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Financial transaction tax: The impacts and arguments

A literature review

21st November 2013

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Contents

1. Executive summary

1.1 Background

This report has been authored by PricewaterhouseCoopers LLP (PwC) and was jointly commissioned by a group of European business associations that represent corporate and institutional consumers of financial services as well as the providers of such services and exchanges. A list of the commissioning organisations can be found in Annex 7.

The purpose of this report is to independently review and distil the main points from the large body of literature that has been generated to date on the European Commission's (EC) initial proposal for a harmonised Financial Transaction Tax (FTT) in the European Union (EU) and the subsequent authorised proposal for a FTT put forward by eleven countries within the European Union (EU-11);[1] and, bearing in mind that many reports focus only on a particular asset class, to use that review to provide an indication of the expected impact of the FTT across the financial services sector and its constituent product groups.

In furtherance of the objectives set out above, this report considers – drawing from the large body of published literature – the nature of the EC's proposal, the impact of the FTT on financial markets both within and outside the EU-11, the key arguments for and against the EC's proposal and the experiences of implementation of several historical and contemporary national FTTs.

This report has been specifically structured to facilitate access to the information contained in it. The first section will synthesise the key findings of the literature review in order to serve as a briefing note for policymakers and senior officials, with subsequent sections serving as technical annexes covering the full findings of the literature review as they relate to specific areas of interest.

1.2 What is a financial transaction tax?

Despite the recent attention given to the concept of a tax on financial transactions, it is far from a new idea. Indeed, several countries, such as the United Kingdom, have levied stamp duties on certain financial transactions for several centuries. However, the concept of a FTT was only fully articulated in 1936 by the renowned economist John Maynard Keynes. Keynes' rationale for a FTT centred on its potential to bring stability to markets and raise additional revenue for government.

More recently, Nobel Laureate economist James Tobin's proposal for a specific currency transaction tax (CTT) in the 1970s as a way of managing exchange-rate volatility has been conflated with Keynes' FTT, and the term 'Tobin Tax' is used interchangeably to describe either tax.

Although the debate surrounding FTTs is clearly not a new one, substantial impetus has been added to it by the wake of the financial crisis. Financial market stability has become a key priority for governments and regulators, resulting in a resurgence of proposals for the implementation of FTTs or similar taxes due to their suggested volatility-reducing properties and ability to dissuade investors from entering into unproductive trades. Most prominent among these recent proposals has been the EC's plan to implement a FTT in the EU-11.

[1] The EC's initial proposal and the subsequent authorisation of the proposal from the EU-11 pre-dates Croatia's accession to the EU on 1st July 2013 as the 28th Member State. Consequently, any references to EU Member states and the economic impacts of the EC's FTT on Member States contained in this report are based on a definition of the EU that pre-dates Croatia's accession.

1.3 The European Commission's proposal

On 28th September 2011 the EC tabled an initial proposal for the implementation of a harmonised FTT in the EU that would cover a wide range of financial transactions. The objectives of this initial proposal (EC, 2011a) were to:

1. "harmonise legislation concerning indirect taxation on financial transactions"
2. "ensure that financial institutions make a fair and substantial contribution to covering the costs of the recent crisis and create a level playing field with other sectors from a taxation point of view"
3. "create appropriate disincentives for transactions that do not enhance the efficiency of financial markets"

EU-27 Finance Ministers failed to reach unanimous agreement and this initial proposal was ultimately unsuccessful. However, 11 Member States, known as the EU-11, expressed willingness to implement the EC's proposal and were granted permission to do so on 22nd January 2013 under the EU's enhanced cooperation procedure (EC, 2013a). The Eu-11 is made up of Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia.

As the EU-11's proposal currently stands, a minimum tax rate of 0.1% will be levied on non-derivative transactions, including sovereign debt securities, and a minimum rate of 0.01% on the notional value of derivative transactions applicable to most trading in equity, sovereign debt, corporate debt, repurchase agreements (repo) and derivatives (EC, 2013a). It is proposed that the tax will function on the residence principle and elements of the issuance principle. Additionally, a tax liability will be generated on every 'material modification' in a transaction settlement chain (EC, 2013a), creating a 'cascade effect'.

The potential for the proposal to generate extra-territorial impacts has been the subject of legal debate, with Englisch *et al.* (2013) highlighting that this is potentially in conflict with both customary international law and existing EU Treaties governing the use of the enhanced cooperation procedure. At the time of writing, the EU-11's proposal is subject to a legal challenge from the UK (Case C-209/13 UK v Council) and the legal basis of the FTT has been recently challenged by the European Council's Legal Service which is in contrast to the EC Legal Service's opinion supporting the proposal's legal basis (Barker, 2013).

A more detailed examination of the EC's proposal and a discussion of the cascade effect can be found in Annex 2.

1.4 Key findings

The key findings of this report are as follows:

- **Highly polarised debate:** Financial transaction taxes have long been a subject of debate in academic and business communities. However, the debate around the current EC proposal remains highly polarised, building into the wider contemporary debate on financial services (FS) sector taxation and the use of tax as a means of regulation. The EC's proposal has found mixed reception among politicians, academics, the business community and civil society. The debate in the literature has so far concentrated on the taxation of the FS sector, the sector's role in the financial crisis and the anticipated impacts of the FTT, although more recently the legal basis of the EC's proposal has been questioned, with the UK's legal challenge and the European Council Legal Service's criticism serving as prominent examples. The arguments for and against 9 key areas of the debate on the EC's proposal are set out in Annex 1.
- **Anticipated impact on the EU economy:** Despite its intention to raise revenue and reduce risk in financial markets, it is not clear from the available evidence as to whether these objectives will be achieved. The proposed FTT is predicted, by both supporters and opponents, to impact adversely on GDP (discussed in Annex 4), although the impact could be lessened if revenues are used for growth-enhancing initiatives as the EC has suggested. A number of financial markets located in the EU-11 are likely to be negatively affected, although the impacts are highly market-specific and are far from certain (discussed in Annex 3). It should also be noted that some of the adverse impacts on financial markets are conceptually intentional as the EC wishes to use the FTT as a means to curb socially undesirable transactions by making them economically unfeasible. Furthermore, the empirical support for the ability of FTTs to bring stability to financial markets is debatable, with some studies finding evidence to suggest volatility reduction in equity

markets as a result of the imposition of a FTT, some finding an increase in volatility and others finding no such relationship (discussed in Annex 4).

- **Anticipated wider impacts:** The EC's proposal is also anticipated to generate impacts that reach beyond both the conceptual and geographical scope of the FTT. As the EC's proposal currently stands, ring-fencing measures to insulate non-financial business and households from the incidence of the tax are in place. However, it has been suggested that despite these measures, households and non-financial businesses will be negatively affected by its imposition. Some have suggested that this could translate into adverse effects on pensions and impairment of the risk management capability of businesses (discussed in Annex 3). In its current form, it has also been suggested that the proposal may generate adverse extra-territorial effects for non-participating jurisdictions, such as by influencing the cost of funding for sovereign and corporate issuers of debt or by influencing the location of financial activity. However, the use of the issuance principle in the EC's proposal and the need for the servers of high-frequency traders to be located close to the servers of exchanges could discourage relocation of financial activity (discussed in Annex 4). The potential to generate extra-territorial effects has prompted the current legal challenge from the UK government and the European Council Legal Service's criticism of the legal basis of the proposal. More detail on the anticipated wider impacts of the EC's proposal can be found in Annex 4.
- **Mixed experiences of national FTTs:** There are numerous examples of unilaterally implemented FTTs. Some, such as Sweden's FTT, generated significant adverse impacts and were eventually abolished, whereas others, such as the UK's stamp duty have been less problematic. It has been suggested that the existence of numerous historical and contemporary FTTs, particularly those that were implemented successfully, provide the EC with a large body of international precedents to draw on when implementing their FTT. A review of this body of experience illustrates that FTTs have the potential to generate economic impacts that deviate from those predicted in impact assessments, with their impacts demonstrating high levels of heterogeneity. As has been suggested, the mixed successes and limited geographical scope of national FTTs may prove to be ultimately less instructive for the EC, suggesting the need for caution when generalising with regard to their current proposal. An in depth discussion of the nature and experiences of implementation of several national FTTs can be found in Annex 5.

2Key findings

2.1 Introduction

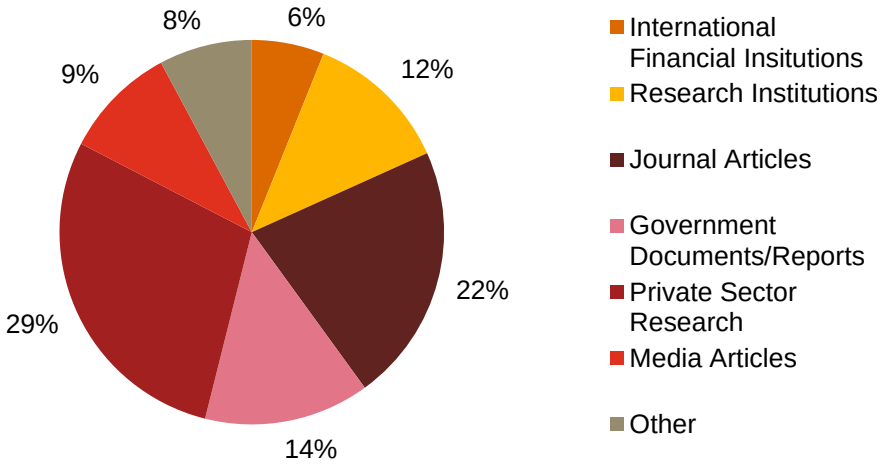
In this section of the report we present a high-level overview of the key findings of the literature review as they relate to the arguments for and against the EC's proposal, the anticipated impact on EU-11 financial markets, the anticipated wider impacts and the experiences of the implementation of contemporary and historical examples of national FTTs.

This section has been structured in the following way. Section 2.2 outlines the literature review process. Section 2.3 presents the key arguments for and against the EC's proposal. Section 2.4 outlines the background and key attributes of the EC's proposal. Section 2.5 presents a summary of the key findings of the literature review. Section 2.6 draws on the previous sections to provide a high-level synthesis of a broad range of issues raised in the literature. The areas of discussion in this section are supported by detailed technical annexes that can be found later in the body of this report.

2.2 The literature

A wide range of literature relating to the EC's proposal and FTT's more generally has been reviewed during the drafting of this report. A careful selection process, emphasising credibility and reliability, has resulted in the inclusion of 147 different pieces of literature drawn from a variety of sources in this report. A full bibliography of the literature reviewed in this report can be found in Annex 6 and the proportion of literature used by type of source is shown in Figure 1. As is evident, this report has drawn heavily from reports published by international finance institutions, research institutions and journal articles together with government reports and private sector research to provide a balanced approach to the literature.

Figure 1: Breakdown of utilised literature by type of source



Due to the breadth of literature generated to date on the subjects of the EC's proposal and the theoretical concept of FTTs, authors have tended to focus their attentions on very specific areas, such as issues relating to particular markets or implementation issues rather than the FTT as a whole. This has meant that a full meta-analysis was not possible in the interests of maximising the amount of content included in this report.

In the process of reviewing the literature, structural trends have emerged which have given way to a distinct grouping around conceptual discussions of FTTs and the commentaries on the specificities of FTT design, with very few sources combining elements of the two groups. This has in part contributed to the polarisation of the debate, but has more directly led to a complex body of literature that does not readily lend itself to uniform application to the EC's proposal.

