach the people. For the decision makers, we can and must keep a more sophisticated version"

<u>Disclose the information in story-telling style</u>

199. The experts recommended disclosing information from financial statements by linking them to Key Performance Indicators (KPIs). In particular, the KPIs should be related and illustrate budget execution in story-telling style. Relating the financial statements to budget execution is especially important for members of parliament. Story-telling should enhance the appropriation of the financial statements and increase the

[119] See footnote 98.

audience's interest. For all stakeholders to appropriate the financial statements, additional statements and/or disclosure may be required.

Experts' comments
A Ministry of Finance expert: "Need to link budget execution to financial statements, KPIs and ratios. Ratios need to be defined. These ratios would reflect the well-being or net worth of a country."
An international organisation expert "During the transition, highly negative assets were discovered. We had to build a story explaining what was going on, what were the roots of the problem, what could be done and so on and so forth. Tell a simple story, with graphs and supporting figures, and be pedagogic."
A Ministry of Finance expert: "we are thinking about the open data technology. How to disclose the data to the society, and that could also be a platform to incorporate the indicators from the financial statements and to link them, the indicators, to the budget expectation statements and even to key performance indicators" (…) "One more thing is to prepare some additional disclosure or statement to link the budget execution statement to the financial statement, in order for people to understand how this information is interrelated"
A Ministry of Finance expert: "… parliamentarians and council members. They cannot make a direct comparison between the budget and the financial statements. They are very focused on the budget. Improving the understanding of financial statements for parliamentarians and council members would be good."

Use scoreboards such as league tables

200. Scoreboards could be developed to enhance appropriation of and better communicate on financial statements. For instance the use of league tables, which is a simple performance ranking method has been suggested by experts.

Experts' comments
An academic expert in public policy: "The idea of League Tables could be important, because you can get the information at one glance, to see how your government or local government is performing compared to others. (e.g. PISA scores helped in Germany to push the government to improve the quality of schools.) This way you can compare government performances, and hopefully it could push governments to move upward in the league. This could be one building block in a larger project and eventually this will help to increase political trust."
A Ministry of Finance expert: "information should be simplified, and also there is the idea to have some sort of scoreboard in the financial statements to easily see that something is good or bad. The previous Minister of Finance said that he saw thousands of data, and so what?"
A Ministry of Finance expert: "this web site was launched around about the same time as the elections and it was quite interesting to see the people using the information on that website to actually think about how they would vote for different parties. There is quite a lot of financial information, the format looks a little bit like IPSAS, but actually there is a little bit of a budget information as well that's also been included. This gives people a view on how much money is in the bank account, if one looks at debts and credits, one can see if it is possible to pay all the

Experts' comments
credits etc. It has given people access to a lot of information, and they are starting to use this to decide on how they are going to vote."

201. Scoreboards in the form of league tables should remain informative. If they are used to support public policies then there is a risk of goal displacement – public policies being oriented towards the improvement of the KPIs.

Experts' comments
A Ministry of Finance expert: "Some reports have been published, obviously they pick up some of the financial health indicators e.g. cities that are almost bankrupt and do not have any cash in the bank. They [Journalists] are probably looking for sensational things."
An academic expert in public policy: "So there's a risk to have accountability in the books and not accountability in action because it only complies with the formal norms in your standards, it is goal displacement. There is also a risk of conservatism, countries may not have an incentive to adjust to new developments because they would not get points. If you do the system, you have to renew the standards, and make sure that new developments are valorised. Either standards should be renewed, or need to be flexible so that new sorts of developments could be done."

In summary, to ensure better scrutiny financial reporting should be simplified using KPIs and league tables

202. To maximise the appropriation of financial statements by the widest audience and thus improve democratic accountability and scrutiny, experts suggested simplifying the information using ratios. In particular, it is important to build KPIs linking the financial statements to budget execution in order to secure parliament scrutiny. Also league tables were suggested as a pedagogical tool to help compare the performances of MSs public entities.

5.5 Summary of findings

203. Harmonised and accruals-based accounting standards will decrease information asymmetries and establish the necessary conditions for the development of public trust in public finance management systems.

204. Historical accounting developments have been the basis for stronger democratic accountability. Accounting development has supported government legitimation by providing tools for good public management. Good accounting fosters public trust. More recently, the development accrual accounting was associated with a demand for modern democratic accountability and the need to evaluate government performance. A review of historical developments suggests that public trust and scrutiny enhance the legitimation of public entities and the development of democratic society.

205. By providing better financial information, EPSAS would improve the means of control by a wider group of stakeholders. By promoting better control by citizens and new stakeholders, and by making public policy evaluation and audit execution easier, EPSAS could play a significant role in fostering democratic accountability and scrutiny.

206. However, the financial statements must be used by various stakeholders in order to effectively increase democratic accountability. The interview results suggest the importance of a communication strategy involving all stakeholders to ensure the dissemination of financial information to a wide audience.

207. Experts advise simplifying financial reporting using KPIs and league tables. To maximise the appropriation of financial statements by the widest audience and thus improve democratic accountability and scrutiny, experts suggest simplifying the information using ratios. In particular, it is important to build KPIs linking the financial statements to budget execution in order to secure parliament scrutiny. Also, league tables were suggested as a pedagogical tool to help compare the performances of MSs public entities.

