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An overview of the taxes generated by the European Financial Services Sector

An Assessment for the Association for Financial Markets in Europe

Association for Financial Markets in Europe

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1.1. Background to the report

PricewaterhouseCoopers LLP ('PwC') have been commissioned by the Association for Financial Markets in Europe ('AFME') to produce an independent assessment of the amount of tax generated by the financial services sector ('the FS sector') in a sample of countries of European countries. AFME represents a broad range of European and global participants in the wholesale financial markets including banks and other financial institutions.

This report does not seek to compare the tax generated by the financial sector against the economic costs of the financial crises or the wider economic downturn. Instead it seeks to bring together evidence and examine the interactions with respect to the amount of tax generated by the FS sector and its relative economic efficiency, thus drawing out the key tax policy issues for the understanding of both businesses and policymakers.

The tax payment data used in this report has been collected from publically available Government or international sources. The report focuses on the countries with the four largest FS sectors within the EU-27, for which data were available: France, Germany, Italy and the UK.

1.2. Methodology

We construct two measures as a basis for comparison of the amount of tax paid by the FS sector relative to that paid by the wider economy. These measures are commonly used in comparisons of international tax systems in terms of the burden borne by specific sectors of an economy.

Measure 1: compares the amount of tax generated by the FS sector relative to its share of economic activity, measured by Gross Value Added ('GVA').

Measure 2: calculates an Average Effective Tax Rate ('AETR') by dividing the amount of tax generated by GVA. AETRs for the FS sector and whole economy are then directly compared.

The Governments in our sample publish data under various different tax heads, but these data are generally not categorised between **taxes that are borne** by the FS sector (e.g. corporate income tax, employer social security contributions, irrecoverable VAT) and **taxes that are collected** by the FS sector (e.g. VAT on supplies made, personal income tax, employee social security contributions).[1]

FS sector activity includes the areas covered by both taxes borne and taxes collected. Given that it is not possible to make a full distinction between taxes borne and collected from publically available data sources, we have **defined taxes generated as both taxes borne and taxes collected** for the purposes of this report.

[1] The UK is the exception to where the distinction between taxes borne and collected can be made.

1.3. *Key findings*

Choosing the right level of taxation is a political and economic policy decision and it is not the aim of this report to take a position on whether the FS sector can be considered to be either over- or under-taxed. However, the report does seek to test whether the FS sector generates a greater proportion of a country's tax receipts than its equivalent proportion of that country's other measures of economic activity. We find evidence that the FS sector generates an average of around 6.6% of all taxes in France, Germany, Italy and the UK combined, above its 5.5% share of total economic activity generated. These figures vary significantly between the four countries we analysed and detailed breakdowns are provided in the report.

Our key findings are as follows:

- The FS sectors in France, Germany, Italy and the UK combined generated nearly €208 billion in taxes annually,[2] equivalent to an average of 6.6% per annum of total tax receipts in these countries.

- For all countries in the sample we find that on average the FS sector generated a level of tax that was in excess of its share of economic activity. Between 2006 and 2010:

  - **France:** The FS sector accounted for an average of 4.5% of whole economy GVA and 6.2% of all taxes in France.

  - **Germany:** The FS sector accounted for an average of 4.0% of whole economy GVA and 5.6% of all taxes in Germany.

  - **Italy:** The FS sector accounted for an average of 4.9% of whole economy GVA and 5.5% of all taxes in Italy.

  - **UK:** The FS sector accounted for an average of 8.8% of whole economy GVA and 9.5% of all taxes in the UK.

- The AETR in our sample of countries is on average 1.5 percentage points higher in the FS sector than in the whole economy. If the FS sector had paid tax at the same lower AETR as the whole economy, then it would have paid €195 billion less in tax between 2006 and 2010, or €39 billion a year on average.

- Though the financial crisis affected tax payments in all of the countries in the sample, the FS sector's tax contribution remained significantly higher than the corresponding share of economic activity, the only exception being the UK in 2008 and 2009.

- A key definition used in the National Accounts of the different countries surveyed is the grouping of consumption and sales taxes under the heading of 'taxes on products'. It is interesting to compare the effective tax rates for taxes on products, given that it has been claimed that the FS sector is under taxed because it does not charge VAT on many of its sales. On the other hand, the point has also been made that the VAT exemption means that the FS sector pays irrecoverable VAT (i.e. VAT which it pays to suppliers and which it cannot offset).Our comparison indicates that the AETR associated with irrecoverable VAT in the FS sector exceeds the AETR for taxes on products in the wider economy.

[2] On average between 2006 and 2010.

- Coupled with the analysis of the taxes generated by the FS sector, we have also considered the underlying economic effects of the taxes generated by the FS sector. The economic literature suggests that the taxes the FS sector pays on capital accumulation and associated with its VAT exemption are at the more economically distortive end of the tax spectrum. This implies that these taxes are not only harmful to the FS sector, but also to the wider economy, as they directly affect the ability of certain areas of the FS Sector (e.g. the banking industry) to provide lending. The data in this report brings together findings that can usefully be used to draw conclusions at the aggregate level. However, it has not been possible to break down the tax data to make detailed comparisons between taxes borne and collected. Given the importance of the FS sector to the European economy and the scale of tax and regulatory policy being made in this area, we would recommend that Governments invest in tax data for the FS sector that enables such analyses.
- It is clear from our analysis that the tax and economic contribution of the FS sector in the EU has been significant and should not be underestimated, particularly when considered alongside the causes and consequences of the current economic situation. If it is accepted that economically distortive taxes are in principle a bad thing, then the risks are not only damage to the sector, but also to the wider economy given the linkages and inter-dependencies between the sector and the rest of the economy.
- Timely, comprehensive and accurate data are critical if policymakers are to be able to have a clear picture of the FS sector's tax and economic contribution, helping them in the context of the wider economy, to make an informed assessment of the impact of proposed changes to tax and regulatory policies that impact the FS sector. We have – for reasons mentioned above - been unable to make key distinctions between taxes paid and borne; this which represents a central weakness in the published data, and the most recent year for which we can usefully make comparisons is 2010.

2. Summary report

2.1. Terms of reference

PricewaterhouseCoopers LLP ('PwC') have been commissioned by the Association for Financial Markets in Europe ('AFME') to produce an independent assessment of the amount of tax generated by the financial services sector ('the FS sector') in a sample of countries of European countries. AFME represent global and European banks and 'other significant capital market players' operating in Europe.

This report was prepared by PwC for AFME under the terms of our engagement letter dated 20 July 2012. Whilst AFME commissioned and financed the work, and commented on our draft reports, this final report represents the independent analysis of PwC.

Any person who is not an addressee of this report, by reading this report accepts and agrees to the following terms:

1. The reader of this report understands that the work performed by PricewaterhouseCoopers LLP was performed in accordance with instructions provided by our addressee clients and was performed exclusively for our addressee clients' sole benefit and use.
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For the purposes of this report, we define the FS sector based on three types of activities identified in national economic data:

- Banking and financial service activities, except insurance and pension funding;
- Insurance, reinsurance and pension funding, except compulsory social security; and
- Activities auxiliary to financial services and insurance activities (e.g. asset managers, back office functions and hedge funds).

We focused on the countries with the four largest FS sectors within the EU-27, for which data were available: France, Germany, Italy and the UK. The tax payment data used in this report were collected from publically available Government or international sources.

The Governments in our sample publish data under various different tax heads, but these, with the exception of the UK, this data are generally not categorised between **taxes that are borne** by the FS sector (e.g. corporate income tax, employer social security contributions, irrecoverable VAT) and **taxes that are collected** by the FS sector (e.g. VAT on supplies made, personal income tax, employee social security contributions). Given that it is not possible to make a full distinction between taxes borne and collected from publically available data sources, we have **defined taxes generated as both taxes borne and taxes collected** for the purposes of this report for all countries other than the UK (which does provide the relevant data).

It is disappointing that a more detailed analysis distinguishing between taxes borne and taxes collected cannot be undertaken. However, the combined taxes generated approach still provides a useful set of insights into the tax payments made by the FS sector. From a policy perspective the measure is useful – if the FS sector contracts in size (due to economic circumstances, or policy measures), then in turn overall Government revenues will fall. It also provides insight into the perspective of company tax professionals and CEOs who seek to have an overview of their overall tax payments for business planning purposes – inevitably the amount of tax paid will affect employment, investment, location and output decisions.

2.2. Background

The context of this report is critical. All four of the countries surveyed in this study have borne significant costs following the financial crises. Views on the causes of the financial crises are well documented: high risk, complex financial products; undisclosed conflicts of interest; the failure of regulators, the credit rating agencies, and the market itself "to rein in (its) excesses".[3] However, the financial crisis, while acting as a trigger for the economic problems experienced in France, Germany, Italy and the UK, it cannot be attributed as the only cause. High levels of household and government debt, global imbalances, and institutional policy mismanagement have also contributed in varying degrees. The financial crisis and the ensuing European sovereign debt crisis have led to Governments in Europe facing significant fiscal constraints, leading to increased pressure for deficit reduction through tax increases and spending cuts. The banking sector has required a degree of institutional support following the financial crisis.

In order to generate future economic growth, the responses of businesses, institutions and governments are critical. However, the combination of:

- Increased Government and public scrutiny of the tax contribution of the FS sector in light of its important role in contributing to deficit reduction, economic growth and social objectives; and
- The potential for there to be misconceptions regarding the FS sector's tax contribution;

has led AFME to commission PwC to undertake an assessment of the amount of taxes generated by the FS sector in four EU countries. Given the importance of the role of taxation on economic performance, AFME have also commissioned PwC to undertake an analysis of the relative economic efficiency of FS sector taxes generated.

Our analysis is intended to help to answer three key questions:

1. What is the amount of tax generated by the FS Sector?
2. How economically efficient are the taxes generated by the FS sector?
3. Is there sufficient sectoral data available for Governments to make an informed assessment of the levels of tax borne by the FS sector or of the importance of the sector to taxes collected and the implications for policymaking?

This report does not seek to compare the tax generated by the FS sector against the economic costs of the financial crises or the wider economic downturn. Instead it seeks to bring together evidence and examine interactions with respect to the amount of tax generated by the FS sector and its relative economic efficiency, thus drawing out the key tax policy issues for the understanding of both businesses and policymakers.

[3] Wall Street and the financial crises: anatomy of a financial, collapse' Majority and Minority report, permanent subcommittee on investigations, United States Senate, 2011.

2.3. *Our approach*

We have adopted a three-step approach for our analysis, which is described below:

Step 1: Data collection and quality assurance

- We reviewed publicly available data from the European Commission, national sources (such as country level National Accounts data, Eurostat National Tax Lists and Eurostat Supply Use and Input-Output tables) as well as credible sources of evidence from OECD and IMF data publications.
- We focused on the countries with the four largest FS sectors within the EU-27 for which data were available: France, Germany, Italy and the UK. Collectively, these countries account for around two-thirds of EU-27 FS sector activity. We also supplemented UK tax data with analysis drawn from a separate annual PwC study of the Total Tax Contribution (TTC) for the City of London financial sector, which sets out a systematic and comprehensive methodology for gathering data on tax payments and receipts across the full range of taxes generated.
- Where there are minor data gaps for the year 2010, we have projected or estimated this data using whole economy GDP growth rates. This is a conservative approach, as the tax burden is likely to be underestimated in light of evidence which suggests that the tax base grew at a faster pace than the wider economy.

Step 2: Data analysis

- Given that the data for most countries in the sample does not distinguish between taxes borne and taxes collected, we have defined taxes generated as both taxes borne and taxes collected throughout this report. Our analysis does not include withholding tax on financial instruments.
- We have used two equivalent main measures of comparison to benchmark the FS sector's tax payments against its share of national economic activity and the wider economy.
    1. **Measure 1** compares the FS sector share of tax payments against its share of gross value added (GVA) for the whole economy; and
    2. **Measure 2** compares the FS sector average effective tax rate (or AETR – defined as FS sector tax payments as a proportion of FS sector GVA) in comparison to whole economy AETR (total tax receipts as a proportion of whole economy GVA).
- There is a degree of overlap between these measures but they are expressed separately to highlight the relative position of the sector's economic contribution and tax payments compared with the whole economy.
- To ensure the comparability of data across time and countries, all values were deflated using the respective country GDP deflators and expressed in real 2010 values in Euros.

Step 3: Linking data with economic evidence

- We assessed the existing academic and leading institutional literature to understand the nature and relative efficiency of different types of taxes, and the impact of current and proposed taxes by EU Governments on economic incentives and on the wider economy.

2.4. Key findings

Our analysis of tax payments:

Based on our analysis, we found that the FS sectors in France, Germany, Italy and the UK on average contributed nearly €208 billion in taxes annually between 2006 and 2010, which was equivalent to 6.6% of total EU tax receipts.

Table 1 below summarises, for the years between 2006 and 2010, the average FS sector share of whole economy GVA by country, the average FS sector share of taxes generated, and the average FS sector and whole economy AETRs. The table also shows that, had the FS sectors in these countries been taxed at the same AETRs as their country economies as a whole, instead of the higher average FS sector AETRs that are observed, then they would have paid €195 billion less in tax between 2006 and 2010, or €39 billion a year on average. This calculation is designed to help the reader better understand the numbers presented in this report; percentages, while useful, may appear abstract and in the case of this report a single percentage point can often represent billions of Euros.

Table 1: Summary table of FS sector share of taxes generated and share of GVA, FS sector and whole economy AETR and average FS sector tax reductions per year if subject to whole economy AETR from 2006 to 2010

	2006 – 2010	France	Germany	Italy	UK
Measure 1	**Average FS sector share of GVA (%)**	4.5%	4.0%	4.9%	8.8%
	Average FS sector share of taxes generated (%)	6.2%	5.6%	5.5%	9.5%
Measure 2	**Average whole economy AETR (%)**	50.0%	44.6%	47.9%	42.2%
	Average FS sector AETR (%)	68.8%	62.8%	53.5%	46.1%
Average FS sector tax reductions per year if subject to whole economy AETR (€millions)		14,253	15,627	3,694	5,383

Source: PwC analysis, range of national data sources (see Table 3 for full details)

- For all countries in the sample we find that on average the FS sector generated a proportionate level of tax receipts that was in excess of its share of economic activity. Between 2006 and 2010:
  - **France:** The FS sector accounted for an average of 4.5% of whole economy GVA but 6.2% of all taxes in France.
  - **Germany:** The FS sector accounted for an average of 4.0% of whole economy GVA but 5.6% of all taxes in Germany.
  - **Italy:** The FS sector accounted for an average of 4.9% of whole economy GVA but 5.5% of all taxes in Italy.
  - **UK:** The FS sector accounted for an average of 8.8% of whole economy GVA but 9.5% of all taxes in the UK.
- Though the financial crisis affected tax payments in all of the countries in the sample, the FS sector's tax contribution remained significantly higher than the corresponding share of economic activity, the only exception being the UK in 2008 and 2009.

- The FS sectors in these countries also faced AETRs that were AETR higher than those for that the economies as a whole. These calculations only take into account taxation and do not relate to the net position regarding any financial support from respective governments or institutions. On the basis of AETRs between 2006 and 2010, the FS sector in France was the mostly highly taxed in the sample of four countries, followed by Germany, Italy and the UK. Between 2006 and 2010:
  - **France:** The FS sector AETR was almost 68.8% whereas the whole economy AETR was 50%.
  - **Germany:** The FS sector AETR was almost 62.8% whereas the whole economy AETR was 44.6%.
  - **Italy:** The FS sector AETR was almost 53.1% whereas the whole economy AETR was 47.7%.
  - **UK:** The FS sector AETR was almost 46.1% whereas the whole economy AETR was 42.2%.
- If the FS sectors in France, Germany, Italy and the UK had been subjected to the same AETRs as were applied across their respective economies as a whole, they would have contributed around €71.3bn, €78.1bn, €18.5bn and €26.9bn (in 2010 values) less in tax payments respectively in total in the years from 2006 to 2010, as Table 2 summarises below.

Table 2: Summary table of additional taxes generated by the FS sector AETRs compared with whole economy AETRs from 2006 to 2010 (in 2010 values)

	2006	2007	2008	2009	2010	Period Total	Period Average
France	€13.5bn	€16.4bn	€16.0bn	€11.9bn	€13.5bn	**€71.3bn**	**€14.3bn**
Germany	€10.2bn	€19.6bn	€16.4bn	€15.6bn	€16.3bn	**€78.1bn**	**€15.6bn**
Italy	€6.1bn	€2.0bn	€1.5bn	€6.9bn	€1.9bn	**€18.5bn**	**€3.7bn**
UK	€18.5bn	€20.1bn	-€3.1bn	-€9.8bn	€1.2bn	**€26.9**	**€5.4bn**
Totals	**€48.3bn**	**€58.0bn**	**€30.8bn**	**€24.6bn**	**€32.9bn**	**€194.8**	**€38.9bn**

Source: PwC analysis

We consider the level of taxation alongside key economic principles of distortive properties of tax:

- The level of taxation has been shown to be important in determining the economic consequences of a tax. Auerbach and Hines (2001)[4] found that further tax applied to an already high level of taxation can be found to increase the overall level of distortion associated with a tax.
- By influencing the price of a product, or reducing income for an individual or profits for a firm, all taxation results in distortions. However, the sizes of these distortions depend on the type of tax levied. An evaluation of the economic literature finds that taxes levied on businesses are particularly distortive whilst those levied on consumers are amongst the least distortive. The analysis by the OECD (2008) confirms this result.[5]
- Academic and institutional analysis of the underlying economics of the taxes generated by the FS sector suggests that the taxes it pays on capital accumulation and the VAT exemption are at the more "distortive" end of the tax spectrum. In this instance we use the term "distortive" in the context of the cost to GDP per Euro of tax raised.
- These more distortive taxes are not only harmful to the FS sector, but also to the wider economy, as they directly affect the ability of certain areas of the FS Sector (e.g. the banking industry) to create liquidity and provide lending. In particular, detailed and extensive analyses by the OECD[6] and independent academics [7] either confirm these findings or lend support to this line of argument. FS sector taxes that have been recently implemented or proposed by Governments in the countries in the sample more often than not demonstrate similar characteristics to these more distortive taxes,
- Whilst some of these taxes were designed to discourage excessive risk taking, the pros and cons of the use of taxation in this context must be set against the overarching incentives provided by both the new regulatory structures imposed following the financial crisis (Basel III and Solvency II) and the overall volume of taxes generated by the sector.

There are weaknesses associated with the data in this report:

- As noted above, it is disappointing that we have been unable to make distinctions between taxes borne and collected for countries other than the UK. The ability to compute an AETR that compares employer social security contributions, corporate taxes etc. would provide a more complete picture of the FS sector's tax contribution.
- Given that this comparison is not possible across the four countries in our sample, and in an attempt to mitigate against this weakness, we present some further calculations in section 5.7 that seek to provide further insight. The analysis compares the taxes that statistical agencies commonly refer to as **'taxes on production'** and **'taxes on products'**.
  - **Taxes on production** refer largely to property taxes in this context and are taxes borne by the FS sector and the wider economy.
  - **Taxes on products** comprise VAT (standard rated, reduced rated and irrecoverable), duties and some taxes specific to the financial sector (insurance premiums, bank levies etc.).
- The taxes on production and on products that are **paid by the FS sector are predominantly taxes borne** (with the major exception of insurance premium taxes). The **taxes on production paid by the non-FS sector are a mix of both but are dominated by VAT on final consumption and excise duties which are taxes collected.** This points to a structural difference between the FS sector and non-FS sector in the way in which they are taxed.

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[4] Auerbach, A. and Hines, J. (2001) Taxation and Economic Efficiency, NBER Working Paper, 2001.

[5] OECD (2008) Tax and Economic Growth, Working Paper No. 620, OECD, July 2008.

[6] OECD (2008) Tax and Economic Growth, Working Paper No. 620, OECD, July 2008.