2.3 Key arguments for and against the EC's proposal

The EC's proposal has been subject to an intense debate which is reflected in the literature, with many arguments and counterarguments for and against the FTT being put forward.

The key arguments put forward in support of the EC's proposal are:

- **Aids recovery from financial crises:** That the introduction of a FTT in the EU-11 may help Member States to recover the costs of the recent financial crisis and potential future financial crises by aiding fiscal consolidation (EC, 2011b).
- **Compensates for VAT exempt status:** That the introduction of the proposed FTT would compensate for the current VAT exemption of financial services in the EU-11, which the EC claims creates a tax advantage of €18bn per year for the financial sector (EC, 2011c).
- **Reduces the profitability of criticised investment behaviour:** That the EC's proposal would discourage certain types of order flow that have been the subject of criticism, such as high frequency trading (HFT), by reducing the profitability of such activity (EC, 2011b; Buckley, 2012).
- **Existing international precedents:** That there are many taxes on financial transactions currently implemented in different jurisdictions and so it should not be regarded as unacceptable for EC to introduce one (EC, 2013b; Persaud, 2013), although nearly all of the existing FTTs are significantly narrower in scope than the Commission's proposal and, in most cases, centre on some form of stamp duty on equity and equity-related transactions.

The key counterarguments put forward against the EC's proposal include:

- **Likely negative impact on GDP:** Impact assessments of both the EC's original proposal and the EU-11's current proposal suggest that the implementation of the EC's proposal is likely to have a negative impact on GDP growth. Estimates range from 0.28% (EC, 2013b) for the current proposal to 2.42% (Oxera, 2011) for the EC's original proposal. The EC and Oxera both estimate that the loss of GDP will be greater than the expected tax revenue from the FTT, which is an estimated 0.25% of EU-27 GDP (EC, 2013b; Oxera, 2012).
- **The FS sector currently has a high tax burden:** That the European FS sector, in spite of a VAT exemption estimated to have conferred a potential tax advantage of between €18.1bn and €23.6bn in 2009 (EC, 2011b), currently bears a higher than average tax burden which has made it a significant contributor to government revenues (PwC, 2013). Research has suggested that the VAT exemption in fact burdens the European FS sector with irrecoverable VAT, estimated to be €33bn in 2007 (PwC, 2011), which creates a significant economic distortion (Gottfried and Wiegard, 1991; de la Feria and Lockwood, 2010; Adam, 2011). The EC has accepted that, *"the extent to which the [VAT] exemption constitutes a tax advantage for the financial sector is an unsettled empirical question"* (EC, 2011b).
- **Incompatibility with EU treaties:** The range of extraterritorial impacts due to the residence and issuance principles of the proposal may make it "fundamentally incompatible" with EU treaties (The Law Society, 2013). For example, it may be incompatible with procedures of enhanced cooperation (CBI, 2013; Englisch *et al.*, 2013) and/or the free movement principles established in the Treaty of Rome (e.g. distorting capital flows). Additionally, the proposal *"would amount to a barrier to trade between Member States"* (The Law Society, 2011) and *"would create a distortion for competition"* (House of Lords EU Committee, 2013). The proposal is currently subject to a legal challenge from the UK Government (Case C-209/13 UK v Council) and the legal basis has been questioned by the European Council Legal Service (Barker, 2013).
- **Ability to pass burden to final consumers:** Although the question of the incidence of the EC's FTT is empirically unresolved, many have suggested that it will be borne by the final consumer of financial services rather than the financial service provider itself. *"The belief that the cost of additional taxation of the financial sector will be absorbed by the sector is a misconception of the way financial activities are managed"* (EBF, 2012). Furthermore, it has been suggested that the design and scale of the planned adoption of the EC's proposal would allow the costs of the tax to be passed onto final consumers, shifting the tax burden away from the earnings of the FS sector (Oliver Wyman, 2013; IMF, 2010). It was these concerns that led the IMF (2010) to favour the use of a financial activities tax (FAT) rather than a FTT in a submission to the G-20.However, when considering such arguments it must be borne in mind that the

extent to which the burden is passed onto the final consumer depends to a large extent on the profitability and competitive dynamics of the FS sector and the elasticity of certain financial products.

- **Lack of focus on core sources of financial instability:** That the design of the EC's proposal, as with other FTTs, does not target key attributes – such as institution size, interconnectedness, and substitutability – that give rise to systemic risk (IMF, 2010). In fact, as Comotto (2013) suggests, financial stability may be directly compromised as a result of adverse interactions with the current regulatory framework of the FS sector. Additionally, the evidence regarding the volatility-reducing nature of FTTs is mixed.
- **Impact on financial markets:** That the scope of the EC's proposal covers a broad range of asset classes, including sovereign debt which (EC, 2013a), when coupled with the ability for the FTT to cascade (Vella, 2012), means that it has the potential to generate significant impacts in the financial markets of both the EU-11 and non-participating jurisdictions. A high-level discussion of these impacts can be found in sections 2.5.2 and 2.5.3, with a more detailed discussion in annexes 3 and 4.

2.4 Background to the FTT

The origins of the EC's current proposal for a FTT can be traced back to an initial proposal for a harmonised FTT for the European Union (EU) put before the Commission on 28th September 2011 (EC, 2011a). The EC's initial proposal had the following objectives:

1. "harmonise legislation concerning indirect taxation on financial transactions"
2. "ensure that financial institutions make a fair and substantial contribution to covering the costs of the recent crisis and create a level playing field with other sectors from a taxation point of view"
3. "create appropriate disincentives for transactions that do not enhance the efficiency of financial markets"

The legal basis of the EC's proposal can be found in Article 113 or Article 115 of the Treaty on the Functioning of the European Union (TFEU) which provides the grounds for the implementation of measures to harmonise certain areas of tax legislation in order to promote the functioning of the internal market (EC, 2011b). It was in this vein that the EC acted to protect against the emergence of a patchwork of taxes on financial transactions unilaterally imposed by Member States that could compromise the functioning of the internal market, such as through double taxation. At the time of writing of the EC's first impact assessment, ten Member States had unilaterally implemented country-specific taxes on the financial sector and several others were considering the imposition of such taxes. As a result the EC concluded that (EC,2011b):

"the EU should lead efforts (…) for introducing systems for levies and taxes on financial institutions".

EU-27 Finance Ministers failed to reach unanimous agreement on this initial proposal, but 11 Member States expressed willingness to implement a harmonised FTT among themselves under the EU's enhanced cooperation procedure (EC, 2013a). The 11 Member States, known as the "EU-11", are: Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia.

Following a request to implement a FTT based on the scope and objectives of the EC's initial proposal, the Economic and Financial Affairs Council adopted a decision authorising the EU-11 to proceed with their plans under the enhanced cooperation procedure on 22nd January 2013 (EC, 2013a).

The EC's authorisation of the EU-11's proposal evoked a mixed reception throughout a wide range of quarters and, to a large extent, served to add impetus to the academic debate on FTTs and the principles of financial service (FS) sector taxation. As would be anticipated, the business community, in particular the FS sector, has reacted strongly to the proposal by launching a concerted effort to highlight the adverse consequences of EC's proposal for a FTT. Civil society on the other hand has demonstrated a high level of broad support for FTTs, with non-governmental organisations (NGOs) and humanitarian and religious leaders propounding the redistributive potentials of FTTs (CEPR, 2013). The support from civil society is best typified by the 2010 'Robin Hood Tax' campaign which drew support from a range of civil society actors including Christian Aid, Friends of the Earth, Oxfam and UNICEF.

In contrast to this, the academic community has largely retained an undecided stance on FTTs in light of the EU-11 proposal. However, several prominent economists, such as Griffith-Jones, Krugman, Persaud, Sachs, Stiglitz and Summers openly support the general concept of a FTT (CEPR, 2013), whilst others specifically support the implementation of a FTT with a broad geographical scope, such as Schulmeister (2012):

> *"A general FTT has the potential to become the first supranational (European) tax and finally the first global tax"*

Perhaps the most notable divergence of opinions on the EU-11's proposal has occurred within the European Union itself, as several Member States, such as the UK and Sweden, have been openly critical. The EC's proposal and its possible future implications relating to the international tax system has been subject to much debate within the UK government, with the House of Lords European Union Select Committee (2013) stating that:

> *"In our last report, we concluded that … the Commission's argument that an EU-wide FTT would pave the way for the introduction of a global tax was wholly unrealistic … This remains our view"*

Indeed, at the time of writing, the EU-11's proposal is in the discussion stage and is subject to a legal challenge from the UK (Case C-209/13 UK v Council). Furthermore, the European Council's Legal Service has also recently questioned the legal basis for the FTT, suggesting that the extraterritorial impacts generated by the tax would infringe upon the tax sovereignty of non-participating Member States (Barker, 2013).

The proposed FTT would apply to a broad range of asset classes and would function on the residence principle and elements of the issuance principle (a full discussion of the proposal can be found in Annex 2). The current proposal states that the FTT will apply to most trading in equity, sovereign debt, corporate debt, repurchase agreements (repo) and derivatives (EC, 2013a). As the EU-11's proposal currently stands, minimum rates of 0.1% will be levied on non-derivative transactions, including sovereign debt securities, and 0.01% on the notional value of derivative transactions.

The proposed tax will apply on both the sell and buy side. A stated objective of the EC's proposal is to make all intermediaries in the transaction chain subject to the proposed FTT, creating a *cascade effect* that will increase the effective tax rate. Every "material modification" to a transaction will also trigger a FTT tax liability. Intermediary relief will be given for agency transactions[2] and exemptions will apply to Central Counter Parties (CCPs), Central Securities Depositories (CSDs), primary market transactions (including underwriting), transactions with international bodies or institutions and transactions that form part of restructuring operations.

2.5 Key findings

The following sections summarise the key findings of this report as compiled from an extensive review of the body of literature assembled to date on the EC's proposal and the discussion of FTTs more generally.

2.5.1 Impact on households and non-financial businesses

The design of the EC's proposal has attempted to insulate businesses and households from the impacts of the FTT by ring-fencing day-to-day financial activities, such as lending and borrowing, from the scope of the tax (EC, 2011a). This is to prevent the cascade effect being passed down to final consumers: however, there is a distinct possibility that the cost of paying and collecting the tax is will be a "pass through" cost for corporate and institutional users. Although it is too early to determine the precise impact, this will then have consequences in terms of the economic viability of their market activities (including raising capital and managing risks) and on market participation and liquidity.

[2] Agency transactions refer to trades that are executed either upon instruction or discretion, by a broker or dealer on behalf of a client.

The likelihood that the incidence of the proposed FTT will fall partly on households and businesses cannot be ruled out (Vella, 2012). For example, EFAMA (2013) claims that individuals investing in an Undertaking for Collective Investment in Transferable Securities (UCITS) could see the value of their savings reduced by 15% of their total contribution. Similarly, investors in actively managed pension funds could be significantly affected by the FTT (CBI, 2013).

2.5.2 Impact on EU-11 financial markets

The literature on the EC's proposal suggests that the FTT will have wide-ranging impacts on financial markets and services and on the consumers of financial services across the EU-11 Member States.