Part 6. Appendix

6.1 Appendix A – List of reviewed papers (Part 1)

Table 9 : List of papers reviewed to identify long-term benefits of EPSAS

#	Author	Date	Title
1	Kopits and Craig	1998	Transparency in government operations
2	Tanzi	1998	Corruption around the world
3	Kilpatrick	2001	Transparent framework, fiscal rules and policy-making under uncertainty
4	Heald	2003	Fiscal transparency: concepts, measurement and UK practice
5	Alt and Dreyer Lassen	2006	Fiscal transparency, political parties and debt in OECD countries
6	Teig	2006	Fiscal transparency and economic growth
7	IMF	2007	Manual on fiscal transparency
8	Missio and Watzka	2011	Financial contagion and the European debt crisis
9	Constâncio	2012	Contagion and the European debt crisis
10	Heald	2013	Surmounting obstacles to fiscal transparency
11	Brusca and Martinez	2015	Adopting IPSAS: a challenge for modernizing and harmonizing public sector accounting
12	Guthrie, J.	1998	Application of accrual accounting in the Australian public sector-rhetoric or reality
13	IFAC	2003	Transition to the Accrual Basis of Accounting: Guidance for Governments and Government Entities
14	OECD	2003	The value of accrual accounting for government
15	Carlin, T. M.	2005	Debating the impact of accrual accounting and reporting in the public sector.
16	AnessiPessina and Steccolini	2007	Effects of budgetary and accrual accounting coexistence: evidence from Italian local governments
17	Ardagna, Caselli, and Lane	2007	Fiscal discipline and the cost of public debt service: some estimates for OECD countries
18	Pina, Torres and Yetano	2009	Accrual accounting in EU local governments: One method, several approaches.

#	Author	Date	Title
19	Christiaens, Reyniers, and Rollé	2010	Impact of IPSAS on reforming governmental financial information systems: a comparative study.
20	Kumar and Baldacci	2010	Fiscal Deficits, Public Debt, and Sovereign Bond Yields
21	Checherita-Westphal and Rother	2012	The impact of high government debt on economic growth and its channels: An empirical investigation for the euro area
22	Alonso and Garcimartin	2013	The determinants of institutional quality, more on the debate
23	European Commission	2013	Towards implementing harmonized public sector accounting standards in MS
24	Bellanca and Vandernoot	2014	International Public Sector Accounting Standards (IPSAS) Implementation in the European Union (EU) Member States
25	Frunza	2014	The Cost of Non-Europe of an incomplete Economic and Monetary Union to prevent future crises
26	Pataki	2014	The Cost of Non-Europe in the Single Market, 'Cecchini Revisited', An overview of the potential economic gains from further completion of the European Single Market,
27	Jesus and Jorge	2015	Governmental budgetary reporting systems in the European Union: is the accounting basis relevant for the deficit reliability?
28	Masuch, Moshammer and Pierluigi	2016	Institutions, public debt and growth in Europe,

6.2 Appendix B - List of interviewees for Part 1 and Part 2

Table 10: Interviewee list – Long-term benefits (Section 2.2) and Factors influencing transition (Section 0)

Name	Position	Institution	Interview status
Ingrida Muckute	Director of Accounting Methodology Department	Ministry of Finance - Lithuania	Interviewed
Ken Warren	Chief Accounting Advisor	The Treasury of New Zealand	Interviewed
David Heald	Professor of Public Sector Accounting	University of Glasgow	Interviewed
Francesco Capalbo	Professor of Financial Accounting, incoming IPSASB Member	University of Naples, Consiglio Nazionale dei Dottori Commercialisti e degli Esperti Contabili	Interviewed
Gerhard Steger	Former director general of finance and sustainability, now Consultant to IMF	Court of Audit, Austria	Interviewed
Delphine Moretti	Senior policy analyst in the Budgeting and Public Expenditure division	OECD	Interviewed
Olivier Boutellis-Taft	CEO	Federation of European Accountants	Interviewed
Svetlana Klimenko	Lead Financial Management Specialist	The World Bank	Interviewed
Mario Pessoa	Deputy Division Chief for Public Financial management	IMF	Interviewed
Jeanine Poggiolini	Deputy Chair	IPSAS Board	Interviewed
Mark Bovens	Professor of Public Administration	Utrecht School of Governance	Interviewed
David Dreyer Lassen	Researcher in public economics, fiscal policy, political behavior and attitudes	University of Copenhagen	Interviewed
Isabel Brusca	Researcher in public sector accounting	University of Zaragoza	Interviewed
Jon R. Blondal	Head of Division and Editor-in-Chief of the OECD Journal on Budgeting	OECD	Contacted by email
Brian Gray	Consultant, ex Director General Budget and Internal Audit (retired)	European Commission	Contacted by email
John Capper	Executive Director	EGIAN	Contacted by email
Rob Van Eijkeren	Co-ordinator	House of the Dutch Provinces	Contacted by email
Jorge Nunez Ferrer	Senior Research Fellow	CEPS	Contacted by email