[7] Mirrlees Review (2010) "VAT and Financial Services", Tax by Design, Chapter 8, Institute for Fiscal Studies

- **In all the examples presented in section 5.7, the combined AETR for taxes on products and production is larger for the FS sector than for the non-FS sectors.** An argument that has often been directed at the FS sector is that it is under-taxed because it does not charge VAT on final consumption.[8] On the other hand, the point has also been made that the VAT exemption means that the FS sector pays irrecoverable VAT (i.e. VAT which it pays to suppliers and which it cannot offset).However, the analysis presented in section 5.7 shows that the AETR for taxes on products for the FS sector comprises largely of irrecoverable VAT[9] is higher than the non-FS sector AETR that includes receipts from standard rated, reduced and irrecoverable VAT.
- In the case of the broader taxes generated measure, the high levels of AETR are partly driven by the high wage payments and profits in the sector over the period. These issues are discussed in more detail in section 5.8. A review of the associated evidence suggests that workers in the FS sector do attract a wage premium, but that this premium has declined substantially. There is scope for the evidence base in this area to be further improved. For instance, a comparison of wage distributions across sectors, before and after the financial crisis would provide important insight.
- Further, data were not available on all of the types of tax payments associated with the FS sector. For instance, the FS sector pays a range of taxes and duties on different inputs in its daily business (fuel, energy, transport), but data were generally unavailable on any of these payments. Other studies suggest these are not insignificant.[10] From the particular perspective of having incomplete data, we infer that the estimates of the total FS sector taxes generated used in this study are likely to be underestimates.
- The data in the report are incomplete and this has meant that in the comparisons we make for both measure 1 and measure 2, the amount of tax generated by the FS sector **could not be subtracted from the amount of tax generated by the whole economy on a consistent basis**. In the report we compare the FS sector with whole economy data (FS sector plus non-FS Sector) for measure 1 and measure 2. The consequence of this is that given the AETRs and measures of economic activity are generally higher for the FS sector, then the "whole economy" estimates for measure 1 and measure 2 will in turn imply less of a difference when compared with the FS sector than a direct comparison between the FS and non-FS sector.

On the basis of the data-related issues we encountered, including data gaps, a lack of a complete data set beyond 2010, and the high level of data aggregation, we conclude that the evidence available to policymakers and FS sector stakeholders could, and should be improved significantly. There is a real risk that data paucity and inaccuracies may manifest themselves in the policy decision making process, and lead to outcomes that could be unnecessarily damaging, both to the FS sector and to the wider economy. This risk is perhaps more serious given the strength of linkages and interdependencies between the FS sector and the wider economy.

The findings in this report emphasise the importance of timely, comprehensive and accurate data in providing policymakers with a clear picture of the FS sector's tax and economic contribution, thus allowing policymakers to make an informed assessment of the impact of proposed changes to tax and regulatory policies.

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[8] The reasons for VAT not being levied on the final consumption of the financial sector products are largely technical and relate to the difficulties of defining a tax base because the price of key financial products such as loans and deposits is not always explicit. These technical problems are well documented by Huizinga, H. (2002) "*A European VAT on financial services*?" Economic Policy.

[9] The UK figure does include some standard rated VAT receipts, but they are not large enough to alter this conclusion.

[10] PwC (2012) *The Total Tax Contribution of UK Financial Services*. Report prepared for the City of London Corporation by PwC, published December 2012. www.cityoflondon.gov.uk/economicresearch.

Table 3: Country results from the two measures of analysis, 2006 – 2010

			2006	2007	2008	2009	2010	Average 2006 – 2010
France	**Measure 1**	FS sector GVA as a percent of Total GVA	4.6%	4.4%	4.0%	4.7%	5.1%	**4.5%**
		FS sector tax as a percent of Total Tax	6.2%	6.3%	5.8%	6.2%	6.6%	**6.2%**
	Measure 2	Whole economy AETR	51.3%	50.4%	50.2%	48.8%	47.7%	**50.0%**
		FS sector AETR	69.8%	72.3%	73.5%	63.6%	64.7%	**68.8%**
Germany	**Measure 1**	FS sector GVA as a percent of Total GVA	4.3%	3.8%	3.5%	4.1%	4.3%	**4.0%**
		FS sector tax as a percent of Total Tax	5.4%	5.8%	5.2%	5.8%	6.0%	**5.6%**
	Measure 2	Whole economy AETR	44.3%	44.6%	44.8%	45.6%	43.7%	**44.6%**
		FS sector AETR	55.7%	68.3%	65.8%	63.5%	60.6%	**62.8%**
Italy	**Measure 1**	FS sector GVA as a percent of Total GVA	4.6%	5.0%	5.0%	5.0%	5.1%	**4.9%**
		FS sector tax as a percent of Total Tax	5.5%	5.3%	5.2%	6.0%	5.4%	**5.5%**
	Measure 2	Whole economy AETR	47.0%	48.0%	47.8%	48.4%	48.2%	**47.7%**
		FS sector AETR	57.1%	50.9%	49.8%	58.7%	51.0%	**53.1%**
UK	**Measure 1**	FS sector GVA as a percent of Total GVA	7.6%	7.9%	9.0%	10.3%	9.4%	**8.8%**
		FS sector tax as a percent of Total Tax	10.0%	10.5%	8.6%	8.6%	9.6%	**9.5%**
	Measure 2	Whole economy AETR	42.8%	42.3%	43.8%	40.3%	41.7%	**42.2%**
		FS sector AETR	56.8%	56.0%	41.7%	33.6%	42.5%	**46.1%**

3. Introduction

3.1. Background to the report

The financial services (FS) sector is a key contributor to the global economy. It facilitates the flow of money, creates credit for households and businesses, and generates wealth for investors and savers. However, the taxes generated by the FS sector have come under increased scrutiny since the onset of the financial crisis, with some claiming that the sector is under-taxed.[11]

The financial crisis and the ensuing European sovereign debt crisis have led to Governments in Europe facing significant fiscal constraints, leading to increased pressure for deficit reduction through tax increases and spending cuts.

In this context, and given the role of the FS sector in the financial crisis, the contribution of the FS sector to economic and social objectives has come under particularly intense scrutiny by policymakers and the wider public. Notably, policymakers have questioned the scale of the sector's contribution to the public finances. In 2011, the European Commission (EC) stated that:

'Except for VAT and bank levies, the tax provisions for the Financial Sector do not differ significantly from those of other sectors... the study does not find any significant differences in the tax treatment of the financial sector compared to other sectors'.[12]

The primary focus of the public and political debate to date has mainly been on the level of taxation, with relatively less consideration of other fundamental principles of tax design. The form of taxation, in terms of economic efficiency, sustainability and ease of administration, are also critical components in good tax policy design. Some of these principles date back to Adam Smith[13] and are increasingly used by Governments when considering tax policy.[14]

Given these pressures, and the weak economic recovery in Europe during the post-recession period, preserving the economic efficiency of the tax system will be critical, as economic growth is fundamental to achieving deficit reduction targets. The less damaging to growth the necessary tax increases are, the easier it will be for Governments to meet tough growth and fiscal targets.

Where additional tax revenues are raised using the more distortionary tax levers available, downward pressure is exerted on economic growth and the level of GDP.[15] Sectors of the economy that are burdened with paying both a large proportion of the more distortionary types of taxes, as well as relatively high absolute levels of taxation, face considerably more challenging operating conditions than other sectors. There are many academic and institutional studies that discuss the relationship between taxation and the level of GDP.[16] However,

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[11] See, for example, European Commission Staff Working Paper (2011) Impact Assessment accompanying the document Proposal for a Council Directive on a common system of financial transaction tax and amending Directive 2008/7/EC, SEC(2011) 1102 final Vol. 1.

[12] European Commission (2011) Technical Fiche: Tax Contribution of the Financial Sector.

[13] Smith, A. (1776) An inquiry into the nature and causes of the wealth of nations', Oxford University Press.

[14] For instance, the UK Parliament has set out its own principles, see: Treasury Committee Eighth Report of Session 2010-12: Principles of Tax Policy, HC 753.

[15] OECD (2008) Tax and Economic Growth, Working Paper No. 620, July 2008.

[16] Detailed references are provided in section 4, but the OECD Tax and Growth working paper provides a useful introduction to the key issues.

existing research has paid limited attention to the growth implications specifically of the tax system applying to the FS sector.

The FS sector pays income taxes, corporate taxes and makes social security contributions, in common with most other sectors of the economy. However, since the financial crisis there has been an increased focus on developing new taxes inevitably in the FS sector. Therefore, whilst the level of tax that should be levied on the FS sector is a political decision for Governments, there is an opportunity to provide findings on the extent of the sector's tax contribution, given that there may be potential misinterpretations.

In order to generate economic growth going forwards, the response of businesses, institutions and governments are critical. However, the combination of:

- In light of increased Government and public scrutiny of the tax contribution of the FS sector; the important role the sector has to play in contributing to deficit reduction, economic growth and social objectives; and,
- The potential for there to be misconceptions regarding the sector's tax contribution;

the Association for Financial Markets in Europe (AFME) has commissioned PwC to undertake an assessment of both the amount of taxes generated by the FS sector in four EU countries, and the relative economic efficiency of the taxes generated.

Our analysis is intended to help to answer three key questions:

1. What is the amount of tax currently generated by the FS Sector in Europe?
2. How economically efficient are the taxes generated by the FS sector?
3. Is there sufficient sectoral data available for Governments to make an informed assessment of the current levels of tax borne by the FS sector or of the importance of the sector to taxes collected, and what are the implications for policymaking?

The report does not seek to provide a detailed analysis of the economic impact of each individual FS sector tax that has been implemented or discussed in the years following the financial crisis, nor does it seek to explain the reasons for fluctuations in FS sector tax payments. The objective of the report is to review and compare the amount of tax generated by the FS sector with that of the wider economy and to consider the key economic efficiency concepts that relate to the different types of taxes generated.

For the purposes of this report, we define the FS sector based on three types of activities identified in national economic data:

- Banking and financial service activities, except insurance and pension funding;
- Insurance, reinsurance and pension funding, except compulsory social security; and
- Activities auxiliary to financial services and insurance activities (e.g. asset managers, back office functions and hedge funds).

The remainder of the report is organised as follows: Section 4 provides an overview of the methodology used in this report. Section 5 examines key economic indicators relating to the FS sector in the sample countries and provides the results of our analysis. Section 6 relates the taxes generated by the FS sector to the relevant economic theory associated with the economic impact of taxation. Section 7 concludes and considers the policy implications of our findings.

4. Our approach

4.1. Scope

Our analysis involved a three step approach. The first step consisted of the collection and quality assurance of data relating to taxes generated. The second step involved analysing the data and calculating the measures that define the FS sector's tax contribution. The final step consisted of comparing our analytical results to existing evidence relating to the economic impact of taxation.

4.2. Step 1: Data collection and quality assurance

The country coverage of our analysis was driven by consideration first of the importance of the FS sector in different EU countries, and then by data availability and data quality. On this basis, AFME commissioned PwC to assess FS sector tax payments in France, Germany, Italy and the UK. Poland and Romania were considered, but insufficient data meant that a full assessment would not have been possible, and therefore these countries were excluded from our analysis. Overall, the quality and availability of published and non-published information varies between different European countries and no country within the sample was found to have a comprehensive dataset for FS sector tax payments.

4.3. Our framework for data collection

We collected data based on a thorough review of available published evidence. Our data and evidence search covered published information from the European Commission, national sources (such as country level National Accounts data, National Tax Lists from Eurostat (the EC's statistical agency), Eurostat Supply and Use and Input-Output tables, and credible sources of evidence from OECD and IMF data publications. These sources are clearly referenced throughout this document.

We found the Eurostat Supply and Use Tables (SUTs) to be particularly useful for apportioning tax data between sectors, as they are designed to provide detailed sectoral data over historical periods. Eurostat outline the advantages of using this method as follows:

'Supply and use tables provide a detailed picture of the supply of goods and services by domestic production and imports and the use of goods and services for intermediate consumption and final use (consumption, gross capital formation, exports). The use table also shows how the components of value added (compensation of employees, other net taxes on production, consumption of fixed capital, net operating surplus) are generated by industries in the domestic economy. Thus, supply and use tables give detailed information on the production processes, the interdependencies in production, the use of goods and services and generation of income generated in production.' [17]

We also sent each of the countries in our sample detailed questionnaires to both the Ministry of Finance and the relevant Government Statistical Authorities. None of the countries in the sample filled out the questionnaire directly, but three of the four countries (the exception being France) responded to the questions posed in some form. Germany and Italy sent links to published data (these were incomplete, but were all that was available), whilst the UK tax authority, HM Revenue and Customs (HMRC), provided bespoke analysis to help fill some data gaps.

At the whole economy level, EU-27 countries collect data according to a standard set of definitions published by Eurostat. In order to construct a consistent baseline, the data collated for the purposes of this report were matched to these definitions. The following data headings were taken from Eurostat:

[17] Eurostat (2008) Manual of Supply, Use and Input-Output Tables.

- **Personal income tax:** taxes on individual or household income including holding gains[18];
- **Corporation tax:** taxes on the income or profits of corporations including holding gains;
- **Social contributions:** employers' and employees' actual social contributions, combined;
- **Taxes on products:** A tax on a product is a tax that is payable per unit of some good or services. As defined by Eurostat, the tax may be '*a specific amount of money per unit of quantity of a goods or services (e.g. mineral oil tax), or it may be calculated ad valorem as a specified percentage of the price per unit of value of the goods and services transacted (e.g. value added tax).'* [19] This can include value added-type taxes, taxes and duties on imports excluding VAT, and taxes on products, except VAT and import taxes; and
- **Taxes on production:** these are other taxes incurred through production. Eurostat defines them as '*taxes that enterprises incur as a result of engaging in production, independently of the quantity or value of the goods and services produced or sold. These may be payable on the land, fixed assets or labour employed in the production process or on certain activities or transactions.'* [20] For example, these can include: property taxes and some taxes

Some data relating to the FS sector are published on an industry basis – i.e. the data cover the taxes generated by the sector as a whole – while other data are published on a product basis – i.e. the data cover the taxes generated on the sale or production of particular FS sector products. Taxes on products and production are levied on a product basis, whilst all other taxes are levied on an industry basis. Some businesses outside of the FS sector produce financial products. The ratios of industry production can be extrapolated from Eurostat data and adjustments have been made where appropriate.

Data on FS sector VAT exemption or irrecoverable VAT are not formally published by any of the countries in the sample, or included in data by Eurostat, though this tax is included in the Eurostat definition of taxes on products. We have used the methodology adopted in de la Feria and Lockwood (2009)[21] to estimate the amounts of irrecoverable VAT. This method is also consistent with the approach adopted by the EC when assessing the impact of financial transaction taxes (FTTs)[22]. We have therefore been able to include irrecoverable VAT and provide a more complete picture of taxes generated.

To help inform our understanding of the types of tax revenue generated by the FS sector we have supplemented UK data with analysis drawn from a separate annual PwC study of the Total Tax Contribution (TTC) for the City of London financial sector.[23] TTC is a bottom-up survey-based approach and is much more detailed than the methods of collecting published data for France, Germany and Italy that has been used in this report.[24] The TTC

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[18] Holding gains are defined as increases or decreases in the replacement cost of assets held during a given period.

[19] Eurostat (2008) *Manual of Supply, Use and Input-Output Tables.*

[20] Eurostat (2008) *Manual of Supply, Use and Input-Output Tables.*

[21] de la Feria, R. and Lockwood, B. (2009) *Opting for Opting-in? An Evaluation of the Commission's Proposals for Reforming VAT for Financial Services,* Working Papers 0909, Oxford University Centre for Business Taxation. The authors describe the calculation methodology in more detail in Appendix A.

[22] European Commission Staff Working Paper (2011) *Impact Assessment* accompanying the document Proposal for a Council Directive on a common system of financial transaction tax and amending Directive 2008/7/EC, SEC(2011) 1102 final.

[23] PwC (2012) *The Total Tax Contribution of UK Financial Services.* Report prepared for the City of London Corporation by PwC, published December 2012.

[24] The TTC method is similar to the method used by Governments in collating some of their own tax payer statistics. Aggregate receipts data will of course be known to Governments through accounting procedures, but often information from statistically sampled groups is taken as the basis for some of the more detailed statistics, particularly when the number of tax payers is large and sampling techniques can provide a robust estimate. Similar approaches are used in TTC analysis where data from a sample of firms is collected and then extrapolated to the industry level.

approach sets out a systematic and comprehensive methodology for gathering data on tax payments and receipts across the full range of taxes generated. For the UK this more detailed approach allows us to distinguish between the **taxes borne by FS companies** (those taxes which are a cost to the companies and affect their financial results e.g. corporate income tax, employer social security contributions, irrecoverable VAT) and the **taxes collected by FS companies** (where these businesses administer taxes on behalf of Government e.g. VAT, personal income tax, employee social security contributions). Unfortunately the publically available data have not enabled us to do this for the other countries in this Report.

A key weakness we found in much of the data currently produced by Governments is that they do not cover the full range of taxes generated. Furthermore, the different tax forms used by Governments to administer the tax system rarely carry identifiers to allow taxes to be attributed to industrial sectors. Instead, businesses and individuals are identified through post/zip codes, names, addresses or explicit taxpayer codes, which increase the difficulty of linking the volume of tax receipts to industry groups. Governments undertake their own data matching process for key taxes to determine receipts from some industrial sectors, but this approach only focuses on the more important taxes and fails to attribute the types of taxes that are less well associated with the FS sector.[25] A useful illustration of the complexities involved in this matching process is provided by Devereux and Loretz (2010)[26] who use supplementary commercial accounting data and bespoke tax payer data to help make sector linkages.

The TTC methodology is one possible approach designed to rectify these problems by surveying firms directly and using published financial accounts to provide a comprehensive picture of the taxes businesses pay. While a detailed TTC study of all European FS companies would have been the best method of data collection for our analysis, it proved to be impractical given the scale of the sector.

We categorised each data source we used based on its reliability, using a 'traffic light' system:

Figure 1: PwC's 'Traffic light' system for indicating data quality

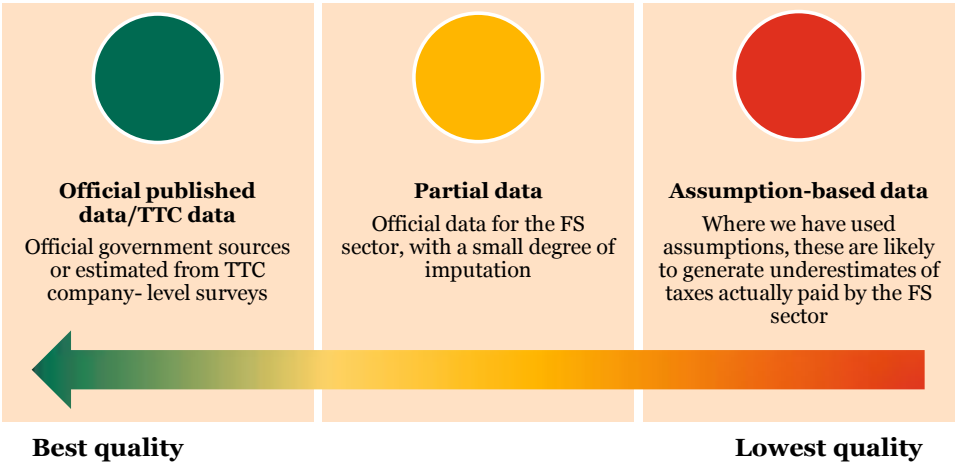

Table 4 sets out the data sources we have used and our assessment of the associated quality ratings. Where possible, we have used official 'green' or 'amber' data, and in fact we have only needed to use 'red' data where time lags in publication have required us to extrapolate from older data. Where we have used this assumption-

[25] Ideally the forms sent to taxpayers would allow firms to be identified within the International Standard of Industrial Classification of all Economic Activities (ISIC) framework which is the economic classification mechanism associated with the majority of industry data and adopted across all of Europe and in equivalent forms globally. If ISIC codes were listed on all tax forms then extrapolating sectoral data would be easier.