- **Equity markets:** The EC's proposal is expected to have an impact on equity markets and their volatility; however the direction of the impact is market-specific and highly contested in the literature. Several studies point towards the volatility-reducing properties of FTTs, for example Becchetti *et al.*'s (2013) study of the French FTT, whereas others have found that FTTs increase market volatility (Umlauf, 1993; Habermeier and Kirilenko, 2003). Some commentators have found no evidence of such a relationship (Roll, 1989; Hu, 1998; Phylaktis and Aristidou, 2007). There are mixed views regarding the sensitivity of equity market trading volumes to the imposition of FTTs. Additionally, a study by Oliver Wyman (2013) has estimated that the EC's FTT will generate a "one-off mark-to-market devaluation of €230-301bn, equivalent to 6-8% of EU-11 market capitalisation" for EU-11 equities due to the capitalisation of transaction costs.
- **Sovereign and corporate debt markets:** The EC's proposal is expected to impact negatively on the returns of both corporate and sovereign debt securities within and outside the EU-11, which could prompt the issuers of such instruments to offer higher coupon rates to compensate investors for the tax liability generated by the FTT. The incidence of the tax is expected to be higher for sovereign debt than for corporate debt (London Economics, 2013). The impact as a proportion of the returns of corporate debt is estimated to be 6-13% in participating member states and 7-14% in non-participating member states depending on maturity (London Economics, 2013). [3] Whereas, the impact as a proportion of the returns of sovereign debt is estimated to be 7-128% in participating member states and 7-208% in non-participating member states depending on maturity (London Economics, 2013). [4]
- **Repo markets:** The cascade effect of the FTT is expected to generate significant impacts on the repo markets of the EU-11. It has been suggested that the high effective interest rates generated by cascading and lack of time apportionment in the computation of the tax liability will arguably make the small trade margins of repo transactions unfeasible and could shrink the European market by 66% (Comotto, 2013). Impacts on the repo market of this scale would arguably result in increased funding costs for businesses (CBI, 2013) and may impact on the price of sovereign debt and the rate of return required by investors (Oxera, 2011).
- **Money market funds:** The FTT is expected to impact EU-11 money market funds in a similar way to the repo market due to the comparable short-term and high frequency nature of the markets (AIMA, 2012). EFAMA estimates that money market funds will bear a significant proportion of the tax burden, with an estimated contribution of 67% of total FTT tax receipts (without accounting for taxpayer behaviour) if it had been implemented in 2011 (EFAMA, 2011). It is estimated that this will impact on the annual investment performance of such funds by at least 1% (EFAMA, 2013).
- **Derivatives markets:** EU-11 derivatives markets are also predicted to bear a high burden of the FTT. Oliver Wyman (2012) reports that the increase in direct costs on derivatives transactions as a result of the FTT (and depending on the type of product) could be of a magnitude of 18 times the bid/offer spread in normal market conditions. Estimates of the impact on trading volumes suggest a fall of between 70% and 90% (EC, 2013b; Schulmeister, 2011); however, the historical experience of national FTTs would suggest the possibility of an even larger impact. For instance, the Swedish FTT resulted in a 98% reduction in the

[3] Differences in the range of impacts on corporate debt for participating Member States and Non-participating Member States are driven by differences in corporate capital structures.

[4] Differences in the range of impacts on sovereign debt for participating Member States and Non-participating Member States are driven by the low returns on UK government bonds with short maturities.

trading of interest rate futures (Campbell and Froot, 1993). However, it must be noted that the unilateral implementation of a FTT in conjunction with the use of the issuance principle, as in the Swedish case (EC, 2011b), can generate significant impacts on certain financial products. Impacts on derivatives markets are also widely anticipated to negatively affect the risk management capabilities of the FS sector and the real economy (Oxera, 2011; Deutsches Aktieninstitut and Oliver Wyman, 2013; CBI, 2013).

2.5.3 Wider impact

There are claims that the EC's proposal could have a number of spillover effects beyond the EU-11 and the FS sector, in addition to the impact on households and businesses mentioned above.

Firstly, most impact assessments conclude that that the EC's proposal will have a negative impact on EU-27 GDP, with the level of estimated impacts ranging from a decrease of 0.28% (EC, 2013b) to 2.42% of GDP (Oxera, 2011). Oxera's estimate of 2.42% was published before the EC's current estimate of 0.28%; however, in a subsequent report, Oxera claims that the EC's current estimate still *"underestimates the impact of the FTT"* (Oxera, 2012). London Economics also argues that the EC's estimate is too small and predicts a larger negative impact of 1.0% of GDP (London Economics, 2013). By contrast, the EC claims that the long-run cost to GDP of the tax has the potential to be even lower than 0.28%, if revenues from the tax are used to fund growth-enhancing initiatives (EC, 2013b).

Secondly, it has been claimed that the proposed FTT could have extraterritorial impacts, such as by affecting the cost of corporate debt outside the EU-11. For instance, London Economics (2013) predicts that corporate issuers of debt in non-participating Member States may experience increases in the cost of funding due to the cascading of the effective tax rate over the bond settlement chain, although this effect is not limited to bonds. Using a bond settlement chain of 10 transactions, London Economics (2013) illustrates how the effective tax rate of the settlement chain would be 100 basis points rather than the 10 basis points suggested by the statutory rate of tax of the FTT.

Thirdly, to put the impact on GDP into context it can be compared against the revenue that the FTT might raise. The latest EC impact assessment has estimated that the proposal, if implemented on 1st January 2014[5] in its current form, will generate €34 billion annually, which represents approximately 0.25% of EU-27 GDP in 2014 (EC, 2013b). It has also estimated that, under its main scenario, the tax will have a negative impact on GDP of 0.28%, implying a marginal excess tax burden of 1.12 for the FTT in its current form. This means that for every €1 of tax that the FTT raises it causes a loss of €1.12 of EU GDP. This is larger than the estimated marginal excess tax burden of a number of taxes and also the FTT in its 2011 form, as shown in the table below.

[5] This data was provided by EC in its latest impact assessment (EC, 2013b). However, the EC has since stated that the FTT could enter into force "towards the middle of 2014" at the earliest (EC, 2013c).

Table 1: Comparing the marginal excess burden generated by the EC's proposal with other taxes

Tax	Marginal excess tax burden (loss of GDP divided by tax raised)	Data source
FTT – 2013 proposal	1.12	European Commission, 2013a
FTT – 2011 proposal	0.93	European Commission, 2011b
VAT	0.13	European Commission, 2012
Personal income tax	0.63	European Commission, 2012
Corporate income tax	1.88	European Commission, 2012

Source: European Commission, PwC analysis

The EC's 2012 estimates for personal incomes taxes and corporate tax are perhaps higher than those observed in the wider economic literature. There are a wide range of estimates relating to the impact of different tax heads and economic growth and the OECD (2010) provide an extensive analysis and review of the topic. Some examples of other estimates include: Johannsen (2008) who analyses the effects of a 5 percentage point cut in corporate tax rates from 35% to 30% and finds a 0.08 (0.1) percentage point on TFP growth (median impact over 10 years). While Gemmell (2013) suggest that a 1 percentage point increase in the top statutory rate of corporation tax leads to a 0.02-0.04% reduction in the growth rate of GDP (equivalent figures for labour income taxes would be -0.02 – 0.12% for the top statutory rate.

Finally, the EC's proposal may have an impact on the location of financial activity, although the extent of this impact is disputed in the literature. It has been claimed that the issuance principle of the FTT would limit relocation of financial activity out of the EU-11, as transactions involving securities issued in or by participating member states would be subject to the tax regardless of the location of the trade (EC, 2013b). However, it may be the case that the imposition of such a tax could encourage relocation as financial institutions, businesses and governments located in the EU-11 become more expensive trading partners due to the tax (Oliver Wyman, 2013); IBFed, 2013; Comotto, 2013). Similarly, the FTT may render financial services and products sold worldwide more expensive and thereby less appealing, although as non-EU based financial institutions are not bound by EU tax cooperation legislation the legal obligation to pay the tax is not there.

2.5.4 Lessons from national FTTs

A number of countries are currently implementing national FTTs and many have implemented them in the past. Historical and contemporary FTTs have encountered varying experiences of implementation, with several countries have collected significantly less revenue than initially expected, which has been generally linked to a considerable fall in trading volume (discussed in Annex 5). Although there will be important lessons for the EC from the experiences of these countries, most of these national FTTs were narrower in scope, design and indeed geographical coverage than the proposed EU-11 FTT.

Of the countries considered, the most adverse experience of implementing a FTT appears to be Sweden, where only 3% of expected revenue was generated (Campbell and Froot, 1993), with trading volumes of futures falling by 98% and bonds by 85% (Wrobel, 1996). The UK's experience with stamp duty has been less problematic, although a study by Oxera (2007) estimates that stamp duty causes a GDP loss of between 0.24% – 0.78% per year due to the influences of capital taxes on the level of investment in an economy.

2.6 Summary

The EC has put together a detailed case for the implementation of a FTT in the EU-11 and has been able to benefit from a certain amount of public support, though the debate around the perceived impacts of the FTT is highly polarised, with several competing arguments vying for prominence.

The financial crisis has extracted a heavy toll on the global economy, the consequences of which can still be felt in Europe and visibly shapes policy discussions relating to the FS sector and public financial management. To this end, it has been suggested that the EC's proposal will serve to compensate participating Member States for the costs of the financial crisis by yielding additional tax revenues to aid fiscal consolidation (EC, 2011b). This argument rests on the assumption that the FS sector is currently under-taxed and that it may indeed enjoy a considerable tax benefit in the form of VAT exemption (EC, 2011c). However, as suggested in the literature, the VAT exemption in fact burdens the FS sector with irrecoverable VAT (Gottfired and Wiegard, 1991; de la Feria and Lockwood, 2010; PwC, 2011; Adam, 2011). Indeed, recent research examining the FS sectors of France, Germany, Italy and the UK suggests that the sector bears a significant tax burden, and if subject to the average effective tax rate of the whole economy would have contributed a total of €195 billion less in tax revenue for the period 2006 to 2010 (PwC, 2013).

At a more fundamental level, the historical rationale, as put forth by Keynes, of market volatility reduction is central to the EC's proposal but is empirically questionable. This rationale features as a core policy objective of the EC's proposal, however in practice there is limited empirical evidence to adequately support this assertion, with only a handful of studies providing empirical support (Westerhoff and Dieci, 2006; Becchetti *et al.*,2013). Undeniably, excessive risk taking has damaged financial markets and it may be desirable to curb certain types of order flow, although it seems far from proven given the weak empirical support that a FTT will achieve this. Furthermore, Millar (2012) suggests that complex behavioural responses to the implementation of the EC's FTT could in fact encourage excessive risk taking rather than the opposite as intended. As Ertuk (2006) put it:

> *"If the Tobin Tax is not stabilising, then much of the rest of the discussion on its feasibility and other related issues are probably moot."*

When viewing the FTT from a pragmatic perspective, the EC (2011b) has concluded that the implementation of a FTT with a wide geographical base of participating jurisdictions in the EU would be desirable to prevent the evolution of a patchwork of measures that could lead to complex behavioural responses to avoid such taxation, as described by Millar (2012). To a certain extent, the EC's proposal attempts to achieve this by harmonising the tax treatment of financial transactions in 11 jurisdictions, a number of whom have already implemented, or are due to implement, unilateral FTTs (France, Italy, Portugal and Spain). However, the implementation of a European FTT that does not cover all Member States, and particularly one that only captures 55% of EU-27 FS sector gross value added (GVA) in its base (as shown in figure 3), creates scope for complex behavioural responses and relocation of financial activity to non-participating jurisdictions. When this is considered against continued high levels of capital mobility – a trend that the EU directly helped to further – the case for the EC's proposal appears further weakened.