Name	Position	Institution	Interview status
Lucie Laliberte	Former chief - Data Quality Assessment Framework	IMF	Contacted by email
Eric Hammer	Head of Division	Agency for the Modernization of Public Administration	Contacted by email
Pia Heyman	Head of Central Government Accounting Division	The Swedish National Financial Management Authority	Contacted by email
Kent Harnisch	Center for Expenditure Policy and Modernization	Ministry of Finance of Denmark	Contacted by email
Matthew Flavel	Head of Budget Policy Division	Treasury Department Australia	Contacted by email
Anna Mank	Managing Director	Treasury Department Poland	Contacted by email
Inita Naumane	Deputy Director of Accounting Department	Treasury - Republic of Latvia	Contacted by email
Marc De Spiegeleire	Practitioner	Federal Government Belgium	Contacted by email
Brian Olden	Deputy Division Chief - Public Financial Management Division	IMF	Contacted by email

Table 11: Interviewee list - Discussing the results of the quantitative analysis

Name	Position	Institution	Interview status
Ken Warren	Chief Accounting Advisor	The Treasury of New Zealand	Interviewed
David Heald	Professor of Public Sector Accounting	University of Glasgow	Interviewed
Francesco Capalbo	Professor of Financial Accounting, incoming IPSASB Member	University of Naples	Interviewed
Gerhard Steger	Former director general of finance and sustainability, now Consultant to IMF	Court of Audit, Austria	Interviewed
Delphine Moretti	Senior policy analyst in the Budgeting and Public Expenditure division	OECD	Interviewed
Olivier Boutellis-Taft	CEO	Federation of European Accountants	Interviewed
Jeanine Poggiolini	Deputy Chair	IPSAS Board	Interviewed
Mark Bovens	Professor of Public Administration	Utrecht School of Governance	Interviewed
David Dreyer Lassen	Researcher in public economics, fiscal policy,	University of Copenhagen	Interviewed

	political behavior and attitudes		
Isabel Brusca	Researcher in public sector accounting	University of Zaragoza	Interviewed
Jon Blondal	Head of Budgeting and Public Expenditures	OECD	Contacted by email
John Capper	Executive Director	EGIAN	Contacted by email

6.3 Appendix C – Source of data for quantitative analysis (Part 2)

Table 12: Data sources supporting the quantitative analysis

Variable	Source	Comment
Central government level public accounting maturity	PwC Study (2014)	
Local government level public accounting maturity	PwC Study (2014)	
Social security funds level public accounting maturity	PwC Study (2014)	
General government overall balance (percent GDP)	IMF Fiscal Affairs Department - Fiscal Monitor 2015	Used only for the Kruskal-Wallis test covering 46 countries
General government gross debt (percent GDP)	IMF Fiscal Affairs Department - Fiscal Monitor 2015	Used only for the Kruskal-Wallis test covering 46 countries
10-year sovereign bond yields	IMF International Finance Statistics Database (IFS)	IFS database retrieves EU MSs' data from Eurostat
Inflation, consumer prices (annual %)	World Bank Development Indicators	
Rule of law indicator	World Bank World Governance Indicators	
Government effectiveness indicator	World Bank World Governance Indicators	
Regulatory quality indicator	World Bank World Governance Indicators	
Control of corruption indicator	World Bank World Governance Indicators	
Quality of institutions indicator	Calculated	Average of Rule of law / Government effectiveness / Regulatory quality / Control of corruption
Gross domestic savings to GDP ratio	World Bank Development Indicators	

Variable	Source	Comment
Indicator variable for Greece	Calculated	Equal to 1 for Greece, 0 for others
Indicator variable for Eurozone.	Calculated	Equal to 1 for Eurozone MS, 0 for others
Foreign Direct Investment net inflows to GDP ratio	World Bank Development Indicators	
Ease of doing business index	World Bank Development Indicators	1=most business-friendly regulations
Status regarding accrual-based accounting in public sector	IMF Study (2016)	Implementing Accrual Accounting in the Public Sector, J. Cavanagh, S. Flynn, and D. Moretti, Technical Notes and Manuals, Fiscal Affairs Department, IMF, September 2016
General government net lending/borrowing	Eurostat	Used for the quantitative analysis covering 28 EU MSs
Government consolidated gross debt	Eurostat	Used for the quantitative analysis covering 28 EU MSs
Gross domestic product (current prices, per capita)	Eurostat	Used for the quantitative analysis covering 28 EU MSs
GDP growth (annual %)	World Bank Development Indicators	
GDP per capita (constant 2010 dollars)	World Bank Development Indicators	
GDP per capita growth	World Bank Development Indicators	

6.4 Appendix D – Technical supplements (Part 2)

208. This appendix aims to present supporting technical information on the modelling procedure undertaken in Part 3. It provides statistical evidence and robustness tests for the modelling framework.

There exists a statistical relationship between central government level accounting maturities and sovereign bond yields

209. Bivariate regressions were undertaken. These regressions aim to identify statistical relations between MSs' central government level accounting maturities and identified proxies for long-term economic benefits. The identified proxies are:

- 10-year sovereign bond yields,
- Institutional quality, which is a proxy for accountability and transparency and comparability[120],
- GDP per capita, which is a standard proxy for long-term economic benefits,

210. The results of bivariate regressions are summarised in Table 13. Coefficients accompanied by a star symbol are statistically significant at 10%, 5% or 1% thresholds. Coefficients without stars are not significant, therefore they are considered to be equivalent to zero.