[26] Devereux, M. And Loretz, S. (2011) *Corporation tax in the United Kingdom*, Oxford University Centre for Business Taxation, 2011.

based 'red' data, we have needed to make assumptions which inevitably affect our estimates of the amount of taxes generated by the FS sector. Where we have needed to do this, we have used assumptions that produce estimates at the lower end of the reasonable range. For instance, some countries have yet to produce data for 2011 for certain taxes. In such cases we have projected data forwards using whole economy GDP growth rates.

Table 4: Data sources and ratings for data used in this assessment

	France	Germany	Italy	UK
Capital taxes	No data available/not applicable		Data published by Eurostat.	No data available/not applicable.
Reliability rating				
Corporate income tax on FS Sector	Data published by Eurostat jointly with PAYE data.			Corporation tax data published by UK Tax authority HMRC.
Reliability rating				
Current taxes on income, wealth etc. on the FS sector	Current taxes on income, wealth etc. published by Eurostat and includes combined estimate of personal income tax and corporation tax			Data included in PAYE and corporation tax.
Reliability rating				
Employees' social contributions	Social contributions are calculated as the difference between Compensation of Employees and Wage data in Eurostat GVA series (NACE rev 1 and 2).		Data provided by the Italian National Institute for Statistics (ISTAT).	PAYE Class 1 National Insurance Contributions includes employees' social contributions. Data provided by HMRC.
Reliability rating				
Employers' social contributions	Data published by Eurostat.			PAYE Class 1 National Insurance Contributions includes employers' social contributions. Data provided by HMRC.
Reliability rating				
Irrecoverable VAT	We use the method published by de la Feria and Lockwood (2009)[27] as referenced in the EC's impact assessment of the financial transaction taxes (FTTs).			We have obtained an estimate for irrecoverable VAT by HMRC for the FS sector. This data is supplemented with the de la Feria and Lockwood (2009) method.
Reliability rating				
PAYE	Data is published by Eurostat jointly with corporate			Separate data published by

[27] de la Feria, R. and Lockwood, B. (2009) Opting for Opting-in? An Evaluation of the Commission's Proposals for Reforming VAT for Financial Services, Working Papers 0909, Oxford University Centre for Business Taxation.

	France	Germany	Italy	UK
	tax data			HMRC
Reliability rating	●	●	●	●
Payroll tax	No data available/not applicable.			Corporation tax data published by UK Tax authority HMRC.
Reliability rating				●
Taxes on products on FS Sector	Data published by Eurostat/national Governments in Supply and Use Tables. But our understanding is that this does not include wider product taxes such as transport taxes, environmental taxes etc.			
Reliability rating	●	●	●	●
Taxes on production on FS Sector	Data published by Eurostat in Supply and Use Tables. Consists largely of property taxation.			PAYE Class 1 National Insurance Contributions includes employees' social contributions. Data provided by HMRC.
Reliability rating	●	●	●	●
VAT on final consumption	No data available.			Data published by HMRC.
Reliability rating				●

Source: various government and international data, data supplied to PwC from national sources

Note: Although no red data has been used in this report, it is only used where we are forced to forecast tax revenues or tax bases due to time lags in the publication of data

4.3.1. Defining 'taxes generated' and the issue of incidence

The way in which Governments in the sample currently publish data for the FS sector means that it is not possible readily to distinguish between **taxes that are borne** directly as part of FS sector activity (e.g. corporate income tax, employer social security contributions, irrecoverable VAT) and **taxes collected** through statutory processes (e.g. VAT on supplies made, employees' personal income tax, employee social security contributions), with the exception of the UK. Given this aggregation issue, **we have been obliged to define taxes generated as both taxes borne** (those taxes which are a cost to the companies and affect their financial results) **and taxes collected** (where they administer taxes on behalf of government) **for the purposes of our analysis**. We have not included withholding taxes on financial instruments in our analysis.

Economic incidence defines who actually bears the burden of a tax. For example, although corporation tax is levied on the taxable profits of a company, if rates were to be cut, businesses may seek to undertake additional investment, pass on the benefit in the form of higher wages or make more generous payments to shareholders. Therefore, in this example the incidence of a tax on corporate profits is felt by employees and shareholders, although it must be noted that individual businesses may respond to a corporation tax cut in different ways.

There is very little relevant analysis that we can draw upon that relates specifically to the actual economic incidence of different taxes for the FS sector, or even for the wider economy. The issue is also very complex. For instance, when the Government increases the rates of labour income taxes, these are deducted at source and after-tax wages amended directly. On the face of it, it would not be unreasonable to say that the incidence of the tax is on employees. However, over time, employees might seek to negotiate higher salaries in response to higher labour income tax rates. This would ultimately impact on firms' profits, and have knock-on effects on business decisions relating to dividends, location, investment etc. Therefore, whilst businesses do not directly

bear the burden of taxes collected (such as labour income tax), they are nevertheless indirectly affected. An overall higher tax burden is often difficult to pass on to employees, customers or others, and ultimately the tax burden affects the level of economic activity.

Useful insights into business taxpayer behaviour can still be drawn from a measure that encompasses all taxes generated (taxes borne plus taxes collected), but it is not as useful as a set of measures that allows distinction between taxes borne and collected.

4.3.2. Supplementary Economic Data

To help obtain a rounded picture of the context in which taxes are generated, tax payment data are compared with economic activity data. On this basis we can compute effective tax rates (i.e. taxes raised as a percentage of the economic value generated by the sector) and these are discussed in detail in section 5.2. Data that measure the economic value of the FS sector are published annually by the countries in the sample and collated by Eurostat.

At the industry sector level, data are not collected on a Gross Domestic Product (GDP) basis, the most common measure of national economic output. Instead they are collected using a sub-measure of GDP known formally as Gross Value Added (GVA). The difference between GDP and GVA is as follows:

- **Gross Value Added** at basic prices
- *Plus* Taxes on products
- *less* Subsidies on products
- *equals* **Gross Domestic Product** at market prices

So the key differences between GVA and GDP are taxes and subsidies on products. As is shown later in this report, data relating to taxes on products are not always available nor complete, and thus GVA is selected as the measurement basis for data relating to economic output in this report.

To provide context to the data in the report we briefly examine two key issues underlying the data for the different countries in the sample:

- **Potential volatility in the data:** The FS sector in Europe has experienced considerable volatility in recent years. Some sectors have proved to be relatively resilient (e.g. the insurance sector components of FS sector GVA have been considerably more stable than some of the auxiliary components[28]) and some of this resilience has had a stabilising influence on the rest of the FS sector. However, the overall experience across the sector has been mixed, with some large banks experiencing significant balance sheet write-downs and having to seek public support, and this is likely to be reflected in volatile data for FS sector tax payments.
- **Potential mismeasurement:** the data collection process relating to FS sector GVA is different from that of other sectors. It is conceptually difficult to measure the output of some components of the FS sector. For instance, banks provide services such as automated payment facilities, deposit facilities, financial advice, etc. for which they do not charge in direct proportion to the scale of activity. The Bank of England (2011)[29] discusses these measurement issues in detail and suggests that some rates of return and benefits have been overestimated. This would suggest that FS sector GVA is perhaps lower than published estimates, which would imply that the tax burden borne by the FS sector is also higher relative to its share of economic activity than the official figures would suggest.

The issues of volatility and mismeasurement affect the accuracy of the results in this report. However, given the scale of tax payments reported in the next section these are not substantial enough to affect the central findings or key messages.

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[28] See page 11 for a definition of activities included within the FS sector.

[29] Bank of England (2011) *Measuring financial sector output and its contribution to* UK GDP, Quarterly Bulletin Q3 2011.

Where there are minor data gaps, we have projected or estimated this data using whole economy GDP growth rates. As noted above, this is a conservative approach, which is likely to underestimated the tax burden given evidence showing that the tax base is likely to grow at a faster pace than the wider economy.

To ensure the comparability of data across time and countries, all values have been deflated using the respective country GDP deflators and expressed in real 2010 values in Euros. Relevant exchange rate data were sourced from Eurostat.[30]

For all countries in the sample we present data from 2006 to 2010, the most recent year for which we could obtain the most complete set of comparable data for all countries. Minor data gaps were supplemented by reasonable estimates or projections of tax payments where appropriate. At the time of writing, Eurostat have published their 2011 National Tax Lists, which are a primary source of data in this project. However, more up to date GVA data are not available for all countries, so this prevents more recent comparison. Without the associated GVA data it is not possible to calculate equivalent 2011 data.

4.4. Step 2: Data analysis

Once data were collected or estimated using the approach described above they were used to calculate two comparative measures, both of which are designed to benchmark the FS sector's tax payments against its economic output and the wider economy.

4.4.1. Measure 1: The share of GVA

Comparing the FS sector's share of taxes generated with its share of GVA gives insight as to the relative proportion of tax generated. If the FS sector's share of GVA and its share of tax are similar then it suggests that the sector's value added to the economy is similar to the proportion of taxes generated by the sector. If they are different then this shows that, relative to its economic contribution, the FS sector is paying a share of taxes either above or below this simple benchmark.

Measure one:

FS sector share of GVA **vs.** **FS sector share of taxes generated**

[30] http://epp.eurostat.ec.europa.eu/portal/page/portal/exchange_rates/introduction

4.4.2. Measure 2: The Average Effective Tax Rate (AETR)

This is a standard form of measurement used by Governments to assess the amount of tax generated in the economy. We compare the AETR of the whole economy with the AETR that we calculate for the FS sector.

It should be noted that these measures act as benchmarks for comparison of the FS sector with the wider economy, and do not provide insight into whether the sector is over-, or under-taxed.

Measure two:

Average effective tax rate = **Sector taxes generated** / **Sector GVA**

We then compare:

Average effective tax rate **vs.** **Average effective tax rate for the FS sector**

4.5. Step 3: Linking data with economic evidence

We also combine our tax payments data with evidence relating to the economic efficiency and the rationale for taxation. The economic efficiency of different types of taxes can influence the rate of economic growth. The final stage of our analysis considers how the results of our assessment relate to a broader consideration of the impact of FS sector taxes on the economy. Our discussion consists of three key components:

- Firstly, we set out the key results from academic research on the relative efficiency of different types of tax;
- We then assess how efficient current and future planned taxes in the European FS sector are, based on this research; and
- Lastly, we set this theoretical background against a range of empirical estimates from existing literature into the economic impact associated with taxes in the FS sector, including highlighting the key results from the European Commission's own impact assessment study on financial transaction taxes and financial activities taxes[31]. We also compare this to the wider research conducted by the OECD and the academic community on the effects of tax on economic growth.

[31] European Commission Staff Working Paper (2011) *Impact Assessment* accompanying the document Proposal for a Council Directive on a common system of financial transaction tax and amending Directive 2008/7/EC, SEC(2011) 1102 final.

5. Country analysis

5.1. Country comparison

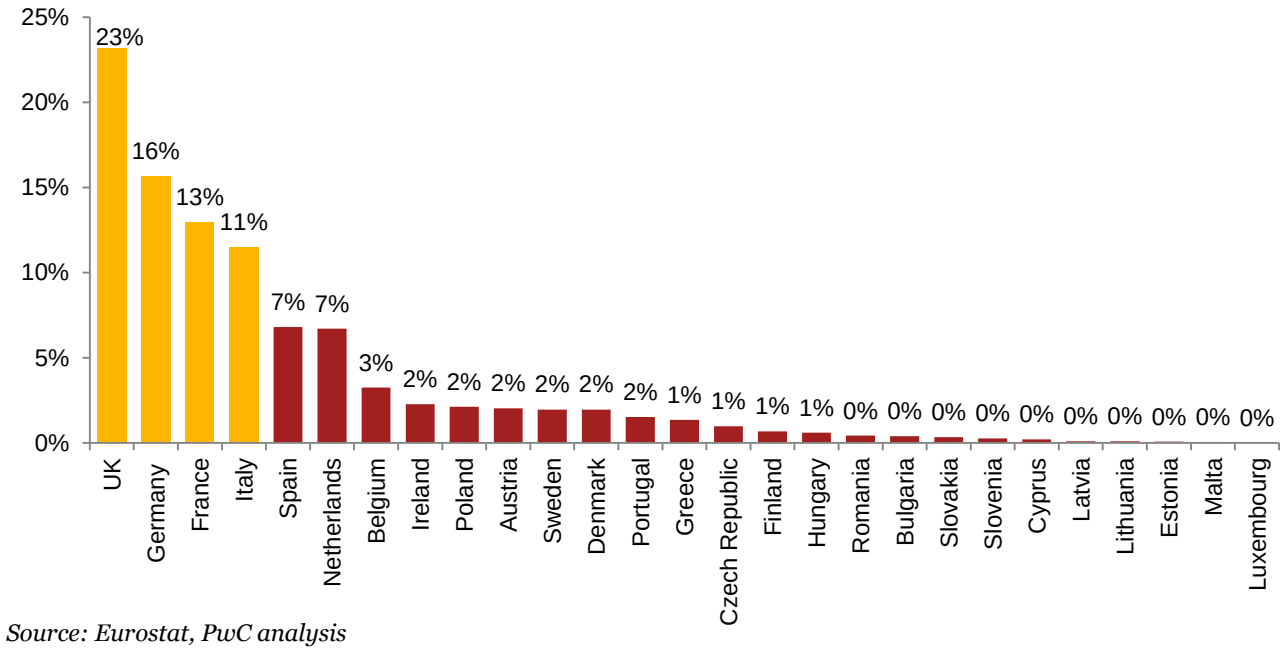
Our analysis looks in detail at the four largest FS sectors in the EU-27 – those in France, Germany, Italy, and the UK. For each of these countries we present the data as a time series to allow for the cyclical nature of different economies. This enables cross-country comparisons of tax receipts over time. For the individual country analysis we have focused on describing major changes in the data either from year to year or tax by tax. Where relevant, we relate these changes to corresponding changes in economic indicators such as profitability or wage payments. Such comparisons are particularly important given the challenging economic and fiscal positions faced by the countries in the sample in recent years.

5.2. Key economic and fiscal indicators

The FS sector is an important source of national income, wealth and tax receipts for the countries in the sample. This section presents background statistics that form the basis of the two key measures used in this report to evaluate the taxes generated by the FS sector.

Figure 2 below shows shares by country of total EU-27 FS sector GVA. The UK, Germany, France, and Italy have the largest FS sectors in the EU-27 and together account for around 63% of FS activity. As noted previously, we attempted to include the FS sectors of other EU countries in the sample but this was not possible due to the lack of comparable data. Nevertheless, by reviewing the FS sectors in these four countries we are covering almost two-thirds of the entire EU-27 FS sector.

Figure 2: Country share of total EU-27 FS sector GVA (2010)



Source: Eurostat, PwC analysis

At the country level, in 2010 the UK had the largest FS sector in the EU-27 in terms of GVA, accounting for almost a quarter of the EU-27 FS sector GVA. The UK's share was more than seven percentage points larger than that of the next biggest producer of financial services, Germany. Germany's share was closer in size to those of France and Italy than it was to that of the UK.

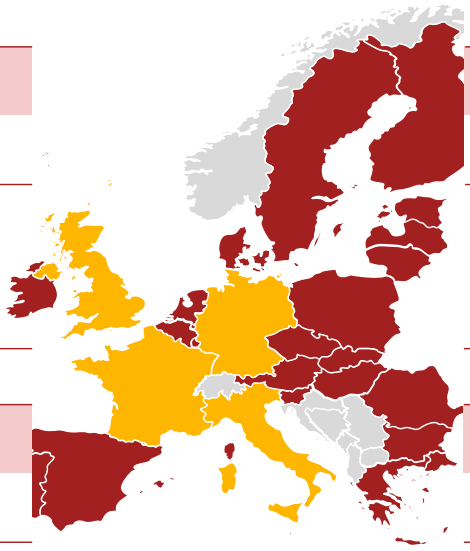
In contrast, 13 countries within the EU-27 had FS sectors that account for only 1% or less of total EU-27 FS sector GVA. The large variations in the role and the differences in the structures of the FS sector across countries represent significant challenges for EU policymakers when considering changes to tax or regulatory policy that affect the FS sector across the EU, as such changes will have different impacts, depending on the role, structure and importance of the FS sector in each country.

Figure 3 compares the country shares of total EU-27 GDP with the shares of total EU-27 FS sector GVA for the countries in the sample. For France, Germany, and Italy, their shares of the FS sector are smaller than their shares of whole economy GVA. However, in the UK the FS sector share is almost ten percentage points higher than the UK's share of total EU-27 GVA and the UK is the only country of the four in our sample with a greater share of the EU-27 FS sector than of total GVA.

Figure 3: Country share of total and FS sector EU-27 GVA (2010)

United Kingdom	
Share of EU-27 GDP	13.9%
FS sector share of EU-27 FS sector GVA	23.1%

Germany	
Share of EU-27 GDP	20.4%
FS sector share of EU-27 FS sector GVA	15.7%



France	
Share of EU-27 GDP	15.9%
FS sector share of EU-27 FS sector GVA	12.9%

Italy	
Share of EU-27 GDP	12.7%
FS sector share of EU-27 FS sector GVA	11.5%

Source: Eurostat, PwC analysis

Within the four countries we considered, a range of different taxes are implemented. As well as personal and corporate income tax, the FS sector and other businesses pay employment taxes, social contributions, indirect taxes, property taxes and other taxes including wealth, inheritance and environmental taxes. By aggregating these various taxes using data from EU national accounts, and dividing total tax receipts by total GVA, we are able to present a picture of the overall tax burden within a country.

Table 5 below shows the AETR for the whole economy for each of the four countries and for the EU-27 as a whole, in 2006 and 2010. Government tax revenues change from year to year because of a range of factors, including fluctuations in economic activity, reforms to tax policy and the effectiveness of member states in collecting revenues. The overall trend in the level of taxation relative to GVA in the EU-27 has been a slight decrease in the period from 41.7 percent in 2006 to 41.0 percent in 2010. To put this into context, Eurostat reported in 2010 that for the whole economy 'tax revenues in terms of GDP are now at their lowest point in the 1995 – 2010 period'.[32]France had the highest AETR in 2010 at 49.4 percent, followed by Italy, Germany, and the UK. Italy was the only country in our sample to have seen an increase in the AETR between 2006 and 2010.

[32] Wahrig, L. (2012) *Tax Revenue in the European Union, Eurostat Statistics in Focus, 2012*

Table 5: Whole economy average effective tax rate (2006 vs. 2010)

Country	2006	2010	Difference 2006 to 2010
France	51.3%	49.4%	(1.9)%
Germany	44.3%	43.7%	(0.6)%
Italy	47.0%	48.2%	1.2%
UK	42.8%	41.7%	(1.1)%
EU-27 average	41.7%	41.0%	(0.7%)

Source: Eurostat, PwC analysis

5.3. France

Tax payments from the FS sector increased by more than €5bn between 2006 and 2010 with the sector paying almost €57bn[33] (in cash terms) in taxes in 2010.

The average effective tax rate for the FS sector fluctuated between 2006 and 2010: from a high of 73.5 percent in 2008 to 63.6 percent in 2009, compared to 50 percent on average for the whole economy over the whole 2006-2010 period. During the period, the FS sector in France faced the highest AETR amongst our sample of countries.

As outlined in section 3.4, our analysis is based upon two measures: the FS sector share of tax payments and GVA, and the FS sector AETR in comparison to the whole economy AETR. Figure 4 below shows the calculations for the first measure of comparison, the share of GVA, which compares the proportion of tax generated by the FS sector relative to the proportional size of economic activity. The data underlying Figure 4 suggests that between 2006 and 2010 the FS sector accounted for on average 4.5% of whole economy GVA and 6.2% of all taxes in France. The difference of around 40% between these two percentages shows that the tax payments made by the FS sector are disproportionately large relative to its share of economic activity.