Annexes

Annex 1 – Key arguments for and against the European Commission's proposal

A1.1 Introduction

In this annex we present several key arguments found in the literature that are both in favour of, and against, the EC's proposal. This annex is intended to serve as a summary of the arguments for and against the EC's proposal presented in the literature.

This annex is structured in the following way. Section A1.2 presents the arguments for and against 9 key areas of debate in the literature on the EC's proposal. Section A1.3 provides a brief summary of the arguments presented in the previous sections.

A1.2 Table of key arguments

Table 2: Comparing the key arguments for and against the European Commission's proposal

Arguments for the FTT	Arguments Against the FTT
Costs of the Financial Crisis	
May help governments to recover the costs of the recent financial crisis and potential future financial crises (EC, 2011b) The FTT will help governments to consolidate their budgets (EC, 2011b)	"Adjusting the [EC's] modelling results to reflect more realistic scenarios, the negative economic impact could be greater and there is a risk that the imposition of the FTT actually reduces total tax revenues from the economy" (Oxera, 2013) According to Carlo Cottarelli, head of the IMF's fiscal affairs division "there are other levies that could be better than the Financial Transaction Tax" (Reuters, 2013). In a 2010 submission to the G-20, the IMF concluded that the least economically distortionary way of recovering the costs of the financial crisis would be through the imposition of a Financial Activities Tax (FAT) rather than a FTT (IMF, 2010b).
VAT Exemption of the Financial Services Sector	
May compensate for the VAT exemption of financial services which conferred a potential tax advantage to the European FS sector of between €18.1bn and €23.6bn in 2009 (EC, 2011b)	Further research conducted by PwC and Professor Ben Lockwood has suggested that the VAT exemption in fact burdens the FS sector with irrecoverable VAT, estimated to be €33bn in 2007, constituting a hidden tax on banks rather than on consumption as intended (PwC, 2011). Additionally, the report suggests that the removal of the exemption may serve to decrease government tax receipts as the FS sector becomes able to recover VAT (PwC, 2011). The FS sector generates significant tax revenues. In a

Arguments for the FTT	Arguments Against the FTT
	recent study of the FS sectors in four European countries it was reported that the sector "generated a higher proportion of the state's total tax receipts than its relative share of economic activity" (PwC, 2013). The same study also found that if the FS sectors of those countries were subject to the average effective tax rate of the non-FS sector, they would have generated €195bn less in tax receipts over the period 2006-2010 (PwC, 2013). "The extent to which the [VAT] exemption constitutes a tax advantage for the financial sector is an unsettled empirical question" (EC, 2011b)
Impacts on the Households	
"Private households and SMEs not actively investing in financial markets would hardly be affected by this proposal thanks to the ring-fencing features built in the design of the FTT" (EC, 2011)	"Its real burden may fall largely on final consumers rather than, as often seems to be supposed, earnings in the financial sector ... This is more likely the more general the adoption of the tax, since that helps industry pass on the cost to its customers" (IMF, 2010a)
Impacts on Financial Stability	
"It seems unlikely that [a FTT] would stabilise financial markets but, if appropriately designed, it is unlikely to destabilise them either" (McCulloch and Pacillo, 2011)	A literature review by Schulmeister *et al.* (2008) found ten studies reporting that transaction taxes increase short-term price volatility and five studies finding no significant relationship
Impact on High Frequency Trading	
The FTT may help to discourage high frequency trading (HFT) (EC, 2011; Buckley, 2012)	"It is of paramount importance that we continue to investigate the effect of HFT, and short-term trading more generally, on markets. At present, however, existing evidence on the effect of HFT on market efficiency is simply inconclusive" (Vella, 2012)
Addressing the Causes of the Financial Crisis	
"To us and hundreds of other economists, the evidence is clear that an FTT adopted by all 27 EU states or by the 17 members of the eurozone would help strengthen Europe's finances and reduce the likelihood of crises" (Griffith-Jones and Persaud, 2012b)	"We should be clear that the FTT does not address any of the recognised causes of the recent crisis, such as over-leverage and insufficient liquidity provisioning. These can be addressed through other taxes, including bank levies. The FTT purports to contribute to the prevention of future crises not by dealing with the recognised causes of the recent crisis but by dealing with practices which are not known to increase the risk of crises" (Vella, 2012)

Arguments for the FTT	Arguments Against the FTT
Impacts of the Rates of Tax	
The proposed tax rates are too low to deter long term investors (Buckley, 2012; Schulmeister, 2012)	Although dependent on the number of transactions in a settlement chain, the effective tax rate will be higher than the statutory rate for two reasons: (a) the FTT cascades and (b) the FTT on derivatives is charged on the nominal amount involved which can exceed the price of the contract (Vella, 2012). Furthermore, the increase in direct costs on derivatives transactions as a result of the FTT (and depending on the type of product) could be of a magnitude of 18 times the bid/offer spread in normal market conditions (Oliver Wyman, 2012).
Price Discovery Process	
A FTT does not hamper the price discovery process because asset markets are not efficient to begin with (Schulmeister, 2012)	"An FTT hampers the price discovery process. Furthermore, it is impossible to distinguish between harmful speculation and beneficial transactions" (Schulmeister, summary of publication by Claessens *et al.*, 2012)
Existing International Precedents	
There are many financial transaction taxes already in place today (EC, 2013; Persaud, 2013)	National FTTs are limited in design so they should not be seen as a precedent for the European FTT (Bank of America Merrill Lynch, 2013)

A1.3 Summary of key arguments

The arguments presented above identify important issues that can be used to evaluate the merits and drawbacks of a financial transaction tax, and they should be assessed against economic theory and the empirical evidence. The argument that the FTT may not raise significant revenue depends on the degree of transactional and trading migration to non-FTT states (inside and outside the EU) and the extent to which trading volumes fall in response to the tax. The EC's revenue estimates are based on considerable falls in volume, such as 90% in the derivatives market (EC, 2013). The argument that tax revenue generated by the FTT will be partially offset by an increase in the cost of EU governments' borrowing appears correct. However, the extraterritorial impacts of the FTT are expected to increase the costs of government borrowing in non-participating Member States, though these states will be unable to benefit from an offset against the receipt of tax revenue. For instance, based on an £128.08bn issue of non-index linked gilts with a range of maturities by the UK government, the FTT is estimated to increase the cost of UK government borrowing by £3.95bn, representing an absolute cost to the UK (London Economics, 2013).

The extent to which households and SMEs are affected by the FTT appears difficult to determine, as it depends on the success of the proposal's ring-fencing measures, which include the broad exemption of common household financial activities such as borrowing and payments. However, there are claims that businesses which undertake risk management activities such as hedging are likely to experience a significant increase in their costs (Oxera, 2011; London Economics, 2013; Deutsches Aktieninstitut & Oliver Wyman 2013). The literature as to whether the FTT will reduce high frequency trading leaves the issue empirically unresolved, despite there being considerable empirical evidence to suggest that the argument that a FTT will reduce volatility is unsubstantiated.

The size of the overall tax burden imposed by the FTT, and whether this size is significant, is a source of disagreement in the current literature. For some investments, particularly those with a longer maturity, the FTT may add only a marginal cost to the transaction. However, it has been suggested that in some markets the accumulation of the 'cascade effect' may generate particularly high effective tax rates – a study by ESRI (2012) uses an example of a €100,000,000 5-day repo to equate the FTT tax liability generated by the trade to an annual interest rate of 14%. The size of these effective tax rates is also reflected in the possibility of large drops in trading volume in the markets for repos and derivatives, which is described in Annex 3.

Additionally, there have been suggestions that the EU-11 FTT could be the first step to a global FTT. Although the EU-11 FTT is certainly a first step, numerous subsequent steps are necessary to create a global FTT. This seems unlikely given that 16 EU states[6] declined to participate in the proposed EU FTT and with the EC noting that *"there was no momentum at all visible that could have been interpreted as giving impetus to such an initiative"* (EC, 2013a). The EC also states that a number of transaction taxes on financial instruments have been put in place within the EU and across the world, which can prove instructive for the EC in the design and implementation of the FTT. However, it is also true that a regional FTT with such a wide geographical scope has never been implemented, so there will be a number of unique challenges of design and implementation facing the EC which will limit the extent to which national FTTs can be used as a template.

[6] The EC's authorisation of the proposal from the EU-11 pre-dates Croatia's accession to the EU. Consequently the 16 Member States that declined to participate does not include Croatia.

Annex 2 – Outline of the European Commission's proposal

A2.1 Introduction

In this annex we briefly explore the EC's proposal with respect to its origin, objectives, participating jurisdictions, scope, rates of tax, exemptions and application principles.

This annex is structured in the following way. Section A2.2 briefly discusses the origin of FTTs in academia, the terminology used to refer to FTTs and the rationale for FTTs. Section A2.3 describes the EC's objectives for implementing a FTT. Section A2.4 identifies the participants of the EC's proposal and discusses their economic significance, including their contribution to EU GDP and FS sector GVA. Section A2.5 describes the financial instruments which may be subject to the FTT, the proposed tax rates for transactions involving these instruments, the generation of a cascade effect and the exemptions that may apply. Section A2.6 outlines the residence and issuance principles and briefly discusses some of their implications.

A2.2 The origin of the FTT

The concept of a FTT is closely associated with Nobel Laureate economist James Tobin and is often referred to as a "Tobin tax".

The term "Tobin tax" has sometimes been used interchangeably with a specific currency transaction tax (CTT) in the manner of Tobin's original idea. Recently, the term is becoming increasingly associated with FTTs.

However, the idea can be traced back to John Maynard Keynes who, in 1936, wrote:

> *"The introduction of a substantial government transfer tax on all transactions might prove the most serviceable reform available, with a view to mitigating the predominance of speculation over enterprise in the US".*

The rationale for the tax stems from the argument that excessive uninformed speculation in the financial markets causes volatility. The original purpose, as presented by Keynes, of a FTT was to dissuade investors from entering into short-term, speculative and potentially "unproductive trades", in turn bringing stability to markets and raising revenue for government.

In addition, Griffith-Jones and Persaud (2012a) state that reducing the level of speculative activity should in principle encourage investors to examine investment opportunities from a longer-term economic perspective, which is thought to be better for economic growth. However, this view is challenged by some market participants who argue that the role of speculators is to absorb excess risk that other participants do not want and to provide liquidity in the marketplace by buying or selling when no participants from the other categories are available, thereby supporting long-term investments (Culp, 2010).

A2.3 The EC's objectives for implementing a FTT

The main objectives of the EC's proposal (EC, 2013a) are to:

1. "harmonise legislation concerning indirect taxation on financial transactions"
2. "ensure that financial institutions make a fair and substantial contribution to covering the costs of the recent crisis and create a level playing field with other sectors from a taxation point of view"
3. "create appropriate disincentives for transactions that do not enhance the efficiency of financial markets"

The first objective provides part of the legal basis of the EC's proposal by using Articles 113 and 115 of the TFEU in order to guard against the emergence of a patchwork of unilaterally imposed FTTs that could create distortions in the internal market (EC, 2011b).

The second objective includes specific policy objectives to (a) identify new sources of government revenue, (b) recover the costs of the recent financial crisis from the financial sector, (c) cover the costs of potential future financial crises and (d) compensate for the VAT exemption of financial services (EC, 2011b).