Table 13: Summary of exploratory data analysis on EPSAS impact, using bivariate regressions

	10-year sovereign bond yields	Institutional quality	GDP per capita
Central government level public sector accounting maturity	-0.03*	0.003	-0.001

*Note: Significant levels (*10%, **5%, ***1%)*

211. According to the above analysis the following choices were made regarding the modelling framework:

- 10-year sovereign bond yields are correlated with central government level public sector accounting maturity. This suggests that there could be a direct link between these two variables. This relationship will be investigated further in the modelling framework.
- The other variables seem not to be correlated with accounting maturities. Therefore these variables will not be investigated further in the modelling framework.

[120] Alt, J. E., and D. D. Lassen, (2006). "Fiscal transparency, political parties, and debt in OECD countries". *European Economic Review*, 50(6), 1403-1439.

Calibration of the relationship

212. The modelling framework developed to explain sovereign bond yields is inspired by an IMF working paper (2010)[121]. According to this paper sovereign bond yields fluctuations could be explained by:

- GDP per capita, current prices,
- The World Bank's business development indicator, reflecting the ease of doing business in each country (the lower the score, the more conducive the regulatory environment to business operations),
- General government balance, in percentage of GDP[122],
- Government consolidated gross debt, in percentage of GDP,
- Inflation rate (consumer prices, in percentage),
- Gross domestic savings (in percentage of GDP),
- Institutional quality indicator,
- Indicator variable for countries with high Foreign Direct Investment (FDI) net inflows (annual FDI higher than 10% of GDP).

To capture additional EU economic specificities, the following variables were added:

- Indicator variable for Greece: This variable is equal to 1 for values of Greece, and 0 for all others. It aims at capturing possible specificities of this MS' sovereign bond yields,
- Indicator variable for the Eurozone: This variable aims at capturing possible specific effects on interest rates in Eurozone countries,

213. To calibrate the model, a stepwise regression method is applied. This method is based on the progressive elimination of non-significant explanatory variables. The process starts with an ordinary least-square regression including all the explanatory variables. The least significant variable is eliminated and a new regression excluding this variable is launched. This process is iterated until a set of significant variables is reached. For this analysis, the significance threshold for P-values was defined at 10%.

214. Table 14 sums up the results of the stepwise regression method.

[121] Kumar, M.S., and E. Baldacci, "Fiscal Deficits, Public Debt, and Sovereign Bond Yields" *IMF Working Paper* No. 10/184, August 2010

[122] The general government balance data used in this statistical model is provided by Eurostat statistical database. The general government deficit/surplus is defined in the Maastricht Treaty as general government net lending (+)/net borrowing (-) according to the European System of Accounts. The general government sector comprises central government, state government, local government, and social security funds. It is the difference between the revenue and the expenditure of the general government sector. The government debt is defined as the total consolidated gross debt at nominal value at the end of the year in the following categories of government liabilities (as defined in ESA 2010): currency and deposits, debt securities, and loans. At the national level, data for the general government sector are consolidated between sub sectors.

Table 14: Stepwise regression results on 10-year sovereign yields – with central government public accounting maturity

Number of observations	27*		
Adjusted R-squared	0.82		
Explanatory variables	Coefficient	T-statistic	P-value
General government balance (as % of GDP)	-0.242	-3.57	0.002
Central government level public accounting maturity	-0.015	-1.72	0.099
Indicator variable for Greece	5.325	4.36	0.000
Institutional quality indicator	-1.502	-4.54	0.000
Constant	5.350	7.58	0.000