In terms of the underlying data, Figure 4 shows that FS sector GVA as a proportion of total GVA remained relatively constant between 2006 and 2007, but fell in 2008 during the economic crisis, from 4.4% to 4.0%. The share of FS sector GVA increased through 2009 and 2010 in part because of weaker growth in the non-FS components of the economy. This pattern is also observable in other countries in the sample and we note two key issues underlying our calculations:

- As discussed in section 3.2.3 there are inherent measurement difficulties with FS sector GVA which, to a large extent, will have been amplified during the financial crisis. As a result, our estimates of FS sector GVA may be overstated. Given that FS sector GVA is the denominator for both of our measures of relative tax burden, if FS sector GVA is overstated then we would expect both our calculated FS sector AETR and our calculated FS sector share of taxes to be biased downwards.
- There is also variability in the performance of the different components of the FS sector. For instance in the case of France, the insurance element of the FS sector considerably outperformed the auxiliary element (e.g. hedge funds and asset managers). Within the banking sector, some institutions have been resilient to the crisis, while others have not. Some of the better performing elements have contributed considerably to the recovery in FS sector GVA. This variability goes some way to explaining the rise in FS sector GVA in the context of weaker non-FS sector GVA.

Regardless of these measurement issues, the margins of error in the calculations we present would need to be substantial to alter the majority of findings for the different countries in the sample. Whilst the different

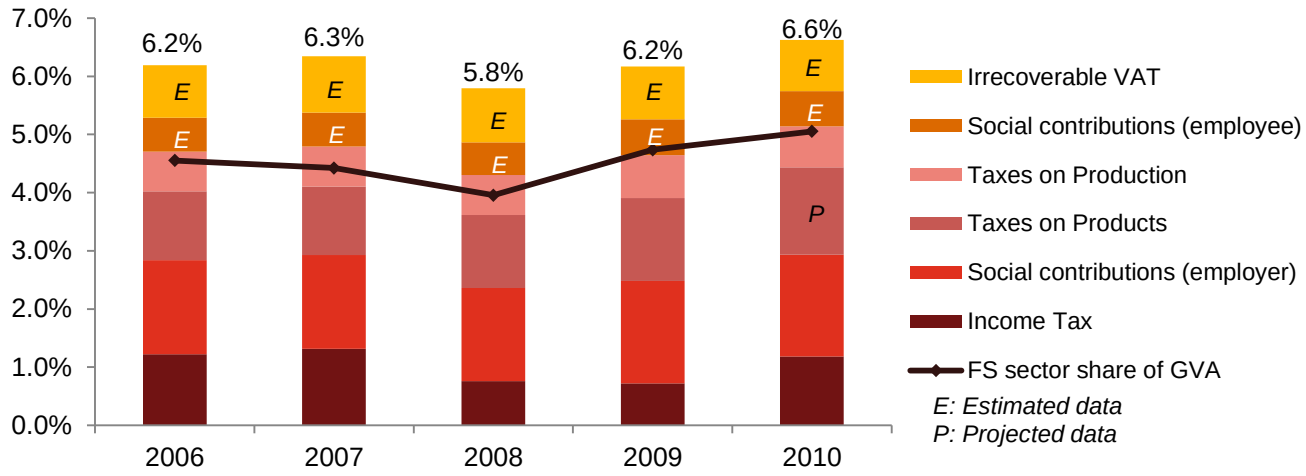
[33] In 2010 prices.

effective tax rates may only appear to be a few percentage points larger, the underlying calculations represent a large amount of economic activity. For instance, our calculations suggest that the average annual FS sector GVA in France between 2006 and 2010 was around €77bn (in 2010 values). The equivalent annual tax payments over the same period averaged almost €53bn (in 2010 values) which implies that an amount equivalent to nearly 70 percent of the value added that the FS sector creates in France is generated to the Government through different taxes.

Figure 4 shows that FS sector tax as a proportion of all taxes generated were relatively stable across the years in the sample. Taxes on products saw the largest proportionate rise, whilst social contributions also increased. Current taxes on income and wealth, which includes personal income tax and corporation tax, declined in 2008 and 2009 but recovered in 2010 to a level similar to that before the economic crisis.

All of the data for France is green or amber according to our traffic light system, with the exception of taxes on products in 2010, which we have classified red as we included a projection based upon the GVA growth rate for that year. The margin of error in the calculations for the red and amber data is low and the degree of uncertainty associated with these data is insufficient to change the overall result.

Figure 4: FS tax as a percentage of total tax and FS sector GVA as a percentage of total GVA for France (2006 – 2010)



Source: PwC analysis, range of national data sources (see Table 3 for full details)

Figure 5 shows the calculations for the second measure which compares the AETR of the whole economy with the AETR of the FS sector. The data confirm the result that the FS sector's tax contribution is in excess of its share of economic activity. The FS sector AETR is significantly higher than the AETR for the whole economy for each year in the sample: the AETR for the whole economy, averaged for the period 2006 to 2010, was 50.0%, whilst the AETR for the FS sector for the same five years was 68.8%, almost 20 percentage points higher. Regardless of the potential for bias in GVA data, the scale of this result strongly suggests that the FS sectors tax contribution exceeds its economic contribution.

For the countries surveyed in this report, taxes associated with wages are substantial, despite an earlier survey by AFME showing a decline in financial sector wages of 15 percent since the onset of the financial crisis.[34] The complexities of the job responsibilities and requirements in the sector imply that wages are higher than in the economy as a whole.

A closer examination of the data also reveals that the AETR for the whole economy decreased year on year from 2006 and dropped below 50% in 2009. Conversely the AETR for the FS sector increased from 69.8% in 2006 to

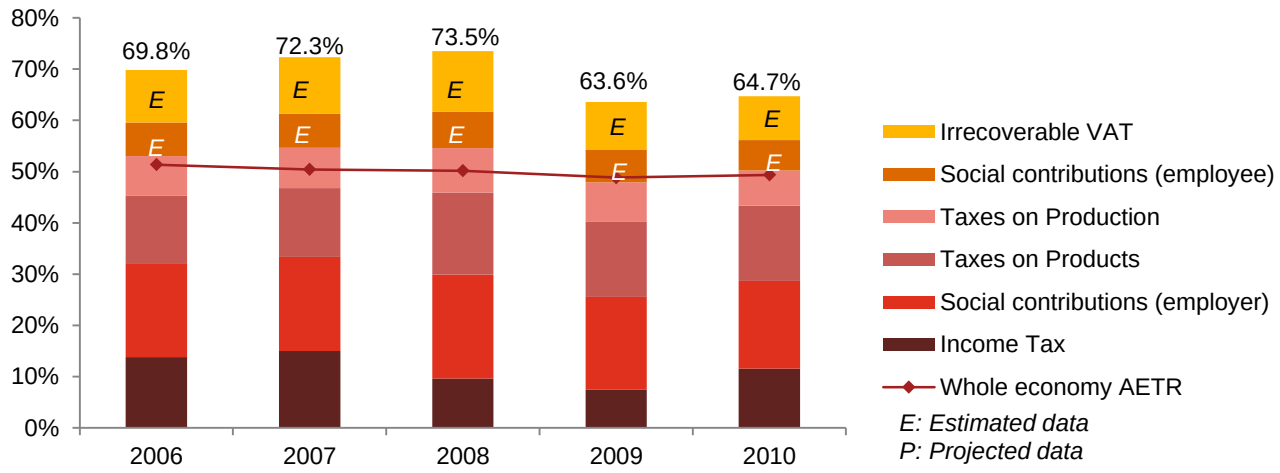
[34] AFME (2011), A review of wages in the *European Financial sector*

73.5% in 2008, but then fell to the lowest level in the sample period at, 63.6% in 2009, which was largely due to a substantial drop in the FS sector's profitability as demonstrated in the associated GVA data.

Social contributions and taxes on production are the two largest taxes for the whole economy in France. Social contributions were equivalent to 18.4% of whole economy GVA in 2006 and showed a small increase to 18.6% in 2009. Taxes on production showed an opposite trend, decreasing slightly from 17.4% of FS sector GVA in 2006 to 16.8% in 2010.

Our analysis suggests that the level of social contributions paid by the FS sector is the highest in the EU-27 relative to the size of the sector. The employers' element of the contribution makes up more than two thirds of the total and represents the largest single type of tax generated in absolute terms by the FS sector in France. Eurostat's analysis states that in 2010, 'as a percentage of GDP employers' contributions were more than 70 percent higher than the EU-27 average'.[35] However, the FS sector's employers' social contributions as a share of FS sector GVA decreased slightly from a high of 20.3% in 2008 to 17.1% in 2010, while the share of equivalent payments in the wider economy increased. However, employers' and employees' social contributions still account for more than one quarter of all tax generated by the FS sector: these two taxes combined are estimated to have amounted to €19bn per annum (in 2010 values) on average between 2006 and 2010.

Figure 5: Comparing the AETR of the whole economy with the AETR of the FS sector in France (2006 – 2010)



Source: PwC analysis, range of national data sources (see Table 3 for full details)

In comparison to social contributions, FS sector tax payments associated with current taxes on incomes, which include both corporation tax and personal income tax, represent a much smaller share of FS sector GVA, equivalent to an FS sector AETR of 10.5% on average between 2006 and 2010. This figure also halved from 15.0% in 2007 to 7.4% in 2009. Nevertheless, these payments are by no means insubstantial: national data suggests that in 2010 FS sector payments for current taxes on income were worth just over €10bn (in cash terms).

Irrecoverable VAT borne by the FS sector has been included in the calculations above and our estimates show that it accounts for an average of 14.8% of taxes generated by the FS sector between 2006 and 2010. This amounts to an average of €7.7bn per annum (in 2010 values) in FS sector tax payments and is likely to rise in the coming years as the VAT rate is increased from 19.6% to 20% on 1 January 2014.

Overall our analysis suggests that the French FS sector is the most highly taxed in our sample of four major European financial hubs on the basis of AETR. Our methodology yields average estimates of taxes generated by the FS sector of almost €53bn (in 2010 values) in total taxes a

[35] Eurostat (2012) *Taxation Trends in the European Union*, European Union, 2012 pp 89-91

year on average between 2006 and 2010, with tax payments peaking at almost €57bn in 2010, equivalent to more than 3% of whole economy GVA in that year. On these calculations, if the FS sector had paid the same AETR as the whole economy, it would have contributed €71.3bn (in 2010 values) less tax over this period 2006 - 2010.

5.4. Germany

Taxes generated by the German FS sector decreased in 2008 but recovered strongly in 2009 and 2010, averaging more than €54bn (in 2010 values) per annum or 5.6% of GVA between 2006 and 2010.

The FS sector AETR was 62.8% on average between 2006 and 2010, 18.2 percentage points higher than the equivalent figure for the whole economy of 44.6%.

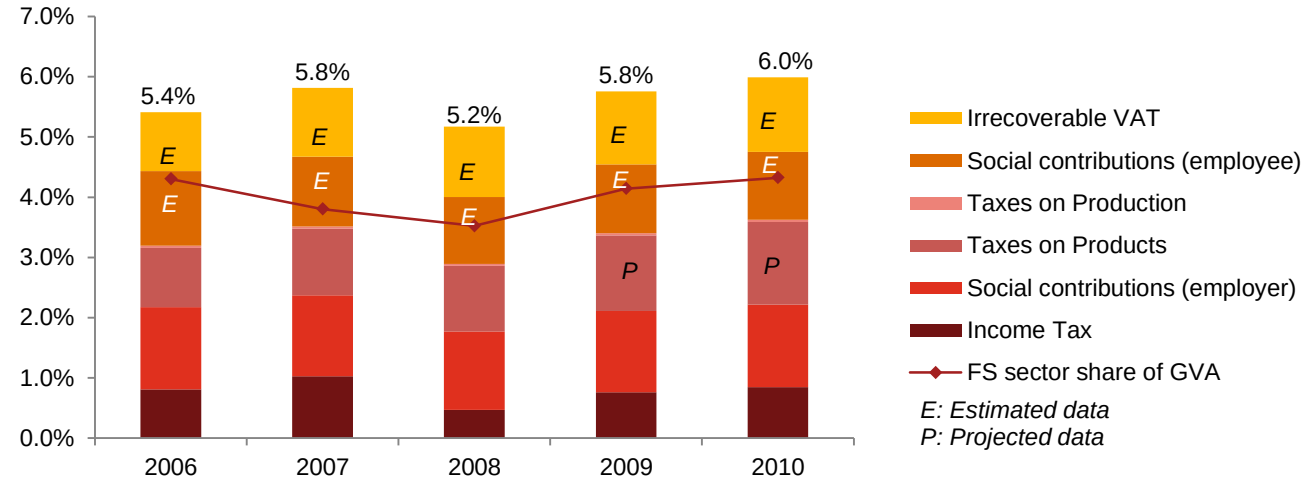
Figure 6 below presents our first measure of comparison, displaying the FS sector share of total GVA compared to the FS sector tax share of total taxes generated in Germany. As with France, the FS sector's proportion of taxes generated is greater than its share of economic activity. Between 2006 and 2010 the FS sector contributed on average 4.0% of total German GVA and 5.6% of all taxes.

FS sector GVA as a proportion of total GVA decreased from 4.3% in 2006 to 3.5% in 2008, but by 2010 recovered to the same share as in 2006. In contrast, FS sector tax as a proportion of all taxes generated remained in excess of 5% each year, and was 6.0% in 2010, almost two percentage points (or in absolute terms around 40%) above its share of economic activity.

Some elements of the German data were less complete than in other countries. For instance, data are not available for taxes on products for 2009 and 2010, so these have been projected based upon the GVA growth rate. However, this projection is for illustrative completeness only – excluding the projected data, the share of taxes generated by the FS sector still exceeds its economic contribution between 2006 and 2010.

In monetary terms, our calculations suggest that the annual average FS sector GVA between 2006 and 2010 was €87bn (in 2010 values). The annual average FS sector tax payment over the same period was more than €54bn (in 2010 values). This suggests that 62.8% of the value added by the FS sector in Germany was generated to the Government through these different taxes each year.

Figure 6: FS tax as a proportion of total tax and FS sector GVA as a proportion of total GVA for Germany (2006 – 2010)

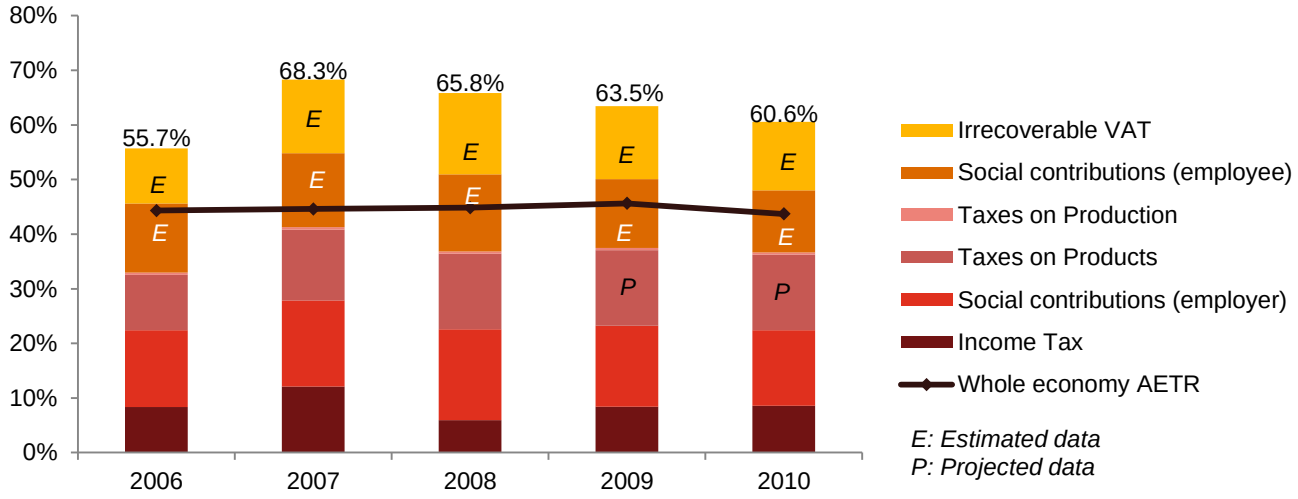


Source: PwC analysis, range of national data sources (see Table 3 for full details)

For the second measure of comparison, Figure 7 compares the AETR of the whole economy with the AETR of the FS sector for Germany. The FS sector AETR is significantly higher than the whole economy AETR for each year in the sample. The AETR for the whole economy was on average 44.6% between 2006 and 2010, whereas

the AETR for the FS sector was 62.8%, which was over 18 percentage points higher than the AETR for the whole economy.

Figure 7: Comparing the AETR of the whole economy with the AETR of the FS sector in Germany (2006 – 2008)



Source: PwC analysis, range of national data sources (see Table 3 for full details)

The AETR for the whole economy remained fairly steady through the years for which we were able to obtain data, moving from 44.3% in 2006 up to 45.6% in 2009, but decreasing slightly to 43.7% in 2010, the lowest rate in the period from 2006 to 2010. The AETR for the FS sector peaked in 2007 at 68.3% and has since decreased to 60.6% in 2010; nevertheless this is still well above the AETR of the whole economy in that year.

FS sector tax generated in Germany increased from around €50bn in 2006 to over €58.5bn in 2010 (both figures in 2010 values), growing at an average rate of 4.2% per annum. However, FS sector GVA in Germany decreased quite sharply from around €89.8bn in 2006 to €78bn in 2008 (both figures in 2010 values). This accounts for the significant rise in the AETR of the FS sector in Germany from 55.7% in 2006, to 65.8% in 2008.

Since 2008 the decrease in the AETR for the FS sector is largely a result of FS sector GVA growth outpacing whole economy GVA, with tax payments lagging. The data show that while tax payments have risen in cash terms, their growth has not kept pace with corresponding rises in activity.

One reason for this lag may be the FS sector in Germany writing off losses from the financial crisis against future corporate tax payments. We have been unable to obtain separate data on corporate tax payments by the FS sector to check whether this is the case. However, it is notable that in the data, the revenue from the taxes on income category, which includes corporation tax, incurred a proportionate decline of over half between 2007 and 2008. Gross operating surplus data, which are a reasonable proxy for FS sector profitability, show a decline of more than 25% between 2007 and 2008, which supports this hypothesis. However, the data suggest that revenues from taxes on income are now recovering in cash terms. In 2010 they were valued at €8.3bn, which is well above the 2006 level of around €7.5bn (both figures in 2010 values).

If we examine the taxes generated in more detail, we can see that social contributions constitute the largest tax payment for the whole German economy. Indeed, Germany stands out for its high share of social security contributions – consisting largely of employee contributions, which are the second highest in the EU-27.[36] In Germany, social contributions as a share of total tax payments for the whole economy decreased from 18.0% in 2006 to 17.5% in 2010 due predominantly to low wage growth. Similar trends are observed in the FS sector but

[36] Eurostat (2012) *Taxation Trends in the European Union, European Union, 2012*

the decline is smaller. This pattern of resilience is also observed for both taxes on products and production data in the FS sector.

Some of the increases in tax payments data can be attributed to policy changes. For instance, the standard VAT rate was raised from 16% to 19% on 1 January 2007. We estimate that irrecoverable VAT accounted for an average of 20.0% of the taxes generated by the FS sector each year between 2006 and 2010, the largest proportion for any of the countries in this study. We also estimate that the average amount of irrecoverable VAT generated by the FS sector was €11bn (in 2010 values) during the same time period.

Based on the data available, our assessment for Germany is that the FS sector's tax payments have been larger than its share of economic activity, and this has been the case in every year from 2006 to 2010. These differences are significant. On these calculations, if the FS sector had paid the same AETR as the whole economy, it would have contributed €78.1bn (in 2010 values) less tax over this period.