The third objective includes specific policy objectives to (a) "reduce incentives for excessive risk-taking and short-sighted profit-seeking", (b) "address specific risks posed by automated trading", (c) reduce leverage (by curbing the difference in the tax treatment of debt and equity) and (d) "reduce tax-induced economic distortions" (EC, 2011b). However, there are a significant number of transactions which generate low commissions and returns, which are not the subject of controversy, but which could be rendered uneconomic as a result of the imposition of the EC's FTT.

A2.4 Participating jurisdictions

The EC's initial proposal, dated 28th September 2011 was for a common system of FTT at EU level (EC, 2011a).

However, after this proposal failed to find agreement between the EU-27, 11 Member States proposed implementing the FTT among themselves using the EU's enhanced cooperation procedure (EC, 2013a), which as Englisch *et al.* (2013) outline, allows:

> *"a sub-group of Member States, subject to fulfilment of some conditions, to introduce measures that only bind the participating Member States".*

The new proposal involves the following Member States: Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia. These Member States are collectively known as the "EU-11". The proposal received authorisation from the EU Council on 22nd January 2013 (EC, 2013a).

At the time of writing, this new proposal is subject to discussion and is subject to a legal challenge from the UK government (Case C-209/13 UK v Council). The UK's grounds of action are that the Council Decision (2013/52/EU) is:

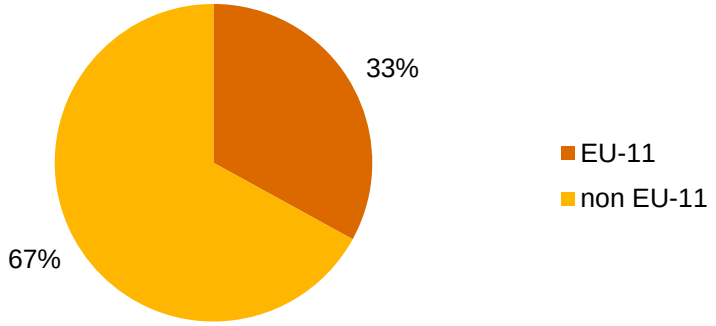
1. contrary to Article 327 of the Treaty on the Functioning of the European Union (TFEU) because it authorises the adoption of a FTT with extraterritorial effects which will fail to respect the competences, rights and obligations of the non-participating states;
2. unlawful because it authorises the adoption of a FTT with extraterritorial effects for which there is no justification in customary international law;
3. contrary to Article 332 TFEU because it authorises enhanced cooperation for a FTT, the implementation of which will inevitably cause costs to be incurred by the non-participating states.

In addition to the UK government's legal challenge, the European Council's Legal Service has also recently challenged the legal basis for the FTT, suggesting that the extraterritorial impacts generated by the tax would infringe upon the tax sovereignty of non-participating Member States (Barker, 2013).

The EU-11 constitutes a large share of economic activity within the EU-27, accounting for approximately two-thirds of EU-27 GDP. [7]

[7] The EC's authorisation of the proposal from the EU-11 pre-dates Croatia's accession to the EU as the 28th Member State. Consequently, the measures of EU GDP and FS sector GVA do not include Croatia.

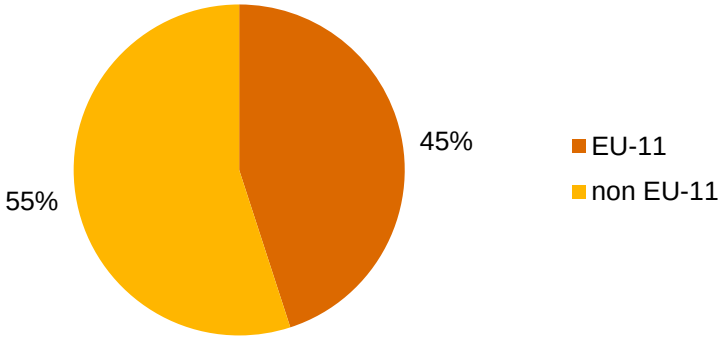
Figure 2: Comparing the GDP of EU-11 countries with the GDP of non-EU-11 countries in the EU-27 (2010)



Source: Eurostat, PwC analysis

In addition, the EU-11 financial services (FS) sector constitutes more than half of all EU-27 FS sector economic activity (measured by Gross Value Added, GVA).

Figure 3: Comparing the FS sector GVA of EU-11 countries with the FS sector GVA of non-EU-11 countries in the EU-27 (2010)



Source: Eurostat, PwC analysis

A2.5 Scope, rates and exemptions

The proposed FTT would apply to a broad range of financial transaction conducted by the FS sector and certain types of financial activity located outside the FS sector. The current proposal states that the FTT will apply to most trading in equity, sovereign debt, corporate debt, repurchase agreements (repo) and derivatives (EC, 2013a).

The EC's proposal states that a minimum rate of 0.1% will be charged in the case of financial transactions other than those related to derivatives contracts. In respect of derivative contracts, the proposal states that a minimum rate of 0.01% will be charged on the notional value of the underlying contract of derivative transactions will be collected.

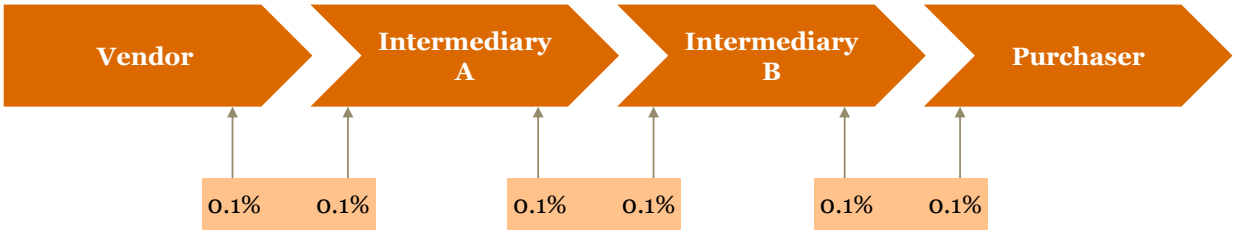
The tax would apply on both the sell and buy side. The current design of the proposal also states that the tax will be payable at each level of intermediation in a transaction chain, creating multiple layers of taxation. This is known as a *cascade effect*, and will act to increase the effective tax rate on a transaction above the proposed headline rates of 0.1% and 0.01%. Additionally, every 'material modification' to a transaction will trigger a FTT liability, with intermediary relief being given for agency transactions.

The cascade effect generated by the FTT is a significant aspect of the EC's proposal. As mentioned above, a FTT liability is generated on every material modification to a transaction that is within the scope of the tax, which will lead to multiple layers of taxation over a transaction settlement chain. The EC's (2013a) proposal has defined a modification as material for tax purposes when:

> *"it involves a substitution of at least one party, in case the object or scope of the operation, including its temporal scope, or the consideration agreed upon is altered, or where the original operation would have attracted a higher tax had it been concluded as modified".*

Figure 4 demonstrates how the FTT will generate a cascade effect using an illustrative non-derivative transaction taxed at the EC's proposed minimum rate of 0.1% with two intermediaries in the transaction settlement chain.[8] As the asset in question moves between the various intermediaries, FTT liabilities are generated on both the buy and sell side of the transaction whenever a party is substituted. As the hypothetical and stylised example in Figure 4 suggests, the FTT would generate an effective tax rate of 0.6% over the transaction settlement chain, which is in excess of the statutory rate of 0.1%. London Economics (2013), conduct a similar exercise for a representative bond settlement chain involving 10 transactions which reveals an effective tax rate of 1.0%. This effect holds for transactions involving derivatives, although each material modification will be subject to a minimum rate of tax of 0.01%. Furthermore, it must be borne in mind that intermediaries in a transaction settlement chain may be entitled to intermediary relief for agency transactions, which will remove a layer of taxation from the cascade effect.

Figure 4: Illustrative FTT cascade effect on a non-derivative transaction



Exemptions will apply to Central Counter Parties (CCPs), Central Securities Depositories (CSDs), primary market transactions (including underwriting), transactions with international bodies or institutions and transactions part of restructuring operations. It should be noted that, as currently proposed, there will be no exemptions for market makers or pension funds.

There will also be no exemption for risk management transactions, such as hedging. The introduction of an exemption for such transactions may prove difficult or controversial. Conversely, the lack of an exemption for such transactions runs counter to the post-crisis economic objective of facilitating and encouraging better standards in risk management.

A2.6 The residence and issuance principles

The proposed tax incorporates the residence principle and elements of the issuance principle.

The residence principle implies that worldwide branches of institutions registered in the EU-11 can be taxed and that all counterparties to a trade with EU-11 entities that reside outside the EU-11 will be liable to pay the FTT. The issuance principle implies that worldwide transactions of instruments issued in the EU-11 can be taxed regardless of the geographic residence of the entities party to the transaction.

Within the EU-27, these principles may be required by the EU regime for mutual assistance on tax matters or the imposition of *joint and several liability* on financial institutions within the EU-11.

This could mean, for example, that exchanges outside the EU-11 but within the EU-27 could be required to implement mechanisms for collecting the tax.

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[8] This is an illustrative transaction and is not intended to be representative of non-derivative transaction settlement chains found in European financial markets.

Annex 3 – The impact of the FTT on EU-11 financial markets

A3.1 Introduction

In this annex we assess the expected impact of the FTT on the key financial markets of the EU-11, and we also evaluate the impacts of previous FTTs on financial markets. The range of effects that we have evaluated include, the volume of trading in the market, the volatility of the market and the knock-on effects on other financial markets.

This annex is structured in the following way. Section A3.2 briefly discusses the impact on EU-11 equity markets, focusing on the market volatility and transaction costs. Section A3.3 outlines the impact on the issuance of sovereign debt by the EU-11. Section A3.4 identifies the impact of the proposal on EU-11 corporate debt markets. Section A3.5 describes the impact on the repo market, and briefly examines the wider consequences of this. Section A3.6 outlines the impact on money market funds operating in the EU-11. Section A3.7 discusses the impacts on EU-11 derivative markets. Section A3.8 considers the impact on risk management capability. Section A3.9 summarises the key points discussed in the previous sections.

A3.2 Impact on the equity market

The equity market is where shares are issued and traded. Equity markets are important because they provide liquidity to investors allowing assets to be easily traded, while they provide businesses that issue shares with an important method of raising funds.

There is a significant base of research that that has investigated the impact of FTTs in equity markets, due to the number of countries which have already implemented transaction taxes in this market. The hypothesis that FTTs serve to reduce volatility in equity markets is largely contradicted by the empirical evidence, with most studies finding that FTTs either increase or have no effect on market volatility.

A study by Pomeranets and Weaver (2011) on the effect of changes in a New York FTT on equity transactions over a period of 50 years found a positive and statistically significant relationship between FTTs and market volatility. Studies on Sweden's 7-year experience with FTTs also found that they contributed to increased equity market volatility (Umlauf, 1993 and Habermeier and Kirilenko, 2003), while similar results were found for the Chinese stock market after an increase in the FTT rate (Zhang, 2001 and Baltagi, Li and Li, 2006).