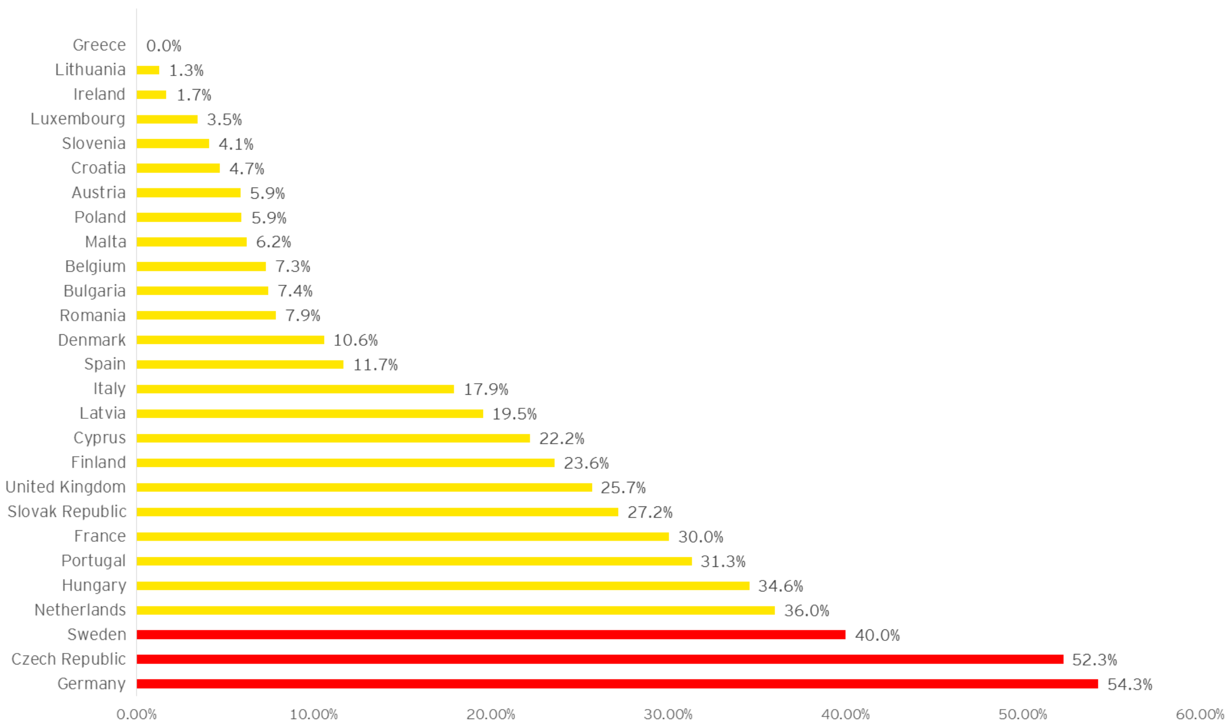
** Please note that 10-year sovereign yields data for Estonia are missing. This explains why there are only 27 observations for this analysis.*

Analysis of the estimation error

215. As seen in Table 14, the R-squared of the regression is high, reflecting a good explanatory power of the model.

Figure 9 presents the weight of the estimate error relative to the actual sovereign bond yields for each MS, in absolute values.

Figure 9 : Performance of the model on sovereign bond yield estimations by MS (in absolute values)



216. For example, for Austria, the average observed level of 10-year sovereign bond yields for 2010-2014 is 2.48%. Using the coefficients in Table 14, and the values of corresponding explanatory variables, an estimated sovereign bond yield can be calculated. The estimated sovereign bond yield is 2.63%. Thus the estimation error for Austria is equal to 0.15%. The ratio presented in Figure 9 is the estimation error divided by the observed value. Then for Austria, it corresponds to 0.15% divided by 2.63%, which is 5.9%. The smaller this ratio, the higher the estimation performance of the model for a given country.

The statistics provided here highlight the MSs for which sovereign bond yields are not well captured by the model.

Test for heteroscedasticity

217. A heteroscedasticity test was also performed in order to assess whether the variance does not vary with the effects being modelled. This is a standard statistical procedure used to test whether there exist some endogeneity bias[123]. The result of the heteroscedasticity test is provided in Table 15. The result indicates that the residuals' variance is constant and does not disturb the estimation of the coefficients in the model. This means that the ordinary least squares method used here is appropriate and that there is no need to undertake a weighted-least-squares method.

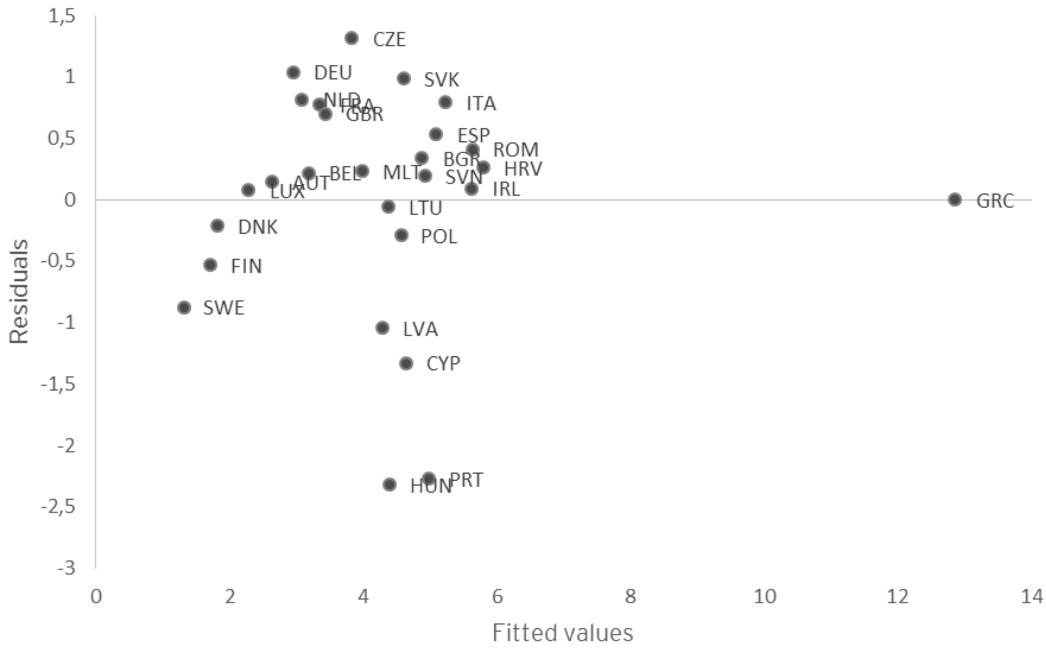
Table 15 : Heteroscedasticity test (White, 1980)

White test for	H0: Homoscedasticity
Against	H1: Heteroscedasticity
Chi2 Statistic	4.93
Probability > Chi2	0.90

218. Figure 10 plots residuals against estimated values, and confirms that the residuals do not follow a trend.

[123] See footnote 32.