5.5. Italy

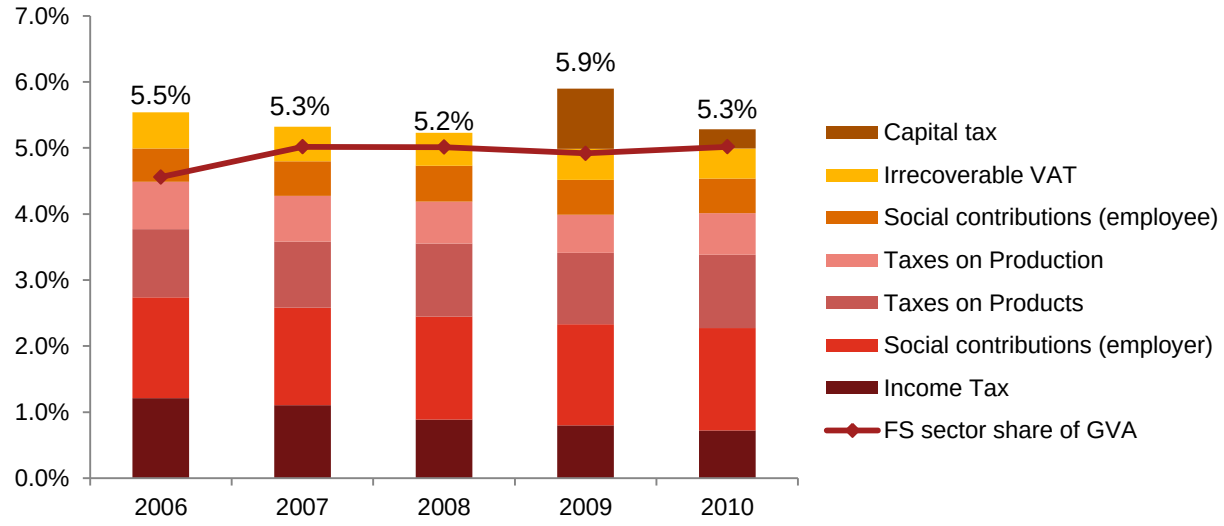
The FS sector's tax payments averaged almost €36bn (in 2010 values) per annum between 2006 and 2010.

The FS sector AETR was 53.1% on average during this period, 5.4 percentage points higher than the whole economy AETR.

Figure 8 below compares the FS sector share of total GVA to the FS sector share of total taxes generated. The majority of Italian data was provided by ISTAT the Italian Government Statistical Office and so is rated as green on our traffic light measure of data quality. There were no explicit data for irrecoverable VAT in the ISTAT data and so these were estimated.

Both the share of GVA and the share of taxes generated were relatively stable over these four years. As with Germany and France, the proportion of tax payments by the FS sector was greater than its proportionate economic contribution for every year from 2006 to 2010. The FS sector contributed on average 4.9% of total Italian GVA over the period 2006 to 2010, whilst the average FS sector tax as a proportion of the total taxes generated during this period was 5.5%, reaching a high of 5.9% in 2009.

Figure 8: FS tax as a proportion of total tax and FS sector GVA as a proportion of total GVA for Italy (2006 – 2010)



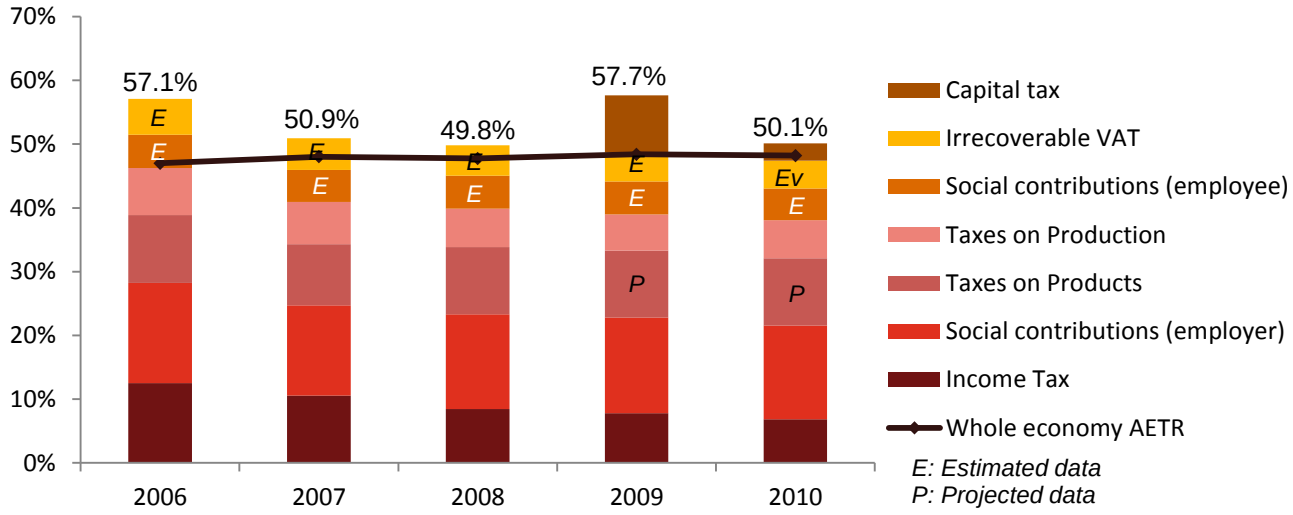
Source: PwC analysis, range of national data sources (see Table 2 for full details)

FS sector GVA as a proportion of total GVA increased in Italy from 4.6% in 2006, rising to 5.0% in 2010. FS sector tax as a proportion of total tax remained very steady over these five years, fluctuating between 5.2% and

5.9%. The main change resulted from a decrease in the share of 'taxes on income' generated by the FS sector, which fell from 1.2% (as a share of total taxes generated) in 2006 to 0.7% percent in 2010. However, this was offset by an increase in capital tax payments in 2009 and 2010.

The average FS sector GVA between 2006 and 2010 was just below €68bn (in 2010 values) per annum. We estimate that the average amount of annual FS sector taxes generated between 2006 and 2010 was around €35.9bn (in 2010 values) per annum. This suggests that an amount equivalent to 53.5 percent of the value added by the FS sector in Italy was generated for the Government through these different taxes. Figure 9 below displays the AETR measure for Italy. As with France and Germany, the FS sector AETR was higher than the AETR for the whole economy in each year. Between 2006 and 2010, the AETR for the whole economy averaged 47.7%. The average AETR for the FS sector for the same period was 53.1%, over five percentage points higher.

Figure 9: Comparing the average effective tax rate of the whole economy with the average FS sector tax rate in Italy (2006 – 2010)



Source: PwC analysis, range of national data sources (see Table 3 for full details)

The AETR for the whole economy increased from 47.0% in 2006 to 47.6% in 2010, peaking at 48.1% in 2009. The AETR for the FS sector decreased slightly from 57.1% in 2006 to 50.1% in 2010.

Social contributions and taxes on income are two of the largest taxes for both the whole economy and the FS sector. FS sector employers' and employees' social contributions account for over one third of all FS sector tax payments and were equivalent to around 20% of the sector's GVA on average between 2006 and 2010. As with the other countries in this study, FS sector income tax payments as a share of FS sector GVA declined sharply, almost halving from 12.5% in 2006 to 6.9% in 2010.

According to our estimates, irrecoverable VAT accounted for an average of 4.9 percentage points of the AETR of the FS sector over the period 2006 to 2010, or €3.3bn (in 2010 values) per annum between 2006 and 2010. The standard VAT rate was increased by one percentage point to 21% in September 2011 which means that government receipts from both FS sector irrecoverable VAT and standard rated VAT can be expected to rise (although standard rated VAT is not included in our estimates).

There is a positive gap between the proportional taxes generated and the share of economic activity. On these calculations, if the FS sector had paid the same AETR as the whole economy between 2006 and 2010, it would have contributed €17.8bn (in 2010 values) less tax over this period.

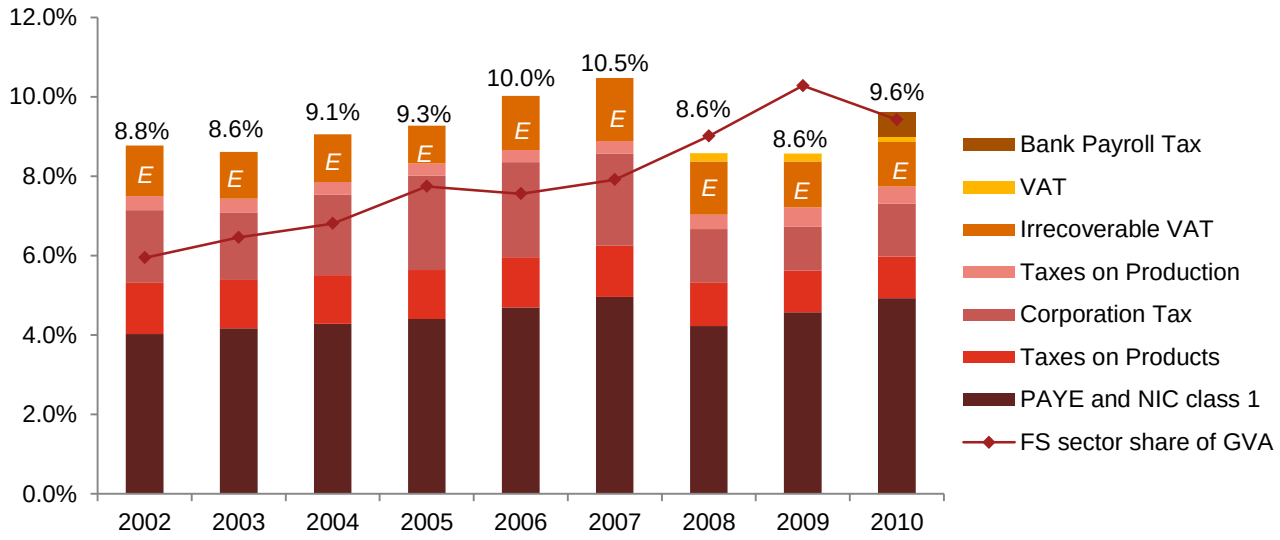
5.6. United Kingdom

Prior to the financial crisis the UK FS sector consistently generated a higher proportion of total UK taxes than its proportionate economic contribution. A drop in corporation tax payments during the crisis temporarily altered this, but as the sector has gradually recovered, the proportionate tax contribution has once again exceeded its proportionate economic contribution.

Tax data for the UK has been presented over a longer time series than for France, Germany and Italy due to stronger cyclical effects in the economy following the financial crises. For all years we have been provided with data by the UK tax authority, HM Revenue and Customs (HMRC), which supplemented official published data from the UK Office for National Statistics (ONS). The only type of tax where we have less reliable data is irrecoverable VAT. We calculate irrecoverable VAT through a partial estimate provided by HMRC, supplemented with the de la Feria and Lockwood (2009)[37] method used for the other countries in this study.

Figure 10 presents a time series for 2002 to 2010 of the UK FS sector's share of total taxes and whole economy GVA. For all the years in this sample the data shows the FS sector proportion of taxes generated being higher than its share of whole economy GVA, with the exceptions of 2008 and 2009. The data collected imply that the FS sector contributed on average 7.9% of total UK GVA between 2002 and 2010, whereas the sector's tax contribution as a share of total taxes during this period was higher on average at 9.2%. The average annual taxes attributable to the FS sector between 2002 and 2010 were almost €62bn (in 2010 values), peaking at €82bn (in 2010 values) in tax payments in 2007.

Figure 10: FS tax as a proportion of total tax and FS sector GVA as a proportion of total GVA for the UK (2002 – 2010)



Source: PwC analysis, range of national data sources (see Table 3 for full details)

A key feature of Figure 10 is the general increase in both the FS sector's share of total GVA and its share of total tax payments from 2002 to 2010. The proportion of taxes generated by the FS sector reaching a high in 2007 of 10.5 percent of all taxes generated in the UK economy. When this growth is placed in monetary terms, it represents an approximate 1.5 fold increase in the tax contribution of the FS sector, with taxes generated by the sector totalling €54.6bn in 2002 as compared to €82.0bn in 2007 (both figures in 2010 values). However, the impact of the financial crisis on both FS sector GVA and tax payments can clearly be seen in 2008 and 2009, with the proportion of taxes generated dipping below the share of GVA for the first time within the time period considered.

[37] de la Feria, R. and Lockwood, B. (2009) *Opting for Opting-in? An Evaluation of the Commission's Proposals for Reforming VAT for Financial Services,* Working Papers 0909, Oxford University Centre for Business Taxation.

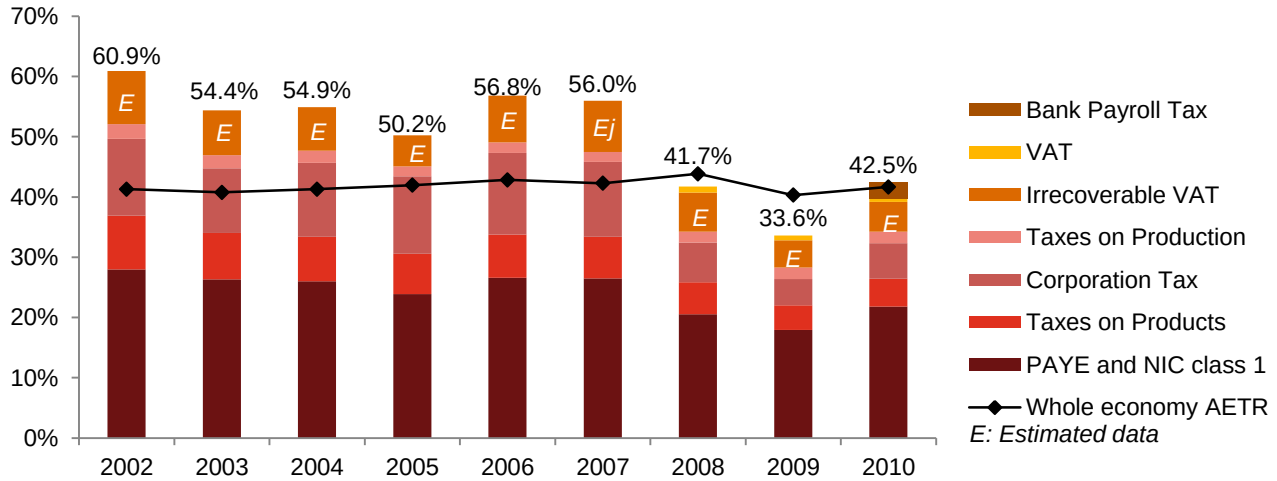
The reasons for this decline in both tax payments and GVA are largely the same as those described for France, Germany and Italy. However, the decline in the UK was more substantial and the UK FS sector GVA fell sharply during the crisis. The sector's gross operating surplus declined by more than 20% in real terms between 2008 and 2011. Compensation of employees fell by a similar amount in real terms between 2007 and 2009, and whilst they have shown signs of recovery they are still almost 10% below their pre-crisis (2007) level. As a point of comparison, GVA in the German FS sector had fully recovered to its pre-crisis level by 2009.

The decline in UK FS sector profitability led to a significant reduction in corporate tax payments. Corporate tax payments attributable to the FS sector fell from €18bn in 2007 to €6.5bn in in 2009 (both figures in 2010 values). As well as the lower profitability directly attributable to the financial crisis, FS sector profitability was also affected by new Government regulations. As pointed out for Germany and Italy, some elements of the FS sector also had the impact of offsetting losses accrued during the financial crisis against future profits chargeable to corporation tax.

The most recent data for the year 2010 show the proportion of taxes generated by the FS sector being once again above its proportion of economic activity. This was attributable to a combination of growth in PAYE and the additional payments from the one-off payroll tax on the sector. From 2008 to 2010 we have been able to include data on VAT payments from the FS sector provided by HMRC. However, these data are not available for preceding years and we have not attempted to estimate the historical data given that the data available already clearly shows the share of proportionate tax payments being larger than the share of economic activity for the earlier years.

When comparing the AETR of the whole economy with the AETR of the FS sector in Figure 11 a similar pattern emerges in the data. As with the previous measure, the FS sector AETR was considerably higher than that of the whole economy between 2002 and 2007, again showing a dip below the whole economy AETR in 2008 and 2009. Nevertheless, the average FS sector AETR for the whole period, at 50.1%, was more than 8 percentage points higher than that of the whole economy of 41.8%.

Figure 11: Comparing the average effective tax rate of the whole economy with the average FS sector tax rate in the UK (2002 – 2010)



Source: PwC analysis, range of national data sources (see Table 3 for full details)

The UK has a tax structure which is, despite the global trend to the contrary, is still weighted towards the collection of direct taxes as the primary source of revenue and is second only to Denmark in this respect.[38] PAYE, which includes income tax, and employers' and employees' social contributions, accounts for the largest tax payments by the FS sector, at 24.2% of FS sector tax GVA on average between 2002 and 2010. This is

[38] Eurostat (2012) *Taxation Trends in the European Union, European Union, 2012, pp. 161-163*

equivalent to almost €30bn (in 2010 values) per annum, accounting for 4.5% of total Government tax receipts on average during this period.

Another key feature of the tax system in the UK FS sector is the volume of irrecoverable VAT generated. While estimates should be treated with caution, they suggest that irrecoverable VAT accounted for an average of 13.4% of all taxes generated by the FS sector between 2002 and 2010. We estimate that the average amount of irrecoverable VAT generated by the FS sector was more than €8bn (in 2010 values) annually between 2002 and 2010. We are also likely to observe increases in irrecoverable VAT tax payments in the 2011 data due to the higher VAT rate of 20 percent which came into force in that year.

Figure 11 reflects the economic difficulties that the sector experienced between 2008 and 2009, with the AETR for the FS sector dropping below that of the whole economy. The fall in tax payments in these years was substantial – in 2007 the sector yielded in excess of €82bn (in 2010 values) but this fell to €49bn (in 2010 values) in 2009. This decline was caused by significant reductions in most types of tax payments with the exception of taxes on production. The fall in corporation tax payments was described above, but equally significant was a fall in PAYE payments from €39bn in 2007 to €26bn in 2009 (both figures in 2010 values).

While 2008 and 2009 showed a reduction in tax payments, in 2010 the data show that the FS sector AETR was marginally higher than that for the whole economy. Growth in PAYE payments from €26bn in 2009 to €31.5bn in 2010 (both figures in 2010 values) – a return to the pre-economic crisis levels of 2005 – contributed to an increase in the taxes generated by the sector. Corporation tax has also shown signs of recovery and payments rose by more than €2bn (in 2010 values) between 2009 and 2010. A further significant difference between the years is the one-off payroll tax in 2010. The AETR associated with this tax (bank payroll tax as a share of FS sector GVA) was 2.8% or €4bn in 2010.

It is difficult to predict how tax payments will evolve in the future. A full data set is not yet available for 2011, so it is not possible to confirm whether the trends from 2009 to 2010 will continue.

However, on balance the FS sector has made a significant tax contribution to the UK exchequer over the past decade. If the FS sector had paid the same AETR as the whole economy, it would have contributed €26.9bn (in 2010 values) less tax between 2006 and 2010.

5.7. Key factors underlying the effective tax rates

It is possible to disaggregate some of the data in this report to provide a more detailed illustration of the way in which the FS sector generates tax receipts relative to the wider economy. This section examines the differences between taxes on products and taxes on production from the perspective of taxes borne and collected to provide further insight as to the FS sectors VAT contribution. It also explores the reasons behind the size of the AETR's that have been reported.

5.7.1. A separate consideration of taxes on products and taxes on production

Figure 12 examines the separate effective tax rates for taxes on products and taxes on production. The calculation is a disaggregated version of measure 2 used in the previous sections where the taxes on products/production that are paid are divided by corresponding GVA figures. However, in this instance, because of the structure of the available data we are able to make an explicit distinction between the FS sector and the non-FS sector.

The scope of taxes included under these headings is broad. For instance, the total non-FS sector taxes on products include VAT paid on the consumption of household products, excise duties, some stamp taxes, taxes on leisure and entertainment, car taxes (new registrations etc.), and energy and utility taxes, amongst others. These are all specific product taxes that are not directly associated with the FS sector.