There are also a number of studies which find that FTTs have had no effect on equity market volatility in countries such as the UK, Japan and Taiwan (Roll, 1989, Hu, 1998 and Phylaktis and Aristidou, 2007). However, there are few studies which find that FTTs have reduced market volatility: from four papers which summarise the results of a large number of other studies on FTTs and volatility, only two studies were identified that find empirical evidence of this relationship (CME Group, 2010; Culp, 2010; Pomeranets, 2012; Anthony *et al.*, 2012). A more recent study by Becchetti *et al.* (2013) on the effects of the implementation of the French FTT on individual stocks empirically demonstrates reduced intraday volatility with insignificant impacts on liquidity, attesting to the volatility-reducing properties of FTTs.

The theory that higher transaction costs (for example from FTTs) result in lower volumes of trading is well-supported by the empirical evidence (McCulloch and Pacillo, 2011), although the sensitivity of volume to transaction taxes varies considerably across countries and markets. The volume of trading in the equity market is found to be particularly sensitive to changes in FTTs, with a median percentage change in volume of 1% of transaction value for every 1% change in transaction tax, compared to 0.025% for foreign exchange and futures markets. For the EC's FTT in particular, TABB Group (2013) estimate that if it was implemented at the start of 2013, total European equity trading volumes could be 10.2% lower by the end of 2013 than would otherwise be forecast, representing a 0.7% decline in trading volume relative to 2012.

The sensitivity of equity market volume to transaction costs implies that the introduction of a FTT may result in the migration of trading to other locations. This occurred in Sweden when the doubling of the transaction tax caused 50% of trading volume to move to the UK within four years (Anthony *et al.*, 2012), and in New York when a FTT on the NYSE caused a migration of volume into the regional exchanges of the US (Jones and Seguin, 1997).

Higher transaction costs generated by the imposition of a FTT can also impact on equity prices as counterparties to a transaction attempt to price in the tax liability when buying or selling. Such impacts can be observed through the analysis of the changes to equity market indices during the implementation of a FTT or subsequent changes to the rate of tax. In a recent study by Oliver Wyman (2013), it was estimated that the EC's FTT would result in a "one-off mark-to-market devaluation of €230-301bn, equivalent to 6-8% of EU-11 market capitalisation" for EU-11 equities due to the capitalisation of the costs of the FTT by investors.When analysing the impact of Sweden's FTT, Umlauf (1993) finds that Sweden's All-Equity Index fell by 2.2% on the first day of implementation and 0.8% on the day the rate increase to 2% became effective. Similar impacts have been observed in the UK's equity market index in relation to stamp duty, with the index falling by 3.3% on the day that the rate of tax was doubled from 1% to 2% (Saporta and Kan, 1997). Indeed, these impacts are not confined to European equity markets as Hu (1998) finds that the announcement of rate changes to stock transaction taxes effected returns on equity market indices in Taiwan and Korea, with average returns on announcement day being -1.6% and -0.6% respectively and high statistical significance for the Taiwanese result.

A3.3 Impact on the sovereign debt market

The sovereign debt market consists of bonds issued by national governments. It is an important market because changes in the issuance cost of a country's sovereign bonds can affect market appetite and the cost of government borrowing.

The introduction of a FTT is expected to increase government borrowing costs for countries in and out of the FTT zone as attempts are made to compensate investors for the impacts on returns the FTT tax liability will generate (Matheson, 2011; Bijlsma *et al.*, 2011; BUSINESSEUROPE, 2012b; Oliver Wyman, 2013). London Economics (2013) estimates the impact as a proportion of the returns of sovereign debt to be 7-128% in participating member states and 7-208% in non-participating member states depending on maturity. The increase in the upper bound of impacts for non-participating Member States is driven by the low returns on UK government bonds with short maturities (London Economics, 2013). London Economics (2013) also estimates that the FTT would increase the cost of UK government borrowing by £3.95bn based on a forecasted gross issuance of £128.08bn of non-index linked gilts of a variety of maturities for 2013. As this would be an absolute cost for the UK government, this shortfall would need to be compensated for by an increase in taxes or a reduction in public spending, whereas increased public debt for participating Member States would be somewhat offset by FTT revenue, an estimated total of €34bn (EC, 2013b).

The incidence of the tax is expected to be larger for sovereign debt than corporate debt, with an expected fall in the returns to bonds with 4-6 years maturity of 11.6% for sovereign debt and 6.8% for corporate debt (London Economics, 2013). The increase in the cost of sovereign debt is also expected to contribute to some of the increase in the cost of corporate debt as it causes a ripple effect through the economy (CBI 2013).

A3.4 Impact on the corporate debt market

The corporate debt market consists of bonds issued by businesses. This is an important market because corporate bonds provide an important source of finance for many businesses.

It has been suggested that the cost of funds for non-financial corporations may rise by between 44 and 212 basis points as a result of the FTT, with the cost for non-participating Member States being potentially higher than for Member States (London Economics, 2013). Oliver Wyman (2013) estimates that the FTT would create an annual cost of €7 to 8 billion for EU-11 corporates due to the increased costs of corporate financising arising through impacts to corporate debt and equity markets.The empirical evidence also identifies that imposing FTTs has driven down asset prices in countries such as Sweden, Japan and the UK, which subsequently causes an increase in the cost of capital for corporate security issuers (Culp, 2010; Matheson, 2011).

In addition, Oxera (2011) warn that an increase in the cost of corporate treasury activities such as hedging would cause greater volatility and discourage activities such as exporting. These risk management functions involve a chain of transactions, so the FTT would therefore generate a 'cascade' effect, resulting in a much higher final tax. The FTT would also be expected to cause a re-intermediation of corporate financing away from corporate bonds and towards bank lending not included in the tax (ESRI, 2012).

A3.5 Impact on the repo market

The repurchase agreement (repo) market consists of sales of securities which include an agreement to buy them back at a later date. This market is important because businesses and governments use repos for short-term borrowing and to manage their collateral.

As a market consisting of short-term funding and small trade margins, the combination of 'cascade effects' created by the FTT and the lack of time apportionment in the computation of the tax liability are expected to have a significant impact on the repo market (Mayert and Wegner, 2010; Bierbrauer, 2013). A number of studies have assessed the effective interest rates imposed by a FTT, with ESRI (2012) estimating an annual interest rate of 14% levied on an example 5-day repo, compared to the ECB marginal lending facility rate of 1.75%. The effect of taxing repos could be to make many transactions uneconomic (Oliver Wyman, 2013; Oxera, 2013). London Economics (2013) states that the FTT will have "deleterious effects on the repo market", Oliver Wyman (2013) suggest that "repo instruments with maturities of less than one year to no longer be viable", while impact assessments have estimated that the European repo market will shrink by 66% (Comotto, 2013).

The potential consequences of these changes to the repo market are thought to include an increase in the cost of lending to businesses as banks and other investors turn to more expensive markets for short-term funding (CBI, 2013). Banks will also be forced to hold greater volumes of cash and fewer government securities in order to maintain liquidity, which will drive down the price and increase the required rate of return on government debt (Oxera, 2011). However, it has been claimed that by increasing the cost of repurchase agreements a FTT would discourage the practice of "window-dressing". This refers to the exceptional practice of using financial instruments, such as repos, in order to improve the appearance of balance sheets (Schäfer, 2012).

A3.6 Impact on money market funds

Money market funds are investment funds containing a portfolio of short-term securities, which have the objective of maintaining a steady net asset value. They are important because they aim to offer investors a safe investment with a given rate of return.

The FTT is expected to impact money market funds in a comparable manner to repos, due to their similar short-term and high frequency nature (AIMA, 2012). Because of these characteristics, it is expected that money market funds would bear a large proportion of the total tax burden from a FTT. EFAMA's impact analysis (2011) estimates that if the FTT was implemented at the beginning of 2011, then money market funds would have contributed 67% of total revenue from the tax without taking into account behavioural reactions to its imposition. Academics often claim that the cost of a FTT on investment funds will ultimately accrue to the investor (McConnell, 1995; Malkiel and Sauter, 2009). For example, in the case of money market funds Culp (2010) states that the tax incurred will "almost certainly" be passed through to investors, for example through a lower return on their investment.

The tax charge from the FTT on a typical money market fund is estimated at 100 basis points a year (Goldman Sachs, 2013), and the annual investment performance of money market funds is expected to fall by at least 1% per year (EFAMA, 2013). This would have a serious impact on the business of money market funds and trigger behavioural reactions causing a shift in demand towards deposit products instead, which are not included in the FTT (ESRI, 2012). Because money market funds are expected to make a substantial contribution to FTT revenue, the extent to which demand shifts to other products such as deposits (or to other locations outside of the FTT zone) will be a significant factor in the FTT's revenue-generating capacity.

A3.7 Impact on the derivatives market

The derivatives market consists of instruments whose values are based on the performance of underlying assets such as stocks, foreign exchange, bonds and commodities. Derivatives are important because they allow

companies, other organisations in the real economy and those involved in proprietary investment in the FS sector to hedge against fluctuations in economic indicators such as exchange rates, interest rates, financial and commodity prices and other forms of business risks.

The EC's impact assessment of the FTT estimated that the tax would have a significant effect on the derivatives market, reducing trading volume by between 70% and 90% (EC, 2013b). This is because the 'cascade effect' of the FTT is expected to have a significant impact on the costs of derivatives (Bijlsma *et al.*, 2011; ESRI, 2012). A study by Schulmeister (2011) predicts a similar fall in volume as a result of the European FTT, whilst evidence suggests that Sweden's introduction of a FTT led to a 98% reduction in the trading of interest rate futures (Campbell and Froot, 1993). The revenue-raising potential of the FTT is sensitive to the impact on derivatives trading, including derivatives traded by money market funds, with the European Commission estimating that if the fall in derivatives volumes were 90% rather than 70%, then tax revenue would fall from €34 billion to €20 billion. However, this latter estimate is controversial because if trading volumes decrease by 90%, it could be impractical to collect tax from the remaining 10%.

In addition, the FTT could have a substantial impact on derivatives' bid-offer spreads. Oliver Wyman (2012) reports that the increase in direct costs on derivatives transactions as a result of the FTT (and depending on the type of product) could be of a magnitude of 18 times the bid/offer spread in normal market conditions.

The impact on trading volume can also be predicted by empirical estimates of 'elasticity', defined as the percentage change in trading volume for a 1% increase in tax. For futures markets, Chou and Wang (2006) report an elasticity of –1. By calculating elasticity with respect to the bid-offer spread, other estimates can be obtained. Wang and Yau (2000), Wang *et al.* (1997) and Chou and Wang (2006) analyse futures markets and report elasticities between –2.6 to –0.6. As these estimates all calculate elasticity with respect to a component of transactions costs (such as the tax or bid-offer spread), the elasticity with respect to total transactions costs will be even larger.

The impact of the FTT on the price of derivatives is more difficult to assess as no initial investment expenditure is made, and a study by Culp estimates that the impact of FTTs on price is ambiguous (Culp, 2010). It has been suggested that the FTT in its current form creates a bias away from bonds and equities and towards derivatives as the proposed tax rate on derivative instruments is only 0.01% compared to 0.1% for bonds and equities. (AIMA, 2012). However, as Vella (2012) outlines, as the FTT would be levied on the notional amount rather than the price of a derivatives contract, the EC's proposal has the potential to generate effective tax rates that could influence investment decisions.

A3.8 Impact on risk management capability

In part due to financial innovation and market deregulation, risk management has become a core component of the day-to-day activities of FS sector and the real economy. Risk management in financial markets primarily relates to the use of derivatives to hedge against various market risks. However, more broadly, it also relates to the capital adequacy requirements placed on financial institutions to manage systemic risk, although this is discussed more fully in section A4.4 of Annex 4.