Figure 10: Testing for heteroscedasticity – Residuals against fitted values – All MSs



<u>Kruskal-Wallis tests provide additional evidence supporting the selected modelling framework</u>

219. Kruskal-Wallis tests aim to detect correlations between economic variables and the fact that a country uses accruals-based public sector accounting standards or not.

220. The tests conducted here cover a dataset that extends beyond the 28 EU MSs. A broader scope was chosen in order to limit data scarcity issues and provide the analysis with a wider accruals-based public sector accounting experience. The dataset covers 46 countries, including: (i) 28 EU MSs, (ii) OECD Member States, and (iii) five emerging economies, Brazil, Russia, India, China, and South Africa. The information about the public accounting standards applied in these countries was collected from the IMF Technical Guidance Note (2016)[124]. In the following analysis, the cash-accounting basis covers both full-cash and modified-cash standards, while the accrual basis covers both full-accrual and modified-accruals standards.

Table 16: Kruskal-Wallis test between economic variables and the accounting standard (accruals vs cash)

Explanatory variables	Kruskal-Wallis P-value
General government balance % GDP	0.4398
Public debt % GDP	0.4876
Growth domestic saving % GDP	0.8111
Unemployment rate	0.5020

[124] Cavanagh, J., and Flynn, S., and D. Moretti, "Implementing Accrual Accounting in the Public Sector", *Technical Notes and Manuals*, Fiscal Affairs Department, IMF, September 2016.

Explanatory variables	Kruskal-Wallis P-value
Institutional quality	0.1616
10-year sovereign bond yields	0.0739
Inflation in %	0.1907
Foreign Direct Investments net inflows (% GDP)	0.1616
GDP per capita	0.4192
GDP	0.3220

221. Table 16 provides the probability for rejecting the correlation. This means that when this value is below 10% for a given variable, the correlation between this variable and the application of accruals-based public sector accounting is statistically significant at a 10% threshold.

222. The results in this table support the existence of a relationship between sovereign bond yields and accounting basis.

223. Some experts interrogated the direction of the impact between EPSAS and GDP growth, claiming that the GDP might have an impact on the adoption of accruals-based public sector accounting. In other terms, in fast growing, rich economies, adopting EPSAS could be easier. However, the above statistical analysis does not support the existence of such a relationship.

6.5 Appendix E - List of public information sources for listing the changes in public accounting system since 2014 (Part 2)

- Brusca, I., Caperchione, E., Cohen, S., Manes Rossi, F. (2015) Public Sector Accounting and Auditing in Europe, The Challenge of Harmonization, Palgrave Macmillan
- Bellanca, S., Cultrera, L., Vermeylen, G. (2015). Analysis of Public Accounting Systems in the European Union, in: Research in World Economy, Vol. 6, No. 3, 2015, http://www.sciedu.ca/journal/index.php/rwe/article/view/7834/4664
- Cohen, S., Karatzimas, S. (2015) The informative role of accounting standards in privatising state-owned property: comparing Greek Governmental Accounting Standards and IPSAS
- EY (2012). Overview and comparison of public accounting and auditing practices in the 27 EU Member States, Prepared for Eurostat, 19 December 2012, http://ec.europa.eu/eurostat/documents/1015035/4261806/study-on-public-accounting-and-auditing-2012.pdf/5ad43e2b-2ba7-4b05-afab-d690fc2ad9dd
- European Commission (2013). Report from the Commission to the Council and the European Parliament, Towards implementing harmonised public sector accounting standards in member states. The suitability of IPSAS for the member states: http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1410447825715&uri=CELEX:52013DC0114
- Glöckner, A. (2015). Towards a common conceptual framework for Public Sector Accounting in Europe? – A comparative study of the IPSAS framework and the conceptual approach applied by the German federal state of Hessen, in: International Journal on Governmental Financial Management, Vol. XV, No. 2, 2015
- Jones, R. and Caruana, J., (2014). Central government accounting reform in Malta: is it just an illusion?, in: Bank of Valletta Review, 49th Edition, Summer 2014, pp. 51-78
- PwC (2014). Collection of information related to the potential impact, including costs, of implementing accrual accounting in the public sector and technical analysis of the suitability of individual IPSAS standards, 1 August 2014, http://ec.europa.eu/eurostat/documents/1015035/4261806/EPSAS-study-final-PwC-report.pdf
- Rainero, C., Secinaro, S., Indelicato, A. (2013). The European Process of Accounting Harmonization: Current Status and Future Developments. The Case of Italy, in: International Journal of Humanities and Social Science, Vol. 3 No. 13; July 2013, pp. 20-25

6.6 Appendix F – Questionnaire on the progress of accruals based accounting implementation in the public sector (Part 2)

Questionnaire on the progress of accruals based accounting implementation in public sector;

Thank you for taking the time to participate in this important study regarding the further development of harmonised European Public Sector Accounting Standards (EPSAS).