Most of these taxes are paid by households at the point of consumption and so are counted as taxes collected. However, they are still included in the sales price of different products, so in part their incidence will be borne by the sector that is selling the specific product. Indeed, in some instances the objective of the tax will be to limit or even actively discourage consumption (for instance tobacco tax). Some taxes in this heading will represent taxes borne, for instance irrecoverable VAT, or when businesses pay tax on company cars. Taxes paid

feed into pricing decisions and affect profitability. Consequently, such comparisons between the FS and non-FS sectors are important.

There is a similar principle associated with taxes on production. These can include pollution taxes, property taxes, license surcharges, etc. Taxes on production tend to feed directly into a firm's cost base, so are taxes borne. Again taxes paid feed into pricing decisions and in turn affect profitability.

Key results from the separate analysis of taxes on products and production are as follows:

5.7.2. France

French data do not include irrecoverable VAT prior to 2006, and as a result the FS sector taxes on products tax rate is depressed in those years. For the years where more complete data are available, the effective tax rate for taxes on products is almost 10 percentage points higher. Based on the published data, it is difficult to determine exactly what taxes the figure includes. One component is a 'value added contribution' ('Cotisation sur la valeur ajoutée des entreprises') which is assessed on the added value of French companies. This applies to banks and other companies where their turnover exceeds EUR 152,500. The tax is computed by applying a progressive rate ranging between 0% and 1.5% on the added value of the company. Both turnover and the added value are calculated according to special provisions for banks (e.g. 95% of dividends deriving from long-term investments are not taken into account instead of a complete dividend exemption). A further component that we can identify included taxes on insurance premiums.

A similar pattern of results can be observed for taxes on production, where on average the FS sector's effective tax rate is almost 6 percentage points higher than that of the non-FS sectors. In the case of France, taxes on production consist mostly of property taxes.

5.7.3. Germany

Comparable data for Germany are only available from 2005. In terms of taxes on products, the AETR for the FS sector averages almost 20 percentage points higher than that for the non-FS sectors, with the AETRs for the period 2005 to 2010 for the non-FS sectors and the FS sector taxes on products averaging at approximately 7% and 25% respectively. Our understanding is that contributing to these figures is a Trade tax (*Gewerbesteuer*). The effective rate of trade tax varies by location but in most cities it is in the range of 14% to 16%.The basis for this tax is the adjusted accounting profit: in particular, 25% of all financing costs over EUR 100,000. From January 2011 this figure will also include an annual bank levy. The German bank levy has been established as a rescue fund which will be used to bail out credit institutions. The rescue fund will only rescue banks whose failure would represent a significant source of systemic risk. The levy raised about EUR 0.59bn in 2011. The trade tax is a tax borne by both the FS and non-FS sector, while the bank levy is only borne by the FS sector.

In the case of taxes on production, the non-FS sector AETR is higher than that for the FS sector. However, both are small (less than 1%), so this comparison is less important.

5.7.4. Italy

The AETR for taxes on products has fluctuated considerably in Italy although it remains consistently higher than that for the whole economy AETR, by an average of just under 5 percentage points. As with other countries, this figure primarily includes insurance premium taxes and irrecoverable VAT.

Italian corporate entities are subject to a corporate income tax, known as Imposta sul Reddito delle Società (IRES), and to regional production tax, known as Imposta Regionale sulle Attività Produttive (IRAP). The standard rates are 27.5% for corporate income tax (IRES) and 3.9% for regional production tax (IRAP). As of 2011, the following increased IRAP rates are applicable for certain entities:

- 4.20% for entities with a determined governmental exclusive right to provide services.
- 4.65% for banks and financial entities.
- 5.90% for insurance corporations.

The IRAP is accounted for in the taxes on production definition. Overall in Italy taxes on production paid by the FS sector are on average 2.5 percentage points higher than in the non-FS sector.

5.7.5. UK

In the UK taxes on products paid by the FS sector have an average AETR between 2002 and 2010 of around 13.5%, while the equivalent figure for the non-FS sector is 9%. However, in 2009 and 2010 the AETR fell, and in 2010 the AETR for both the FS and the non-FS sectors was just above 10%. The primary reason for this decline was that output grew slowly in 2009 and then fell in 2010, meaning that key components of the taxes on products figure fell sharply. Partly driving this figure was a sharp decline in irrecoverable VAT and slow growth in Insurance premium tax receipts which grew more slowly than FS sector GVA in 2009. However, this 2009 decline was partially offset by the Bank payroll tax which was levied as a one-off tax on bonuses. The tax paid totalled £3.4bn which was a tax borne entirely by UK banks.

Taxes on production in the UK which are effectively business rates are shown in Figure 12 to be broadly similar for both the FS and non-FS sector over the period 2002 and 2010.

5.7.6. Conclusion

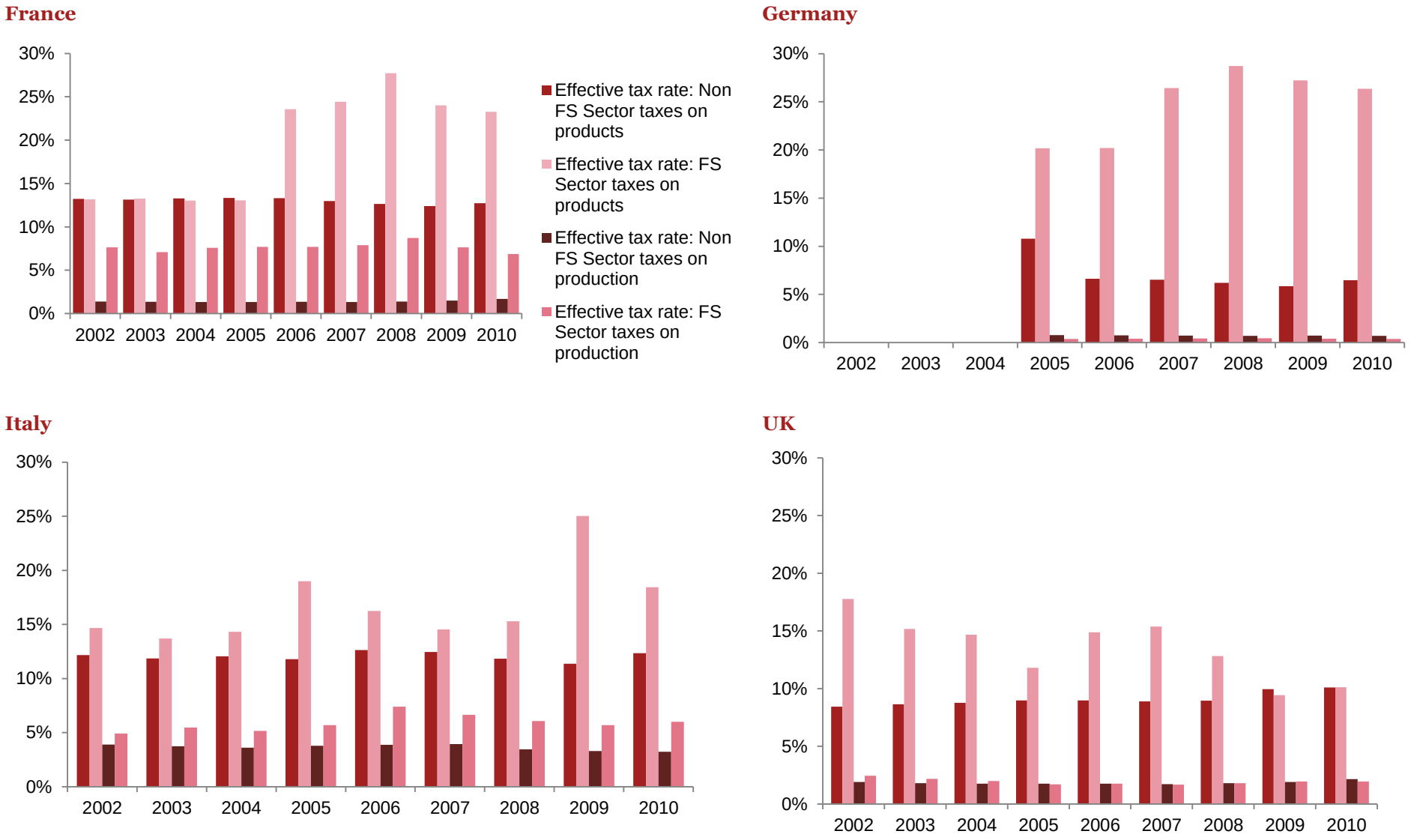
A key point to note from the findings presented above is that **those taxes categorised under the internationally defined statistical heading 'taxes on products' that are paid by the FS sector are predominantly taxes borne** (with the major exception of insurance premium taxes). However **the taxes paid by the non-FS sector are a mix of borne and collected but are dominated by VAT on final consumption and excise duties which are both taxes collected.**

In all examples presented in this section the combined AETR for taxes on products and production is larger for the FS sector than for the non-FS sector. An argument, mentioned earlier, that has often been directed at the FS sector is that it is under-taxed because it does not charge VAT on final consumption.[39] However, the analysis presented in this section indicates that the AETR for taxes on products for the FS sector that is largely VAT exempt[40] is higher than that for the non-FS sector which is not VAT exempt. The uncertainty around the technique used for estimating VAT exempt payments implies caution is needed in interpreting this analysis.

[39] The reasons for this are largely technical and are well documented by Huizinga, H. (2002) *A European VAT on financial services?* Economic Policy.

[40] The UK figure does include some standard rated VAT receipts, but they are not large enough to alter this conclusion.

Figure 12: Effective tax rate for taxes on products and production, FS and Non-FS sector by country



Source: Eurostat, PwC analysis

Nonetheless, for the majority of data points presented in Figure 12 imply a substantial gap between the AETRs for the FS and non-FS sectors. The estimates for irrecoverable VAT payments would need to be overestimated by several orders of magnitude to reverse this finding.

5.8. Considering the factors behind the scale of FS sector tax payments

The previous sections have discussed the level of taxes generated by the financial sector. This section seeks to provide some insight as to the determinants of both taxes borne and taxes collected.

5.8.1. Labour income taxes and social security contributions

It is clear from the data presented above that a significant amount of the tax generated by the financial sector can be attributed to personal income taxes and social security contributions. These are taxes collected by the financial sector, although as discussed above, their incidence is not clear cut. Since the onset of the financial crises there has been considerable scrutiny of the scale of wages and bonuses paid by the FS sector, but despite this debate associated economic analyses are limited and a better understanding of the factors underlying FS sector wage payments could provide insight into the structure and drivers of income tax and social security payments.

Philippon and Reshef (2007)[41] provide a detailed overview of the drivers of FS sector wage payments in the US over the past 4 decades. While this analysis does not focus on European countries, there are many important parallels that can be drawn. Philippon and Reshef analyse the changing skill sets of US FS sector employees. In the 1970s, FS sector employees were only marginally better paid than their non-FS counterparts (3% to 4% more) and also had the benefit of greater job security. However, since the early 1980s the FS sector has seen a compositional change away from the retail banking industry towards more skill intensive activities such as investment banking and fund management. Relative to the economy as a whole, the FS sector is shown to have become more skill-biased causing wages to rise. A high proportion of these skills relate to the increased use of information technology and mathematics in designing new financial products. In addition to this, job security/employment risk increased and came into line with the wider economy which was compensated for by wage increases.

Philippon and Reshef find that wages in the FS sector in the US were around 20% higher than in the non-FS sector in the early 2000's, with around half this difference associated with higher skill levels and increases in employment risk. The remaining half is attributed to characteristics specific to individuals (e.g. their own wage bargaining power). Growth in wage premia appears to follow financial sector deregulation. Haldane *et al.* (2010) compare pre-crisis average weekly wages across different sectors of the economy for the UK. This data suggests a median 20% to 30% premium over the past decade relative to the whole economy and helps explain the observed growth in wage-related GVA. However, the key problem with this approach is that it offers little insight as to adjustments in the underlying skill composition of the workforce.

A separate study carried out on behalf of the European Commission (Egger *et al.*, 2011)[42] examines the wage and bonus compensation for financial sector CEOs. However, the study is only partial and does not consider the salaries paid for other types of staff. The survey suggests a wage premium of around 40% for CEOs in the financial sector, although as Egger *et al.* note, there is significant heterogeneity across different types of financial sector companies and by country. Recorded CEO salaries are significantly larger in the US and non-EU countries in the sample, while salaries were found to be lower in the commercial banking sector relative to fund management. Unlike the Philippon and Reshef study, Egger *et al.* do not provide substantive comment about the drivers of executive pay.

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[41] Philippon and Reshef (2007) 'Skill biased financial development: education, wages and occupations in the U.S. financial sector' , NBER Working Paper No. 13437, September 2007

[42] Egger, P.H. and von Ehrlich, M. and Radulescu, D. (2011) 'Comparison of different compensation components and levels among different sectors of the economy' Published as volume 5 in the European Commission.

While there is evidence of wage premia in the financial sector, labour GVA in all countries in our sample has either contracted sharply or exhibited well below average growth since 2007. Underlying this trend is a substantial reduction in average FS sector remuneration. AFME have commissioned a separate survey of financial sector pay[43] based on in-depth discussions with the HR function of financial sector businesses. The study supports the pattern observed in labour GVA: in 2011 total remuneration in aggregate across survey respondents in banking and capital markets businesses was down 16% from 2010 and 18% from 2009. Total remuneration was down 24% from 2007 overall, or 30% on a per capita basis. Substantial declines in wage related taxes have reduced both the taxes borne and taxes collected by the FS sector.

5.8.2. Measures of financial sector value added

Haldane *et al.* (2010)[44] analyse the rapid growth in financial sector GVA over the past 160 years and suggest that in the UK context, the FS sector or its earlier variants has grown on average by 2 percentage points per annum more rapidly than the wider economy. This growth represents a considerable deepening in the use of finance in most developed and developing economies, which has in turn contributed positively to whole economy growth according to- Wadhwani (2010).[45]

However, Haldane *et al.* express concern about mismeasurement of FS sector GVA, notably in the area of the Gross Operating Surplus (GOS), which represents largely the returns on capital. Since 2007, the GOS has risen in virtually every year following the financial crises in all the countries in our sample, during a period in which the financial sector has been going through an unprecedented period of economic difficulty. Haldane *et al.* point to many factors as to why GOS might be overestimated, particularly in the context of the financial crises. Ultimately, their findings can be condensed into a main point that current statistical methodologies, regulators and the FS sector itself do not satisfactorily account of the handling of risk in financial sector reporting when estimating GOS.

Issues relating to volatility and mismeasurement of FS GOS were also highlighted in section 3.2.3. In turn this raises three key issues for policy makers:

1. The GOS and hence GVA represent the 'income' side of the accounts and when data is available, XXXX can be added to GVA to obtain GDP (Income). European statistical practices also produce GDP (Expenditure) measures which include the components of GDP (put in basic terms, GDP Expenditure equals Consumption plus Investment plus Government Consumption plus Exports minus imports). In practical terms, at the sectoral level, this should provide the same result given the national accounting identity that income equals expenditure i.e. GDP (Income) should equal GDP (Expenditure). Therefore, by definition, measurement issues on the income side should be tested against the expenditure side to produce a more conclusive result.

   There are practical data issues that might make this difficult. For instance GDP (Income) is usually produced at an industry level and GDP (Expenditure) is usually produced at a product level. Statistical agencies will often produce product industry ratios could be used to align the two data series at the sectoral level. Such an approach could be used to test whether the risk issues on the income side are smaller or larger than Haldane *et al.* suggest. To resolve these issues, further detailed analysis is needed in this area.

2. If the GOS is indeed lower in real terms as Haldane *et al.* suggest then it will be the case that there are in reality less returns in the FS sector available for Governments to tax, and that the AETRs produced in this report are in fact underestimated.

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[43] AFME (2012) 'Performance and remuneration in investment banking: findings of an industry study by McLangan'.

[44] Haldane, A., Brennan, S. and Madouros, V. (2010) 'What is the contribution of the financial sector. Miracle or mirage?' Chapter 2 in the *Future of Finance: The LSE report*, Adair Turner and Others. London School of Economics and Political Science.

[45] Wadhwani, S. (2010), "What mix of monetary policy and regulation is best for stabilising the economy?" The future of finance and the theory that underpins it.

6. Economic and fiscal assessment

6.1. Considering the impact of taxation on the economy

The previous chapter discusses the amount of tax generated by the FS sector and sets it in context with the amount of tax generated by the whole economy. However, it is not just the amount of tax generated that matters. The tax system also plays a crucial role in influencing the growth rate and level of GDP through the type of tax raised and its interaction with public spending.

In this section, we explain the underlying economic principles that determine how taxation in the FS sector affects the economy. We go on to show how the European Commission's estimates for this impact compare against estimates for the economic impact of taxes that are specific to the FS sector or span the FS and non-FS sector.

6.2. Key economic principles

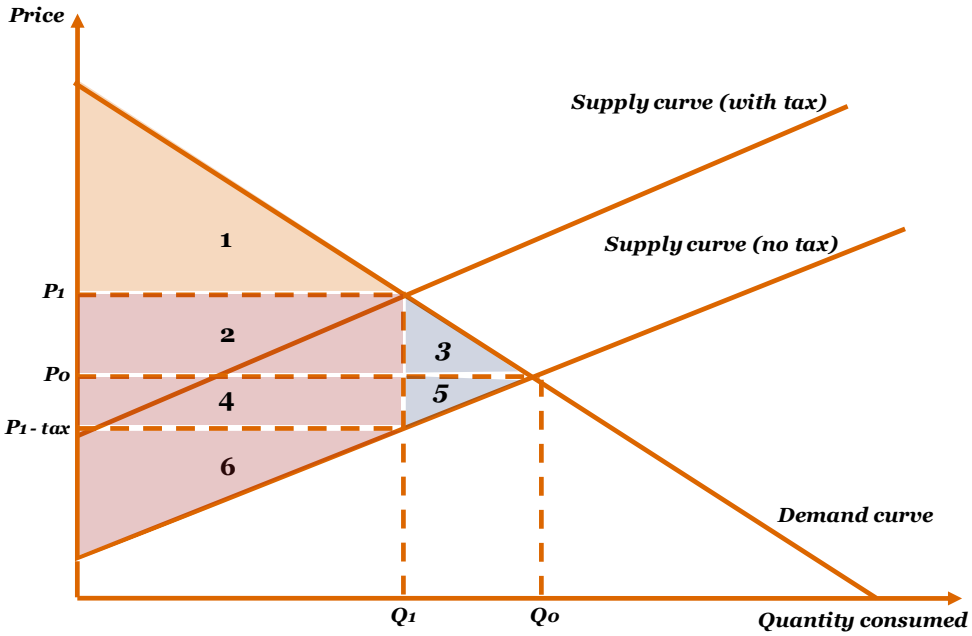
In order to help better understand how taxes affect economic behaviour, it is useful to consider some key economic principles relating to how taxation affects the economy. In the subsections below we consider why taxation is described by economists as being 'distortionary', what causes some taxes to be more distortive than other taxes, and what this implies for taxes generated by the FS sector.

6.2.1. Defining the distortive nature of taxation

In basic economic terms, the equilibrium price and quantity that prevail in the market for a product, including a FS product, is determined by the intersection of the market demand and market supply curves. We illustrate this graphically in Figure 13 below.