The subject of risk in financial markets features prominently in the policy rationale for the EC's proposal and has shaped much of the subsequent discussion on the impacts of the FTT. Indeed, the EC's FTT is designed to reduce incentives for excessive risk taking by making socially undesirable transactions uneconomical (EC, 2011b). As von Weizsäcker and Darvas (2010) illustrate, a FTT with a sufficiently low rate of tax could drive out socially undesirable transactions while maintaining the viability of socially desirable ones. However, what constitutes a 'socially desirable transactions' is neither defined in von Weizsäcker and Darvas (2010) nor in the EC's proposal (EC, 2011a; EC 2011b), creating ambiguity as to the likely impacts on the use of financial products for socially desirable risk management practices.

Despite the lack of clarity regarding the classification, certain areas of the literature have found that the EC's FTT would have substantial impacts on the risk management capabilities of the FS sector and the real economy. As outlined in the previous section, the EC's proposal will have significant impacts on the derivatives market by affecting the costs of derivatives through the cascading of the effective tax rate (Bijlsma *et al.*, 2011; ESRI, 2012) and reducing trading volumes (EC, 2013b). In turn, this is anticipated to have a direct impact on the risk management capability of FS sector and the real economy (Oliver Wyman, 2013; Oxera, 2011). Recent research

by Deutsches Aktieninstitut and Oliver Wyman (2013) estimates the impact of the FTT on risk management trades conducted by companies in the German real economy to be €1.0 to €1.9 billion annually. A further study by Oliver Wyman (2013) estimates an annual cost of €1 to 3 billion to EU-11 corporates for exchange and interest rate risk management and suggests that the taxation of intra-group derivative transactions for risk management pruposes could generate a significant impacts. More specifically, the use of derivatives to manage price risks in energy markets will be similarly affected by the FTT and could ultimately result in increased energy prices in the real economy (EUROPEX, 2013).

Furthermore, as some research suggests, the impacts of the FTT on risk management capabilities in the FS sector and the real economy, may translate into impacts for households. As the CBI (2013) describe, the FTT may interact with the use of derivatives for risk management purposes in actively managed pension funds to negatively affect the performance of portfolios held by households.

A3.9 Summary

The available literature suggests that the impact of the FTT will differ considerably across the different financial markets of the EU-11, and that it will also cause knock-on effects between markets.

There is a large base of evidence assessing the impact of FTTs on the equity market, which generally suggests that transaction taxes cause trading volumes to fall but without any attendant decrease in market volatility – in a number of cases, volatility was in fact found to increase (McCulloch and Pacillo, 2011, Pomeranets and Weaver, 2011 and Anthony *et al.,* 2012).

In the sovereign and corporate debt markets, issuance costs are expected to increase significantly as a result of the FTT (London Economics, 2013; Comotto, 2013). The incidence of FTT is expected to be larger in the sovereign debt market, although in the corporate debt market the largest costs will fall on Member States outside of the EU-11.

The reaesrch available tends to suggest that the markets for repos, money market funds and derivatives may all experience a significant fall in volume as a result of the FTT due to their high frequency nature creating a 'cascade' effect where the tax accumulates. Impact assessments have estimated that the European repo market will shrink by 66% (Comotto, 2013), while the derivatives market will shrink by between 70% and 90% (EC, 2013b). Impacts on the derivatives market will in turn affect the risk management capability of the FS sector and the real economy (Oxera, 2011). Money market funds and derivatives have been identified as major contributors to the tax income from FTT, so its revenue-raising ability will be largely determined by the impact on the volume of these markets (EFAMA, 2013; European Commission, 2013).

Annex 4 – The wider impact of the FTT

A4.1 Introduction

In this annex we examine the anticipated wider impacts of the EC's proposal with respect to the impact on households and businesses, GDP, financial stability, extraterritorial impacts and the impact on the location of financial activity.

This annex is structured in the following way. Section A4.2 briefly lists the anticipated impacts of the FTT on households and businesses. Section A4.2 examines the range of estimates of the cost to GDP of the FTT described in the literature. Section A4.3 explores how the design features of the FTT will impact on the stability of financial markets, as described in the literature. Section A3.4 indentifies the extraterritorial impacts of the FTT listed in the literature. Section A4.5 describes the nature of the impact on the geographic location of financial activity that the FTT is likely to have. Section A4.6 provides a summary of the key findings of this section.

A4.2 Impact on households and businesses

The EC (2011a) claims:

> *"Private households and SMEs not actively investing in financial markets would hardly be affected by this proposal thanks to the ring-fencing features built in the design of the FTT"*

Furthermore, the EC seeks to insulate businesses and households from the FTT by excluding their borrowing and lending activities and other day-to-day financial activities such as payments.

However, many studies note that this does not mean that households and businesses will not bear the economic incidence of the tax (e.g. Vella, 2012). It is not the case that the FTT can be passed on to households only if they invest in an investment fund or purchase shares. Aside from any direct impact on them of the FTT, there is nothing to prevent the tax being passed on as a simple "pass-through" cost for such end users.

For example, it is argued:

- *"for most transactions, it would seem sensible to assume that the pass-through of the tax from traders to investors or companies is close to 100%, including any intermediate transactions"* (Oxera, 2011);
- that ordinary citizens investing in UCITS would see the value of their savings reduced by 15% of their total contribution as a result of the FTT (EFAMA, 2013);
- that the EU FTT would adversely impact energy trading through *"disturbances in the price formation mechanism in addition to higher trading costs"* which, if passed onto the real economy could *"ultimately result in higher energy prices"* (EUROPEX, 2013).
- that the EU FTT is likely to *"predominantly hit the real economy (pension funds, asset managers, insurance companies and corporates) as both direct and indirect costs will largely be passed on to the end users; these end users will be the least able to move transactions to jurisdictions not subject to the tax"* (Oliver Wyman, 2012);
- that *"those who would carry the economic burden of the FTT would not be the banks but workers and consumers in general, and their burden would be more than 100% of the revenue raised by the FTT"* (Worstall, 2011);

- that many pension funds and schemes which use derivatives to manage their portfolio risk actively, as well as to optimise investment performance, could be adversely impacted by the changing economics of risk management (CBI, 2013).

Expanding on the last point, some authors highlight the potential for pension funds and schemes to be affected by a FTT-induced fall in equity prices. For example, Anthony *et al.* (2012) argue that the FTT would reduce the prices of equities in the short-term, as potential buyers of equities take into account the higher transaction cost when buying or selling, and that *"the burden of this drop will fall most heavily on those holding the largest fraction of such investments, pension funds and wealthy individuals"*.

Moreover, as Schich and Kim (2010) explain, other market participants that manage risk actively could also experience higher costs:

> *"A key challenge associated with financial-transaction taxes is that their imposition cannot realistically depend on the motive for particular transactions, and so they would not only affect transactions that might ultimately lead to booms, bubbles and financial crises, but might also affect socially desirable financial transactions, such as the hedging of risk. Distinguishing desirable from undesirable financial transactions is difficult, if not impossible, since identical transactions can involve either hedging or speculative considerations"*

Some studies have attempted to quantify the impact of both the EC's proposal, and examples of other national FTTs. For example, Oxera (2007) estimates that UK stamp duty, which has a significantly narrower scope than the Commission's proposal, reduces the average occupational pension fund at retirement by £6,441, increasing to £11,538 for equity-based portfolios (in 2006 money). It also concludes that abolition of stamp duty could result in an increase in annual fixed business investment of FTSE 350 companies of £2.7 billion – £6.4 billion.

A more recent study of the impact of the EC's proposed FTT on German households estimates that the annual tax cost would be €48 - €62 per household, with pensioners bearing a higher annual burden of €118 - €132 (Deutsches Aktieninstitut & Oliver Wyman, 2013). Additionally, the FTT would serve to reduce the size of the pension resulting from a typical Riester[9] savings plan by 10%, equating to approximately €380 per year (Deutsches Aktieninstitut & Oliver Wyman, 2013).

A4.3 Impact on GDP

Nearly all assessments suggest that the impact on GDP will be negative. However, the size of the impact is subject to some debate.

The EC currently estimates that GDP will be reduced by 0.28% as a result of the increase in the cost of capital (EC, 2013b). A similar estimate can be obtained from a study by Gilchrist *et al.* (2010), who find that a 0.25% higher spread on corporate bond yields could decrease GDP after 20 years by roughly 0.2%, implying that a 0.15%-0.3% increase in the cost of capital could result in a 0.1% - 0.25% decrease in GDP.

However, Oxera predicts a more severe reduction of 2.42% of GDP (Oxera, 2011). Although Oxera's estimate of 2.42% was published before the EC's current estimate of 0.28% and therefore does not reflect any changes in the underlying assumptions made between the EC's first and second impact assessment, a subsequent report claims that the EC's current estimate still "underestimates the impact of the FTT" (Oxera, 2012). London Economics also argues that the EC's estimate is too small and predicts a larger negative impact of 1% of GDP (London Economics, 2013). Anthony *et al.* (2012) predict a reduction in GDP of between roughly 0.4% and 1.2%. BUSINESSEUROPE (2013) also raises concerns that *"this tax, by raising the cost of capital and encouraging business relocation, will damage growth and jobs"*.

Assessments of the effects of the UK stamp duty also point towards a negative impact on GDP. For example, Oxera (2007) estimates that abolition of the UK stamp duty would result in a permanent increase of GDP of between 0.24% and 0.78%.

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[9] A Riester savings plan is a pension-saving product subsidised by the German government.

However, the EC claims that the long-run impact of the European FTT could be less severe. It predicts that the impact could be between a 0.1% reduction and a 0.1% rise in GDP if revenues from the tax are used to fund initiatives that may enhance growth (EC, 2013b).

A4.4 Impact on financial stability

In its initial proposal, the EC (2011a) states:

> *"The present proposal aims at complementing the EU regulatory framework for safer financial services ... so as to avoid the repetition of past practices"*

There are mixed views on the potential of the European FTT to improve the stability of financial markets.

On the one hand, Griffith-Jones and Persaud (2012b) claim that there is clear "evidence" that financial crises would be less likely:

> *"To us and hundreds of other economists, the evidence is clear that an FTT adopted by all 27 EU states or by the 17 members of the eurozone would help strengthen Europe's finances and reduce the likelihood of crises"*

One possible explanation for this, according to Persaud (2013), is:

> *"When the financial system is working smoothly, few worry about the huge number of offsetting trades (for example, via derivatives) that are built on top of small exposures. But when the music stops and counterparties can no longer be trusted, it is these gross exposures that bring down the banks. In a number of different ways, this small tax on churning would limit some of these activities"*

At a conceptual level Persaud's explanation is valid, however it does not take account of certain practical realities that the implementation of a FTT may have. For instance, an increase in transaction costs may dissuade investors from participating in hedging transactions to manage the risk of their exposures. If this is the case, multiple exposures will go unhedged, increasing the risks in the economy (and leaving more agents with unhedged risks).