Research objectives

"This questionnaire is part of the project "Support for the development of harmonised European public sector accounting standards and collection of further information related to the potential impacts of implementing accrual accounting in the public sector" carried out by Eurostat European Commission and contracted to EY.

The objective of this questionnaire is to collect up to date information on the progress of on-going or planned national accounting / financial management reforms based on the results of the 2014 study"[125].

Questionnaire design

The questionnaire has been designed to collect the answers in the most simple way as possible. Respondents are asked to provide information by selecting the single option from the drop-down lists provided to best reflect the situation in their country/region/area. Respondents are also asked to elaborate on these answers by identifying dates and describing the changes related to the public sector accounting system.

How to proceed

Please start by providing your respondent details in the first section of the questionnaire "1. Respondent identification" and moving forward to the second and third sections. Note that all applicable sections of the questionnaire will be marked . Sections that are marked must be left blank. Please note that questions are interrelated and some sections of the questionnaire will appear automatically depending on your answers.

Submission of the questionnaire

It would be much appreciated, if you fill the questionnaire before 15th of April 2016. After filling all the required questions please send a MS Excel file electronically to linas.vaitkevicius@lt.ey.com along with any additional documentation or presentations you feel may be useful (e.g. accounting policies, potential gap analysis with IPSAS, etc.).

Questions?

Please contact the EY team for assistance by:

Email: linas.vaitkevicius@lt.ey.com

[125] Collection of information related to the potential impact, including costs, of implementing accrual accounting in the public sector and technical analysis of the suitability of individual IPSAS standards.

1. Respondent identification

Country	
Name	
Position	
Organisation	
Level of government	
Phone	
Email	

2. Changes in accounting and public financial management

2.1 Have any changes occurred in the government accounting and public financial management since January 2014?

2.2 Please link the type of change with the area of public accounting system in the table below (please leave blank cell if there were no changes).

Changes in	**Financial area of government accounting system**									
	PPE, intangible and biological assets	Financial assets	Inventory	Provisions	Financial liabilities	Social benefits	Other liabilities	Revenue	Expenses	Consolidation
Legislation (methodology)										
Processes*										
IT systems										
Practical application										

*Changes in accounting processes include changes in existing accounting procedures and/ or scope of accounting functions and/ or model of accounting function organization (e.g. introduced centralization)

2.3 Legislation (methodology)

Level of the regulation	Applicable	Date	The government level	Description of changes
Law/ Act				
Standards				
Rules, manuals, guidance				
Other				

2.4 Accounting processes

2.4.1. Please specify the date when the changes in the accounting procedures have been introduced.
2.4.2. Which of the government levels these changes are applied to?
2.4.3. Please describe the introduced changes below.

2.5 IT systems

2.5.1. Please specify the date when the changes/ modifications in IT systems have been introduced.

2.5.2 Which of the government levels these changes are applied to?
2.5.3 Please describe the introduced changes below.

2.5.4. Please specify the date when the changes in IT system have been introduced to support government's consolidation process.

2.5.5 Which of the government levels the changes are applied to?
2.5.6 Please describe the introduced changes below.

2.6 Practical application

2.6.1 Please describe the progress/ changes related to the direct practical application of accrual based accounting standards or leading towards applying accruals in the future. The changes might be related to any practical application issues, such as the accrual based accounting standards have been started to be applied by more institutions, the requirements that were already approved by the standards have been started to be applied in practice, important information was gathered that is needed for accruals, regardless of the current accounting system, etc.

2.7 Information on reform costs

2.7.1.Please provide cost estimation related to the changes in public accounting system that have been incurred since January 2014.

Category of the costs	IT related	Non-IT related			Total
		Process re-engineering	Trainings	Other*	
Cost (in thousand EUR)					€ -

*Please indicate other costs or aggregate Non-IT related costs, if it is impossible to categorise them into separate groups.

2.7.2. Please comment on what were the key cost drivers and provide any other information considered to be important and supplementing the figures above.

3. Vision and plans of the implementation of accruals based accounting standards

3.1. Are there any officially approved documents since 2014 related to the strategy/ plan to implement accruals accounting in the public sector? If yes, briefly describe the documents and the content by specifying the governmental level it applies to and areas (e.g. legislation, methodology, IT systems).

3.2 Please describe the perspective and ongoing discussions of the implementation of accruals based accounting standards in the public sector by specifying the governmental level it applies to.

3.3 Please provide information on the planned costs related to the changes in public accounting system.

Category of the costs	Budgeted period	IT related	Non-IT related			Total	Comments
			Process re-engineering	Trainings	Other*		
Cost (in thousand EUR)						€ -	

*Please indicate other costs or aggregate Non-IT related costs, if it is impossible to categorise them into separate groups.