Before the application of a tax, the quantity consumed in the market is shown as Q0 and the equilibrium price as P0. Once a tax is applied, the market supply curve shifts upwards by the amount of the tax (i.e. suppliers are only willing to supply a given quantity at a price which is higher by the amount of the tax). The equilibrium price for consumers (the market participants who buy the product) is now higher (P1), so they demand less of the product (Q1). As a result, consumer surplus (a measure of consumers' welfare associated with trade in this product, being the difference between what they are prepared to pay for the product and what they actually pay) falls from the amount represented by areas 1, 2 and 3 at equilibrium before the tax was imposed, to the amount represented by area 1 only at the new equilibrium. At the same time, the price received by the producer (the market participants that originate or sell products) falls from P0 to 'P1-tax' and therefore, producer surplus (the counterpart to consumer surplus, and hence a measure of producers' welfare) falls from areas 4, 5 and 6 at the original equilibrium to area 6 at the new equilibrium. The Government captures a portion of the consumer and producer surplus lost through tax receipts (areas 2 and 4) – these are essentially transfers of welfare from producers and consumers in this market to Government or taxpayers. However, some of the original surplus in the market is lost entirely – represented by areas 3 and 5. Economists refer to this as a 'deadweight loss' – a loss of welfare to society, or a loss of economic output, caused by 'distorting' the market outcome through the imposition of a tax, and reducing the benefits of trade.

Figure 13: Deadweight loss caused through application of indirect tax



Source: Varian (2010), PwC analysis

Of course, this analysis does not take into account the outcomes that tax revenue helps achieve in the economy. Governments use the proceeds of taxation to provide goods and services that would otherwise be underprovided by a free market and to correct other market failures. The money raised from taxation is spent by Governments, bringing about a positive multiplier effect and higher economic activity. However, the most important question for policymakers is the 'net' effect to society which results from the balance between the deadweight loss created by taxation and the stimulus created from Government spending. **The OECD recommends that this balancing act can be improved by revenue neutral growth-orientated tax reform that would shift the tax base away from the most distortive taxes towards less distortive taxes.**

It is important to acknowledge that individual tax policy measures are less likely to augment or reduce the rate of economic growth for any sustained period. However, they will still affect the level of GDP. A combination of several small, but highly economically distortive policy decisions could combine permanently to affect the rate of economic growth.

6.2.2. Ranking the size of tax distortions

Taxation in general is likely to reduce economic efficiency by distorting market signals[46]. There are four main types of taxes in the FS sector:

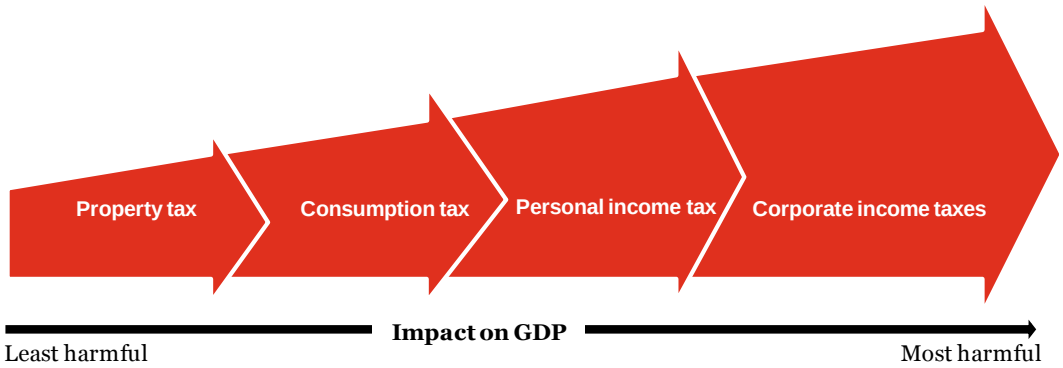
- **Direct income taxes on firms and personnel:** taxes on personnel include income taxes and social security contributions. Special 'bonus' taxes have also been applied in some countries in response to the financial crisis. Financial firms' profits are typically taxed through corporation tax.
- **Taxes on consumption of financial products:** this can include the application of VAT to certain financial products, as well as taxes on dividends and other types of capital income.

[46] Treasury Select Committee, *Principles of Tax Policy*, Eighth Report of Session 2010-12, Principles of Tax Policy, HC 753, Page 11.

- **Taxes on capital gains:** these are taxes that are applied to the gains realised from the capital appreciation on different types of financial products.
- **Taxes on FS sector firms' activities:** these include taxes on the transactions of certain types of financial products and tax levies applied to financial institutions' asset bases.

Each of these taxes creates different sizes and types of distortions in the economy. Overall, these distortions manifest themselves in a lower level of economic output. Figure 14 shows the results of a study by the OECD that ranked the harmfulness of different tax types on GDP.

Figure 14: Based on OECD (2008) analysis of 21 countries during the period 1971-2004



Source: OECD (2008), PwC analysis

We can classify the types of tax in the FS sector and explain the severity of the distortions created using this framework:

- **Taxes on consumption** are amongst the least distortive types of tax. These reduce demand for financial products but they do not influence the incentives to work and save in the same way that income taxes do.
- **Taxes on personal income** inhibit consumption possibilities by reducing consumers' disposable income. Income taxes are generally considered more distortive than consumption taxes as they directly affect labour utilisation, productivity and saving rates.
- **Corporate income taxes** reduce the profits of firms, inhibiting both domestic and foreign direct investment and reducing the rate of capital accumulation in the economy. Corporate income taxes also hinder productivity through a number of channels, including distorting relative factor prices, causing high compliance costs and hindering technology transfers and knowledge spillovers. Most importantly, taxes that relate to business inputs are particularly distortive as they affect the allocation of productive inputs within an economy. By increasing the price of the product involved in the transaction, market participants adjust their behaviour to economise on the more expensive products**.**
- **Taxes on intermediate inputs:** In their seminal 1971 article, Diamond and Mirrlees illustrate that taxes on businesses' production inputs are particularly distortive as they affect both the production and the consumption decision.[47] Taxes on business inputs change the relative prices of production components, which may lead to less usage of particular components.[48] As input prices change, firms adjust their behaviour by using less or none of the taxed input. As inputs are not used in their most productive way (they are either re-allocated to other less productive firms or not used at all), productivity falls, which then feeds through into lower levels of output. Price increases in the early stages of the production process may

[47] Diamond, P. A. And Mirrlees, J. A. (1971) *Optimal Taxation and Public Production I: Production Efficiency, The American Economic Review*, Vol. 61, No.1 (Mar 1971), pages.8-27.

[48]OECD (2010) *OECD Tax Policy Studies: Tax Policy Reform an Economic Growth, OECD, 2010.*

cascade through the supply chain, and ultimately affect final prices for consumers. Consumers react by purchasing less of the good or not purchasing it at all, which creates an additional distortion.

- **Taxes on intermediate transactions**. Taxes on income and consumption are always less distortionary than taxes on the transactions that are involved in the acquisition or disposal of assets. All of these taxes discourage the ownership of assets, but transaction taxes have the added cost of discouraging transactions that would allocate these assets most efficiently. The OECD finds that capital gains taxes suffer similar problems. These also have the additional effect of eroding after-tax returns, and, thereby reducing entrepreneurs' incentives to invest. Similarly, this distorts the allocation of private capital in the economy.

6.2.3. How do some of the current debates on FS taxation fit into this framework?

Taxing financial transactions

Whilst it is easy to assign most of the taxes acting in the FS sector into the classifications outlined in section 5.2.2, it is less clear for taxes on financial transactions. Because of the highly distortionary nature of taxes on intermediate transactions and capital, the OECD (2008)[49] concludes that these taxes would be classified as amongst the most distortive: *'It is always less distortionary to tax the income and services provided by assets than the transaction involved in acquiring or disposing of them'.*

There is a clear rationale for defining financial products as production inputs. Companies pay financial institutions to hedge their exposures in their product or service markets. They buy financial products to manage their liquidity, cash flow, currency exposures and interest rates. They issue financial products to borrow and fund investment projects. The 1971 article by Diamond and Mirrlees[50] concluded that such taxes on production inputs are a particularly distortive type of tax as they affect both the production and the consumption decisions. Compared to income and consumption taxes, taxes on production inputs also distort business decision making and the efficient allocation of resources.

This finding is corroborated by recent studies and by the wider academic evidence, including the Mirrlees Review (2011),[51] and OECD (2008). [52] These studies suggest or imply that taxes on capital and/or corporate taxes, and hence taxes that are levied on production inputs are the most economically distortive.

The financial services VAT exemption

In addition to taxes on transactions another area of considerable debate relates to the financial services VAT exemption. The EC has noted that the nature of irrecoverable VAT implies that the FS sector may be under-taxed, stating '*the financial sector enjoys a tax advantage of approximately €18bn per year because of VAT exemption on financial services'.* [53] In Annex 5 to the Impact Assessment accompanying the FTT proposal, however, the Commission notes that, '*… all these estimates are very rough and should be interpreted with caution given the strong assumptions made when calculating the irrecoverable VAT'.*[54] These comments

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[49] OECD (2008) *Tax and Economic Growth*, Working Paper No. 620, OECD, July 2008, page 21.

[50] Diamond, P. A. And Mirrlees, J. A. (1971) *Optimal Taxation and Public Production I: Production Efficiency, The American Economic Review,* Vol. 61, No.1 (Mar 1971), pages 8-27.

[51] Mirrlees Review (2011) *Reforming the tax system for the 21st century,* 2011.

[52] OECD (2008) *Tax and Economic Growth*, Working Paper No. 620, OECD, July 2008, page 21.

[53] Press release of the European Commission, *Financial Transaction Tax*: Making the financial sector pay its fair share, 28 September 2011.

[54] European Commission Staff Working Paper, Impact Assessment accompanying the document Proposal for a Council Directive on a common system of financial transaction tax and amending Directive 2008/7/EC, SEC(2011) 1102 final, Vol. 6, Annex 5, page 5.

highlight the uncertainty over this issue, but also do not consider the impact of the potential alternative of charging VAT on final stage consumption of FS sector products.

If the FS sector were not exempt from VAT, then the impact would be to make the products it sells more expensive to household consumers and potentially cheaper to business consumers (assuming some element of irrecoverable VAT currently gets passed on in the form of higher prices and that businesses recover VAT on their inputs). If the VAT exemption were removed, taxes borne by the FS sector would decrease as irrecoverable VAT would go down, but taxes collected would increase. From a direct perspective additional tax revenue generated would increase, but its incidence would fundamentally change. For instance, if the full increase in the tax burden was passed on to consumers with no subsequent impact on demand for FS products, then FS sector profitability would significantly improve. However, this is unlikely to be the case: removing the VAT exemption would represent a major structural shift in the VAT system and full pass through would imply that demand for some FS products would change significantly. There is no comprehensive analysis to draw on in terms of the incidence of FS taxes; analyses of historic changes do not necessarily provide useful insights given the potential scale of such a change. On this basis, given that the incidence question is unresolved and inherently difficult to predict, it is not necessarily the case that the FS sector currently enjoys the €18bn tax advantage identified by the EC.

Despite the uncertainty over the extent to which the VAT exemption confers a tax advantage to the FS sector, some have attempted to provide clarity to the debate. For instance, a recent study conducted by PwC[55] into the implications of the EU VAT exemption of the banking sector found that the conferral of a tax advantage to the sector is questionable. In fact, the report argues that due to the irrecoverability of VAT by banks, the tax implicitly becomes a tax on banks rather than a tax on consumption. Furthermore, the removal of the current VAT exemption of the banking sector would not necessarily lead to a material increase in Government VAT receipts, and may actually serve to decrease receipts as the sector becomes able to recover VAT.

A further key piece of evidence that is missing from the debate so far relates to specific estimates of the deadweight loss of irrecoverable VAT. The evidence reviewed above (in particular, Diamond and Mirrlees, 1971) implies that if VAT was levied on the household consumption of FS then this would be more economically efficient than the current system of exemptions and options to tax which are largely taxes on intermediate inputs. Academic studies[56] have also highlighted the large economic distortions that irrecoverable VAT creates, describing it as a tax that cascades through the production chain, or 'adds to the cost' of individual transactions both between FS sector companies and their customers.[57] Given that, amongst others, the OECD (2010) have pointed to the more economically efficient nature of taxes on consumption (i.e. VAT on consumption), the evidence points towards the fact that a sector of the economy that bears Euro 1bn of VAT on consumption would actually be better off than a sector that bears £1bn of VAT incurred through exemptions. A key policy

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[55] PwC (2011) *How the EU VAT exemptions impact the banking sector: Study to assess whether banks enjoy a tax advantage as a result of the EU VAT exemption system.* Available at http://www.pwc.com/en_GX/gx/financial-services/pdf/2011-10-18_VAT_Study_final_report.pdf

[56] See, for example, Gottfried, P. And Wiegard, W. (1991) "Exemption versus zero rating: A hidden problem of VAT", Journal of Public Economics, Volume 46, Issue 3, December 1991, pages 307-328,

Huizinga, H. (2002) A European VAT on financial services? Economic Policy.

Keen, M., Smith, S., Baldwin, R. E. and Christiansen, V. (1996) "The future of value added tax in the European Union", Economic Policy.

Genser, B. and Winker, P. (1997) "Measuring the fiscal revenue loss of VAT exemption in commercial banking", FinanzArchiv/Public Finance Analysis.

[57] In addition, because there is yet to be a thorough analysis of the FS sector VAT exemption, little is known about what the principle of cascading does to overall receipts. If we temporarily ignore the distortive effects of tax cascading, there is the potential that cascading will drive up prices overall in the economy given the significant interactions between the FS sector and the wider economy, which will raise additional tax revenues from VAT and other taxes. A detailed analysis of effective VAT rates across different sectors would help to shed some light on this issue.

question relates to actually how much worse off a VAT exempt sector actually is? We searched extensively for estimates of the deadweight loss of the VAT exemption but were unable to find any robust evidence that would allow this comparison to be made.

Finally, as noted in Chapter 4, technical difficulties make VAT on the consumption of FS products difficult to administer. This could in turn restrict its scope for raising the additional revenues the EC identifies.

6.2.4. Why are taxes on productive inputs so distortive?

It is worth considering these effects in more detail as it has particular relevance for estimating the potential effects that result from some of the taxes most recently implemented in the FS sector or those that are currently being proposed. Specifically, taxes on business inputs change the relative prices of production components.[58] Once their input prices change, firms might adjust their behaviour by using less or none of the taxed input. This causes inputs to be used less productively (they are either re-allocated to other less productive firms or not used at all), thereby causing the efficiency of the use of production inputs to fall, and reducing the growth rate of total-factor productivity (and ultimately, GDP).

Price increases in the early stages of the production process may cascade through the supply chain, and ultimately affect final prices for consumers.[59] Consumers typically react by purchasing less of the good or by not purchasing it at all, which creates an additional distortion. Further, some activity could be displaced to countries where comparable taxes are lower, or where they are not imposed. This will result in a lower volume of transactions. By reducing the amount purchased, market participants are worse off – the extent to which they are worse off is defined as a deadweight loss of taxation.[60] This concept was explained in the supply and demand curve framework outlined in Figure 13, earlier in section 5.2.1.

6.2.5. Considering the net effect: using tax vs. regulation to correct distortions

This section has so far focussed only on the distortive nature of taxation. When taxes alter incentives, this can also have positive effects. In the context of the FS sector taxation can be used to reduce the incentives to take excessive risk and to raise revenue.

However, to maximise the benefit to the economy, the challenge for Governments is to implement the use of taxation in this context in a way that creates minimal distortions and does not lead to substantial GDP losses in the process of reaching these objectives. In the next section we survey the estimates of these GDP costs in the context of the FTT and other revenue raising options.

6.3. Estimating the impact of the taxes on the financial services sector on national economies

Using the static framework laid out in Figure 13, the extent of the deadweight loss associated with the type of taxation applied is influenced by both the absolute level of the tax imposed and the steepness of the demand and supply curves (which is related to the elasticity of supply and demand). There are also additional dynamic considerations that may influence the extent of deadweight loss associated with taxes on the FS sector but are not captured by the static framework (for instance, international capital mobility and investment decisions). In this section, we discuss how these factors acting in the financial services sector may influence the extent of the deadweight loss associated with taxes on the FS sector.

6.3.1. The absolute level of taxes applied

The higher the tax rate applied in Figure 13, the further the supply curve shifts up in response, and the associated deadweight loss becomes larger. In the case of the FS sector, this adjustment is made in addition to

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[58] OECD (2010) *OECD Tax Policy Studies: Tax Policy Reform an Economic Growth, 2010.*

[59] Bodin, J., Ebrill, L. and Keen, M. (2001) *The Modern VAT, International Monetary Fund.*

[60] Varian, H. R. (2010) *Intermediate Microeconomics: A Modern Approach, 8th Edition, 2010.*

an already large amount of taxes generated. Sectors with higher levels of taxation will also suffer a high deadweight loss. Auerbach and Hines (2001)[61] show that further taxation applied to sectors with a large existing tax burden is particularly distortive.

6.3.2. Elasticity of supply and demand conditions in the financial services sector

The steepness of the demand and supply curves in Figure 13 reflects the responsiveness of either the supply or demand of financial products to a change in price. The more elastic are demand and supply to price, the more responsive financial market participants will be to the change in price associated with a tax (and the greater the reduction in quantity). In economic theory, this is known as the Ramsey rule.[62] The EC note several types of substitution that market participants are likely to undertake in response to FS sector taxes:[63]

- Substitute to alternative, untaxed investment products that fulfil similar economic results (for example, risk and liquidity management could be conducted using swaps, fixed income derivatives etc.);
- Substitute financial market activity with other, lower-taxed activity;
- Substitute from trading domestic securities to foreign securities; and
- Substitute from spot trades to derivatives trades.

A thorough understanding of the elasticities acting in the FS sector can inform us on the potential impact of these taxes. The EC laid out a range of semi-elasticity estimates[64] for different financial products in its 2011 impact assessment of the FTT (presented in Table 6 below).

Table 6: Semi-elasticities from European Commission (2011) impact assessment

Financial product	Range of semi-elasticities
Spot equities	(0.3) to (4)
Equity futures	(20.8)
Foreign exchange	(28)
Fixed-income	(28) to (85)

Source: European Commission (2011), PwC analysis

Semi-elasticity estimates should be interpreted in a different way to conventional elasticity estimates. A semi-elasticity of 1 implies that a one percentage point increase in the tax rate (for example from 10 to 11 percent of the tax base), leads to a reduction in the tax base of 1%. In the context of a highly-mobile FS sector which is able to shift the trading and transaction of whole groups of products to different geographical locations in a short space of time, very high semi-elasticity estimates are not uncommon.

The evidence presented in Table 6 above shows that the volume of transactions is potentially highly sensitive to an increase in the tax rate. For example, it implies that a 0.01 percentage point increase in the tax rate would

[61] Auerbach, A. and Hines, J. (2001) *Taxation and Economic Efficiency,* NBER Working Paper, 2001.

[62] The Ramsey theory showed that the deadweight loss from an indirect tax is minimised when lower tax rates are applied to more elastic goods (and vice-versa for inelastic goods). A full exposition can be found in; Frank Ramsey, A contribution to the Theory of Taxation, Economic Journal, 1927, pages.47-61.

[63] European Commission Staff Working Paper SEC 1103, *Tax elasticities of financial instruments, profits and remuneration, Review of the Economic Literature of the Impact Assessment*, 28th September 2011, page 50.

[64] Semi-elasticities depict the change in volume (in percentage points) from a percentage change in the price (or change in the tax rate, in this case).

reduce foreign exchange volumes by 0.28%. A 0.5 percentage increase in the tax rate would reduce foreign exchange volumes by 14%. This matters as it reduces the overall tax base to which the tax is applied, inhibiting the overall revenue-raising ability of the tax measures applied. The dynamic model used by the European Commission to estimate the economic effects of the FTT used an even higher range of estimates.[65] These are presented in Table 7 below:

Table 7: Semi-elasticities used in large-scale dynamic model from European Commission (2011)

Financial product	Range of semi-elasticities
Spot equities and bonds	(200)
Spot foreign exchange	(800)
Exchange-Traded Derivatives	(1400)
Broad base (total)	(1302)

Source: European Commission (2011), PwC analysis

We can also examine the impact of historic applications to analyse the behaviour of financial institutions in response to new FS sector taxes. In its impact assessment, the European Commission point to two case studies: Sweden and the UK. In Sweden, a relatively small tax of between 0.002% and 0.015% was applied to transactions of fixed income securities and their derivatives. This triggered a significant behavioural reaction: the evidence suggests that as a result of the tax the volume of Swedish bonds and futures trading fell by between 80% and 98%.