6.7 Appendix G – List of interviewees for Part 3

Table 17: Interviewee list – EPSAS impact on sovereign bond markets

Name	Position	Institution	Interview status
Isabel Brusca	Researcher in public sector accounting	University of Zaragoza	Interviewed
Sophie Vermeille	Lawyer specialized in the field of restructuring and refinancing	President of the Droit & Croissance (Rules for Growth) Institute	Interviewed
Antonio Sanchez	Principal Macro-prudential Policy Expert	European Systemic Risk Board (ESRB)	Interviewed
Arnaud Louis	Director - Sovereign Risk	Fitch Ratings	Interviewed
Julien Mazzacurati	Economist	European Securities and Markets Authority (ESMA)	Interviewed
Yanis El Omari	Economist	ESMA	Interviewed
Antoine Deruennes	Deputy Director-General	Agence France Trésor – Ministry of Finance, France	Interviewed
John Opie	Senior Corporate rating analyst	Feri EuroRating Services AG	Interviewed
Anna Gelpern	Professor of Law	Georgetown Law	Contacted by email
Klaus Masuch	Head of EU Countries Division	ECB	Contacted by email
Beatrice Pierluigi	Principal Economist	ECB	Contacted by email
Edmund Moshammer	Research Analsyt	ECB	Contacted by email
Kalin Anev	Lending and Secretary General	European Stability Mechanism	Contacted by email
Thomas Pies	Head of Finance & Control	European Stability Mechanism	Contacted by email
Hans Buysse	Board member	European Federation of Financial Analysts Societies (EFFAS)	Contacted by email
Sarah Carlson	Senoir Vice President	Moody's	Contacted by email
Ian Radcliffe	Director	European Savings Banks Group / World Savings Banks Institute	Contacted by email
Matti Leppälä	Secretary General, CEO	PensionsEurope	Contacted by email

6.8 Appendix H - List of interviewees for Part 4

Table 18: Interviewee list - EPSAS impact on investment, growth and jobs

Name	Position	Institution	Interview status
Delphine Moretti	Senior policy analyst in the Budgeting and Public Expenditure division	OECD	Interviewed
Mario Pessoa	Deputy Division Chief for Public Financial management	IMF	Interviewed
Isabel Brusca	Researcher in public sector accounting	University of Zaragoza	Interviewed
Ken Warren	Chief Accounting Advisor	The Treasury of New Zealand	Interviewed
David Heald	Professor of Public Sector Accounting	University of Glasgow	Interviewed
Francesco Capalbo	Professor of Financial Accounting, incoming IPSASB Member	University of Naples	Interviewed
Gerhard Steger	Former director general of finance and sustainability, now Consultant to IMF	Court of Audit, Austria	Interviewed
Delphine Moretti	Senior policy analyst in the Budgeting and Public Expenditure division	OECD	Interviewed
Olivier Boutellis-Taft	CEO	Federation of European Accountants	Interviewed
Jeanine Poggiolini	Deputy Chair	IPSAS Board	Interviewed
Lucie Laliberté	Former chief - Data Quality Assessment Framework	IMF	Interviewed
Pia Heyman	Head of Central Government Accounting Division	The Swedish National Financial Management Authority	Contacted by email
Kent Harnisch	Center for Expenditure Policy and Modernization	Ministry of Finance of Denmark	Contacted by email
Matthew Flavel	Head of Budget Policy Division	Treasury Department Australia	Contacted by email
Mike Jakeman	Global Analyst	The Economist, Intelligence Unit	Contacted by email
Inita Naumane	Deputy Director of Accounting Department	Treasury - Republic of Latvia	Contacted by email
Torben Hansen	Deputy Division Chief of Public Financial Management	IMF	Contacted by email
George Kopits	Researcher in Public Finance	Wilson Center	Contacted by email

6.9 Appendix I – List of interviewees for Part 5

Table 19: Interviewee list – EPSAS impact on democratic accountability and scrutiny

Name	Position	Institution	Interview date
Jeanine Poggiolini	Deputy Chair	IPSASB	Interviewed
Andy Wyne	Senior Lecturer in Public Financial Management	University of Leicester	Interviewed
Isabel Brusca	Researcher in public sector accounting	University of Zaragoza	Interviewed
Graham Smith	Professor of Politics	Centre for the Study of Democracy (CSD)	Interviewed
Andy Wynne	Senior Lecturer in Public Financial Management	University of Leicester	Interviewed
Mark Bovens	Professor of Public Administration	Utrecht School of Governance	Interviewed
David Dreyer Lassen	Researcher in public economics, fiscal policy, political behavior and attitudes	University of Copenhagen	Interviewed
Lucie Laliberté	Former chief – Data Quality Assessment Framework	IMF	Interviewed
Thierry Chopin	Head of Research	Robert Schuman Foundation	Contacted by email
Simon Hix	Professor of Political Science	Government Department London School of Economics (LES)	Contacted by email
Mike Jakeman	Global Analyst	The Economist, Intelligence Unit	Contacted by email
Ingeborg Gräßle	MEP	European Parliament	Contacted by email
Igor Šoltes	MEP	European Parliament	Contacted by email
Inés Ayala Sender	MEP	European Parliament	Contacted by email
Kay Swinburne	MEP	European Parliament	Contacted by email
Theodor Stolojan	MEP	European Parliament	Contacted by email
Jacek Mazur	Advisor to the President of the Supreme Audit Office	Supreme Audit Office, Poland	Contacted by email