The UK currently levies stamp duty of 0.5% on the sale and transfer of ownership in shares and other securities of UK-based companies, based on the underlying value of the transferred financial product.[66]Empirical studies have shown that stamp duty depresses share prices, particularly for firms whose shares experience high trading volumes. This can raise the cost of capital for firms who rely on equity as a source of finance and ultimately affect investment decisions.[67] Though there are no available estimates on the impact on trading volumes and price volatility, it is likely that the increase in transaction costs due to stamp duty is likely to have dampening effects on trade volumes.

The evidence points to large behavioural responses in reaction to FS sector taxes, and particularly those levied on transactions. To attempt to mitigate the severity of such responses, the European Commission suggests applying FS sector taxes across a wide tax base to reduce the potential for these distortions to occur. However, without global consensus and cooperation over this issue, the application of a tax across a partial range of financial products would result in a greater potential for internationally mobile capital to be transferred to countries outside the EU.

There is a large body of economic literature discussing the link between taxation, foreign capital flows and firms' location decisions. Generally, these studies highlight the sensitivity of location decisions to the costs associated with doing business, including taxation (see de Mooij and Ederveen 2008 [68] for an extensive review).

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[65] European Commission Staff Working Paper SEC 1103, Annex 16: *Efficiency Aspects of the Impact Assessment*, 28 September 2011.

[66] European Commission (2010) *Financial sector taxation*, Working Paper No.25.

[67] Bond, S., Hawkins, M. And Klemm, A. (2001) *Stamp duty on shares and its effect on share prices*, Institute of Fiscal Studies, WP04/11.

[68] De Mooij, R. A. and Ederveen, S. (2008) *Corporate Tax Elasticities*: *A Reader's Guide to Empirical Findings*, Oxford University Centre for Business Taxation, 2008.

By way of example, de Mooij and Ederveen note that in taking discrete location choices, for investments that have both large upfront costs and economic rents that are mobile across borders, the tax burden becomes an important decision factor.[69] In their detailed meta-analysis of some 371 FDI elasticities, they find a median estimate of -2.9 (otherwise interpreted as meaning that a 1% increase in the tax measure in the location reduces FDI by 2.9%).

Relating this general finding to the FS sector, we have already discussed that some types of tax are more distortive than others. For example, taxes that are levied on capital accumulation are likely to be more distortive than labour income taxes. The scale and size of the application of any tax on capital accumulation is an important consideration in evaluating its impact on investment decisions, both are important but play out in different ways:

- **Scale of tax:** When applied to a narrow tax base at a particularly high rate a tax may result in substantial increases in the cost base of financial firms. On this basis tax becomes a more significant factor in deciding the future viability and location of FS sector operations.

- **Scope of tax:** a lower tax rate that is however applied to a broadly-defined tax base could also generate significant tax revenues but also higher compliance costs for financial market participants.

The sources we have surveyed also agree that some types of investment products exhibit greater substitution effects than others. When the main motive behind a transaction is profit, the behavioural reaction will be stronger than when the motive is for longer-term investment purposes or other economic reasons (for example, acting as a production input or for consumption). Profit-based strategies involving high-volume, low-margin activities may become less viable following the application of FS sector-specific taxes. While the objective of taxation might be to disincentivise this type of behaviour, taxing methods of capital accumulation may have an adverse knock-on effect of also discouraging longer-term, less speculative investments and reducing liquidity in key markets.

6.3.3. Other potential growth effects from the application of taxation of financial services in the current economic and regulatory environment

In the current fragile economic and financial environment, an evaluation of the potential impacts from the application of new taxes on the FS sector needs to consider a wider range of factors than are contained in the established economic literature. The PwC analysis 'Banking industry reform: A new equilibrium' [70] lays out several important challenges the FS sector currently faces:

- Compliance with reforms to national and supra-national regulatory frameworks focussing on limiting risk taking and increasing capital requirements;
- A new landscape of societal expectations and more active public scrutiny of institutions' conduct and remuneration policies;
- Political pressure to stimulate lending in the context of stalling of growth in traditional developed markets;
- A spike in sovereign and currency risk associated with the debt crisis in the Eurozone; and
- Rethinking business models to adjust to these changes.

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[69] De Mooij, R. A. and Ederveen, S. (2008) *Corporate Tax Elasticities: A Reader's Guide to Empirical Findings*, Oxford University Centre for Business Taxation, 2008. Note: This paper evaluated the impact of a number of measures of the tax burden – not just the headline corporate income tax rate. Whilst an FTT is not a direct tax on income, as noted above it has a similar effect of reducing profits. As we have shown earlier in our report, an FTT feeds into other measures of the tax burden.

[70] PwC (2012) *Banking Industry Reform: A New Equilibrium, 2012*. Available at: http://www.pwc.com/gx/en/banking-capital-markets/publications/banking-industry-reform.jhtml

Regulatory changes to cut the riskiness of balance sheets are already expected to lead to a decline of 0.22% in the level of GDP after eight years.[71] Other estimates suggest that lower lending volumes brought about by tighter capital requirements could have more pronounced effects: the Institute for International Finance (IIF) estimates that regulatory measures in line with the Basel III accord may see 3.2% lower output in affected economies by 2015 if fully implemented.[72]

The application of new taxes in the FS sector could have similar effects on growth through the lending channel. In their 2011 impact assessment, the EC conducted a literature review into how FS sector companies change their pricing strategies when confronted with additional tax burdens in theory and in practice. They found that taxes on profits are largely shifted on to customers, implying that any new burden on the FS sector, particularly as it relates to certain areas of the sector (e.g. the banking industry), is 'likely to make lending more costly'.[73]

6.4. Estimates for the deadweight loss associated with taxes in the financial services sector

Whilst there is an obvious need for tax revenues, as we outlined earlier, economic theory shows the application of a tax to any product leads to a deadweight loss to society. There are several ways of measuring this deadweight loss. For instance, Varian (2010) measures it as the value of output that is not sold due to the presence of the tax.[74] A commonly used measure compares the value of the tax revenue raised (which can be used to finance Government spending), with the impact on GDP which results from its application. We use GDP for measuring the deadweight loss as our view is that it better reflects the net impact of a tax, incorporating the offsetting effects and feedback mechanisms that work to augment or reduce the gross impact recorded in a measure such as output.

A common measure of the deadweight loss is the amount of GDP forgone per unit of revenue raised. A deadweight loss of 0.5 should be interpreted as 50 pence of GDP lost per £1 of tax revenue raised. This is also known in the economics literature as a fiscal multiplier. A comparison of the level of deadweight loss associated with different tax rates can be used to judge whether a tax represents value for money in policy terms. Below we present below the estimates for the deadweight loss from the EC's impact assessment into the FTT. We then collate evidence on deadweight loss estimates from external sources that are already in the public domain and relate these to the wider context of FS sector taxation.

Table 8 below shows deadweight loss estimates from the European Commission's impact assessment into the FTT.

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[71] BIS (2010) *Final report on the assessment of the macroeconomic impact of the transition to stronger capital and liquidity requirements, 17 December 2010*. Available at: http://www.bis.org/press/p101217.htm

[72] IIF (2011) *The Cumulative Impact on the Global Economy of Changes in the Regulatory Framework, 6 September 2011*. Available at: http://www.iif.com/press/press+203.php

[73] European Commission (2011) *Tax elasticities of financial instruments, profits and remuneration: Review of the Economic Literature, in European Commission Staff Working Paper SEC 1103, Impact Assessment,* 28 September 2011, pagep 13.

[74] Varian, H. R. (2010) *Intermediate Microeconomics: A Modern Approach,* 8th Edition, 2010.

Table 8: Deadweight loss estimated from European Commission (2011)[75]

Financial product	Deadweight loss as a % of the tax revenue collected
Spot equities and bonds	5.6%
Spot foreign exchange	33.3%
Exchange-Traded Derivatives	121.2%
Broad base (total)	93.2%

Source: European Commission (2011), PwC analysis

A broad-based application of an FTT is found to be highly distortionary for economic activity. Whilst the study by the European Commission estimates that €217 billion would be collected under this scenario, a large amount of output would be displaced, creating a loss in GDP of €202 billion. This equates to a deadweight loss coefficient of 0.93. Estimates will of course vary significantly based on policy design and countries that have so far implemented these types of taxes have generally set rates to yield lower amounts of revenue than the European Commission's illustrative example.

If smaller amounts of revenue are collected then the deadweight loss of the tax will fall. However, 0.93 is a large deadweight loss coefficient, and as the next section shows is at the more distortive end of the range of estimates that exist in this area.

Estimates for the deadweight loss from other studies

A range of other studies have evidenced the deadweight loss that would arise from changes to the tax system. One of the most prominent examples is the study that the OECD undertook to analyse the relative distortions created from different tax types.[76] The authors estimated the cross-country effects of the tax mix on long run GDP per capita using an econometric equation. The study uses a 'balanced budget' multiplier approach. This involves forcing a revenue-neutrality condition on the model so an increase in one type of tax is accompanied with a decrease in another tax type meaning that overall tax revenue remains unchanged. The results from this study are presented in Table 9 below.

Table 9: Impact on GDP per capita estimated from European Commission (2011)

Tax structure variable	Revenue neutrality achieved by adjusting	Coefficient in regression model
Income taxes	Consumption and property taxes	(0.98)
Personal income taxes	Consumption and property taxes	(1.13)
Corporate income taxes	Consumption and property taxes	(2.01)
Consumption and property taxes	Income taxes	0.93
Consumption taxes	Income taxes	0.74
Property taxes	Income taxes	1.45

Source: OECD (2010), PwC analysis

[75] European Commission (2011) Staff Working Paper SEC 1103, Annex 16: *Efficiency Aspects of the Impact Assessment,* 28 September 2011.

[76] OECD (2010) *Tax Policy Reform and Economic Growth*, Tax Policy Studies, No. 20, 2010, Table B9.

These results should be interpreted differently to the estimate of deadweight loss of FTT from the European Commission. Specifically, the coefficient in the third result of -2.01 can be interpreted as: a €1 increase in corporate income tax revenue combined with a €1 decrease in consumption and property tax revenue leads to a loss in GDP per capita of €2.01. It is clear from these results that we are able to rank the relative economic efficiency of taxes on the basis of the distortions they create in the economy. Positive coefficients indicate that the tax variable considered is relatively less distortive than the variable used to balance the budget (and vice-versa for negative coefficients).

The size of the coefficient is also important when comparing the tax structure variable to a consistent revenue-neutral variable. For example, among tax variables which use income taxes as their revenue-neutral variable, the larger coefficient for property taxes shows that it is less distortive for GDP per capita compared to consumption taxes. Corporate income taxes are not only negative, but also have the largest absolute coefficient, indicating that they are highly distortive and that an increase in the corporate tax rate would reduce GDP per capita.

Gemmell *et al.* (2006)[77] also studied the impact on growth from fiscal policy changes in OECD. Using a similar revenue-neutral condition to the OECD (2010) study, the authors found that a €1 increase in revenues from distortionary taxes[78] combined with a €1 decrease in revenues from non-distortionary taxes would lead to a reduction in GDP of €0.26.

Whilst this evidence is not directly comparable to the estimates from the deadweight loss of FTT from the European Commission, it provides further evidence that taxes on businesses are most distortive to the economy. As we discussed earlier, most of the taxes that are applied in the FS sector are likely to be classified as corporate income taxes. Other studies have taken this premise further. Gemmell *et al.* (2006) found that distortionary taxes have more damaging effects on growth than the effects of deficits, so that it is damaging to growth to close deficits by introducing or raising such taxes. Whilst this result may not hold true in the context of the current economic situation in the Eurozone where there is heightened bond market scrutiny of Government finances, this further emphasises the need for policymakers to consider carefully the tax mix when designing deficit reduction programs.

The implementation of new taxes in the FS sector could have damaging consequences for the Eurozone at a time when the sector plays a key role in lending to businesses to help stimulate weak or recovering economies. Increased taxation will manifest itself in higher operating costs that in turn could translate into higher lending prices for businesses and households. There could be other unforeseen effects from the lower volume of financial transactions as a result of higher taxes. The reduction of market participants could lead to reduced liquidity and generate greater volatility in financial markets. Such uncertainty could also impact growth by damaging business and consumer confidence. Tax policy options which are more distortive risk amplifying these negative effects.

[77] Gemmell, N., Kneller, R. and Sanz, I. (2006) *Fiscal policy impacts on growth in the OECD:* are they long-run?

[78] In this context distortionary taxes are defined as taxes on capital and labour income.

7. Conclusions

This report is intended to help answer three key questions:

1. What is the amount of tax currently generated by the FS sector?
2. How economically efficient are the taxes generated by the FS sector?
3. Is there sufficient sectoral data available for Governments to make an informed assessment of the current levels of tax borne by the FS sector or of the importance of the sector to taxes collected, and what are the implications for policymaking?

We take each of these questions in turn below.

7.1. What is the amount of tax currently generated by the FS sector?

To address the first question, we undertook a comprehensive data scoping exercise for each of the sample countries, and in our study we have used publicly-available data, or data supplied to PwC for the purposes of this report. The quality and quantity of data that we encountered was variable and we were only able to construct a comparable cross- country data set for the years from 2006 to 2010 for France, Germany, Italy and the UK. Nonetheless, these countries are representative of the EU FS sector as they constitute two-thirds of total EU FS sector GVA. While more recent data than that for 2010 are available for some countries, gaps on some types of tax payments have made more recent comparisons impossible.

Using the evidence available to us, we found that the FS sectors in France, Germany, Italy and the UK on average contributed nearly €208 billion in taxes annually on average between 2006 and 2010, which was equivalent to 6.6% of total EU tax payments. Table 10 below recaps Table 1 and summarises, for the years between 2006 and 2010, the average amounts of tax generated by the FS sector within each of these countries, the average FS sector share of whole economy GVA, and the average FS sector and whole economy AETRs. In the table, we also show the reduction in annual tax revenues reduction on average for the FS sector had it been subjected to the same average effective tax rate (AETR) as the whole economy. The reduced tax revenues for all four countries amount to more than €195 billion in total for all of the years between 2006 and 2010, or €39 billion (in 2010 values) a year on average.

Table 10: Summary table of FS sector share of taxes generated and share of GVA, FS sector and whole economy AETR and average FS sector tax savings per year if subject to whole economy AETR from 2006 to 2010

	2006 – 2010	France	Germany	Italy	UK
Measure 1	**Average FS sector share of GVA (%)**	4.5%	4.0%	4.9%	8.8%
	Average FS sector share of taxes generated (%)	6.2%	5.6%	5.5%	9.5%
Measure 2	**Average whole economy AETR (%)**	50.0%	44.6%	47.7%	42.2%
	Average FS sector AETR (%)	68.8%	62.8%	53.1%	46.1%
Average FS sector tax reductions per year if subject to whole economy AETR (€millions)		14,253	15,627	3,567	5,383

Source: PwC analysis, range of national data sources (see Table 3 for full details)

We found enough evidence to suggest that the FS sectors in the four countries:

- Generated a higher proportion of their countries' total tax payments than their relative share of economic activity; and
- Were subject to a higher AETR than that for the wider economy, based on a measure of all taxes borne or collected.

The only exception to this finding in the sample was for the UK for the years 2008 and 2009 where PAYE and corporation tax payments fell sharply following the impacts of the financial crisis on profitability, the write down of these losses against future corporation tax liabilities and the likely impact of regulatory changes on the cost of capital and hence profitability. However, the 2010 data nevertheless showed rising tax payments from the FS sector in the UK, and its AETR was slightly higher than the whole economy AETR in that year.

7.2. How economically efficient are the taxes generated by the FS sector?

To address the second question, we undertook a study of the underlying economics of the taxes generated by the FS sector. Our analysis suggests that taxes on capital accumulation and the VAT exemption are highly distortive, meaning that an increase in these taxes would result in larger deadweight losses to society compared to an equivalent increase in less distortionary taxes (e.g. consumption taxes).

These taxes are not only harmful to the FS sector, but to the wider economy as well, as they directly affect the FS sector's ability to provide investor returns and lending. Detailed and extensive analyses by the OECD, the European Commission and independent academics either directly confirm these findings or lend support to this line of argument. FS sector taxes that have recently implemented or proposed (such as bank levies or FTT's) by the countries in the sample more often than not fall into these categories of more distortive taxes. Whilst some of these taxes are designed to discourage excessive risk taking, the use of taxation in this context must be set against the overarching incentives provided by both the new regulatory structures imposed following the financial crisis (Basel III and Solvency II) and the overall volume of taxes generated by the sector.

7.3. Is there sufficient sectoral data available?

Our analysis was based on an aggregate measure of all tax payments which enabled us to analyse issues relating to the overall burden of tax for the FS sector and how this affects business decisions in the sector. However, much of the data that we have been able to obtain does not allow for a full distinction between taxes borne and taxes collected and is more than two years old. Ideally we would have also produced detailed comparisons of taxes borne and taxes collected, for both the FS sector as a whole and its industry subcomponents. This would have enabled us to capture more complex features of decision-making in response to tax changes and issues relating to tax incidence. For instance, better data would have enabled us to study how the FS sector might seek to pass on taxes in the form of higher prices or lower wages, or balance its activities between auxiliary financial services and retail FS. However, the nature of the tax systems in the sample of countries and the way in which data were provided by various European Governments and the European Commission did not allow tax data to be disaggregated at the industry sector level for all tax types, limiting the scope of comparisons that could be undertaken.

There are also significant data gaps, which have meant that the calculations we have undertaken in this study do not account for all of the different taxes the sector pays. Part of the reason for these gaps relates to the way in which taxes are collected at source and the fact that the design of tax forms does not always allow ISIC identifiers to be allocated to the firm paying tax. Better data provision does require some changes to tax forms. Until such changes are made, more comprehensive surveys using actual company data, such as PwC's TTC methodology, can shed further light.

Thus, on the basis of the data-related issues we encountered, including data gaps, lack of up to date data, and the high level of aggregation, our response to the third question posed above is that the evidence available to policymakers and FS sector stakeholders could and should be improved significantly. There is a real risk that data paucity and inaccuracies may manifest themselves in the policy decision-making process and lead to outcomes that could be unnecessarily damaging both to the FS sector and to the wider economy. This risk is

perhaps more serious given the strength of linkages and interdependencies between the FS sector and the wider economy.

The appropriate level and incidence of taxation are matters of political and economic policy for Governments to decide. This report does not attempt to conclude on what is or isn't appropriate policy in that context, but instead to set out some of the economic analysis behind the "balancing act" challenges that Governments face. We set out to answer three key questions and in conclusion it is clear from our analysis that;

a. The tax generated by the FS sector is significant and cannot be underestimated in considering the impact of policy decisions;

b. Some of the taxes generated by the FS sector are not economically efficient based on accepted principles, and indeed there could be a wider economic implication to the fact that the sector pays a disproportionate share of those taxes that are considered to be economically –distortive; and

c. There would be significant value in more timely, comprehensive, stratified and accurate data, critically enabling policymakers to have a clear and balanced picture on which to make an informed assessment of the impact of proposed tax and regulatory changes that impact the sector.

Terms of reference

PricewaterhouseCoopers LLP (“PwC”) has been commissioned by the Association for Financial Markets in Europe (“AFME”) to produce an independent assessment of the amount of tax generated by a sample of countries in the European financial services sector(“the FS sector”). AFME represent global and European banks and “other significant capital market players” operating in Europe.

This document has been prepared only for the Association for Financial Markets in Europe and solely for the purpose and on the terms agreed with Association for Financial Markets in Europe under the terms of our engagement letter dated 20th July 2012.

Whilst AFME commissioned and financed the work, and commented on our draft reports, the final reports represent the independent analysis of PwC. We accept no liability (including for negligence) to anyone else in connection with this document, and it may not be provided to anyone else.

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