Moreover, some organisations criticise FTTs for not being focused on the core sources of financial instability (IMF, 2010a; BUSINESSEUROPE, 2012b). For example, in its report for the G20, the IMF (2010a) states:

> *"An FTT would not target any of the key attributes—institution size, interconnectedness, and substitutability—that give rise to systemic risk"*

Indeed, the IMF suggest that the implementation of a tax on the FS sector, such as a FTT, would need to consider the interaction with the current and future regulatory environments of the sector in order to achieve synergies towards financial stability (IMF, 2010b). Comotto (2013) goes further and says that financial stability would in fact be compromised by the tax as it would interact adversely with the regulatory framework of the FS sector. He claims that it would make the movement of collateral in the EU-11 prohibitively expensive, thereby reversing the trend towards the collateralisation of financial transactions promoted under the Basel regime and giving rise to greater levels of operational and financial risk.

The OECD is also opposed to a general transaction tax "due to the negative impact it could have on liquidity in otherwise open and transparent markets", according to a Special Advisor to the Secretary General of the OECD for Financial Markets and the Deputy Director of the OECD Directorate for Financial and Enterprise Affairs (Blundell-Wignall and Atkinson, 2011). In addition, BUSINESSEUROPE (2012a) argues that *"the FTT does not resolve the weaknesses* [in the financial sector] *in relation to safety and stability",* and a literature review by Millar (2012) reports that impact assessments and analyses *"refute that the proposed EU FTT will effectively address key policy objectives regarding systemic risk".*

A number of academics also challenge claims that the European FTT has the potential to reduce the likelihood of financial crises:

- Vella (2012) states that *"we should be clear that the FTT does not address any of the recognised causes of the recent crisis, such as over-leverage and insufficient liquidity provisioning"*. He argues that these can be addressed through other taxes, including bank levies. He adds that *"the FTT purports to contribute to the prevention of future crises not by dealing with the recognised causes of the recent crisis but by dealing with practices which are not known to increase the risk of crises"*.
- Anthony *et al.* (2012) argues that the EU FTT does not reduce systemic risk and/or the likelihood of financial crises. He explains that historical financial crises have been associated with collapsing real-estate bubbles and therefore, since real estate is not widely traded, any mispricing in this market is unlikely to respond to a transactions tax.
- Matheson (2011) believes that a transaction tax is an inefficient instrument for preventing bubbles and regulating financial markets. He states that *"current economic thought attributes bubbles to excessive leverage, not excessive transactions per se"*.
- Honohan and Yoder (2010) claim that a transactions tax would do little to discourage the activities of the market in securitised sub-prime mortgages, the credit default swap market or other derivatives-based markets whose malfunction is thought to have contributed to the recent financial crisis.

Furthermore, a lack of direct supporting evidence for stabilising (volatility-reducing) properties of Tobin-style transaction taxes is acknowledged even by supporters of the FTT. Pollin (2010) reports that the impact of FTTs on volatility is ambiguous and Schulmeister *et al.* (2008) report that ten studies report a positive relationship between transaction taxes and short-term price volatility and five studies do not find any significant relationship. In its most recent impact assessment, the EC notes:

> *"Many studies show that a FTT could aggravate volatility (because of a reduction in the number of transactions), creating more room for speculators. An extensive review of the economic literature overall concludes that the effects of the FTT on volatility is largely inconclusive and depends on market structure"*

The EC's overall position, that the effects on volatility are largely inconclusive and market-specific, can be illustrated using the work of Pellizzari and Westerhoff (2009), Westerhoff and Dieci (2006), Becchetti *et al.* (2013) and Mannaro *et al.* (2008). Pellizzari and Westerhoff find that the tax can reduce liquidity in stock exchanges and in turn increase volatility. Westerhoff, however, reaches the apparently opposing conclusion when working with Dieci that the tax can reduce volatility by producing a reduction in 'noise trading'. Becchetti *et al.* (2013), in a study of the implementation of the French FTT, support Westerhoff's findings in that intraday volatility was reduced with insignificant impacts on liquidity. Meanwhile, Mannaro *et al.* (2006) find that FTTs reduce liquidity and increase volatility.

The lack of a clear relationship is echoed by the works of McCulloch and Pacillo (2011) and more specifically in Capelle-Blanchard and Havrylchyk's (2013) investigation of the impacts of the implementation of the French FTT. These authors conclude that a FTT would be unlikely to stabilise financial markets but, if appropriately designed, would be unlikely to destabilise them either. Similarly, von Weizsäcker and Darvas (2010) suggest a FTT with a sufficiently low rate of tax could partially address socially undesirable transactions with limited impact on marginally socially desirable transactions, however other policy measures may prove to be better remedies to achieve financial stability.

Given the undecided nature of the literature on the volatility-reducing properties of FTTs, Erturk's (2006) point regarding this issue becomes particularly salient with respect to the EC's proposal:

> *"If the Tobin Tax is not stabilising, then much of the rest of the discussion on its feasibility and other related issues are probably moot."*

A4.5 The extraterritorial impact

The proposed FTT could significantly increase the cost of funding outside of the EU-11. For example, London Economics predicts that corporate issuers in non-participating Member States may experience increases in the cost of funding that could push the effective tax rate up to 100 basis points, rather than 10 basis points currently commonly encountered (London Economics, 2013).

It is also claimed that the negative impact on returns for corporate bonds on a per transaction basis would be larger for non-participating Member States than participating Member States. London Economics (2013) predicts that the impact of the FTT would be at least 10 basis points larger for non-participating Member States than participating Member States as a proportion of returns, per transaction.

Furthermore, it is claimed that the increase in the cost of funds on a per transaction basis would be significantly higher for non-participating Member States than participating Member States. London Economics (2013) predicts that the increase in the cost of funds for non-financial corporations would be approximately five times larger for non-participating Member States than participating Member States. This is because debt securities represent a greater proportion of corporations' capital structure in non-participating Member States than in participating Member States: debt securities have a share of 54.9% of total funds in non-participating Member States, compared to 11.3% in participating Member States.

Vella (2013), in oral evidence to the House of Lords, states that the tax could create a distortion for competition:

> *"It is fairly clear that the introduction of the FTT will introduce new distortions of competition. Just to give you one example, if a German bank is competing with a UK bank for business with a UK customer, after the introduction of the FTT the German bank will be subject to the tax while the UK bank will not, so the German bank will be at a competitive disadvantage as a result of this tax"*

The House of Lords EU Committee (2013) itself concludes that non-participating countries in the EU may be more likely to pay the tax than countries outside the EU because of the imposition of joint and several liability and the EU regime for mutual assistance on tax matters. This, the Committee suggests, would undermine the EC's argument that there would be no difference in the effect of the tax on London as compared to New York and Hong Kong.

A4.6 Impact on the location of financial activity

The EC (2013b) believes that the issuance principle will discourage relocation of financial activity. It forecasts that the issuance principle alone will make another 10% of financial transactions[10] subject to the FTT and yield revenues of €1.22bn.

In addition, it is argued that high-frequency traders cannot move offshore because their computer servers must be located as close as possible to the servers of the exchanges (Schulmeister, 2012).

To curb the migration of trading, Schulmeister (2012) proposes the introduction of a FTT substitute levy (FFTSL) in FTT countries. This tax could be charged on transfers of funds from bank accounts in FTT countries to brokerage firms or hedge funds in non-FTT countries. To be effective in discouraging relocation the FTTSL would need to be applied at a much higher rate than the FTT: Schulmeister suggests that, for a FTT of 0.05%, the FTTSL could be 2% or even higher.

However, others believe that relocation will still occur. For example, Poncelet (2013) states:

> *"The impact of the EU Commission model would be particularly severe due to both the risk of relocation of financial services outside the FTT zone and importantly to the risk of capital flight to countries outside the FTT zone"*

[10] in shares and debt securities issued by EU-11 entities

Poncelet's views are echoed by IBFed (2013), which states:

> *"Those outside the FTT jurisdictions will seek to minimise their financial transactions and engagement with financial institutions which give rise to the FTT, and will also attempt to protect themselves from costly compliance whenever possible … since capital is highly mobile, we expect financial instruments issued in FTT jurisdictions, including government debt securities, to be quickly and negatively impacted as the tax gets factored in to the purchase decision"*

Additionally, Oliver Wyman (2013) report that due to the impact of the FTT on corporate risk management capabilities, a number of EU-11 corporates are considering relocating group treasury functions outside the EU-11 in order to mitigate the impacts of the FTT.

Comotto (2013) claims that the difficulty of raising working and investment capital would result in EU-11 corporates and financial institutions experiencing a competitive disadvantage, and that the EU-11 would suffer from the relocation of many financial services *"which is not as difficult as DG Tax seems to believe"*.

A4.7 Summary

The literature generated to date on the EC's proposal points to several areas of discussion surrounding the potential wider impacts of the implementation of the FTT.

Many sources in the literature suggest that the EC's attempt at insulating business and households from the effects of the FTT will not be successful. Indeed, analysis by EFAMA (2013) predicts that savers and pensioners will bear a significant cost of the FTT. By analogy, there could be a comparable impact on companies and other businesses outside the FS sector.

There is consensus in the literature on the direction of the FTT's impact on GDP in the EU-11 but there is disagreement over the scale of the impact. It is anticipated that the impact on GDP will be negative, but the extent to which behavioural reactions and the cascade effect will generate a more severe economic reaction is highly contested.

The literature also presents a mixed view of the impact of the FTT on the financial markets, both within and outside the EU-11. It is debated in the literature whether the EC's proposal will contribute to or in fact weaken the stability of the financial markets. The FTT could also result in extraterritorial effects, such as by significantly increasing the cost of funding in non-participating states. Additionally, there are arguments for and against the claims that the FTT will influence the location of financial activity.

Annex 5 – Lessons from national FTTs

A5.1 Swedish FTT

A5.1.1 Overview

The key attributes of the Swedish FTT are as follows:

Duration	January 1984 – December 1991
Scope	equity (registered in Sweden)
	equity options
	fixed income (including sovereign debt)[11]
	related derivatives (e.g. interest-rate futures, options)[12]
Rates	1% for equity (initially 0.5%)
	0.002%-0.015% for fixed income (depending on maturity)
Key exemptions	conversion of warrants to equity
	transfers of Swedish registered equity where no consideration is given
	Swedish debentures
	forward rate agreements
	variable-rate notes
	prior to 1987, intermediate transactions (e.g. use of brokerage services or interdealer trades)

[11] implemented as a turnover tax rather than a transaction tax

[12] *ibid.*

A5.1.2 Experiences of implementation

The Swedish FTT raised only 3% of the revenue expected. The Swedish government expected to raise SEK 1,500m per year but it only raised SEK 50m per year (Campbell and Froot, 1993).

Trading volumes sharply declined as a result of the Swedish FTT. There was a 98% reduction in futures trading and the options market "disappeared" (Wrobel, 1996). Bonds trading fell by 85% and bills trading by 20% (Campbell and Froot, 1993). Equity trading by domestic investors also fell (Wrobel, 1996).

There were also several wider impacts of the Swedish FTT. More than 50% of equity trading moved to London (Wrobel, 1996) and Swedish share prices fell by 3.2% - 8.5% (Wrobel, 1996), which consequently negatively impacted capital gains tax revenues (EC, 2011b). Market participants quickly switched from fixed income to alternative financial instruments which were not subject to the tax (Campbell and Froot, 1993).

As a result of the problematic experiences of implementation and administration, the tax was abolished in December 1991 following a halving of the rates of tax in January (EC, 2011b). The example of the Swedish FTT also highlights the potential pitfalls of unilateral implementation of FTTs (EC, 2011b).

A5.2 Japanese FTT

A5.2.1 Overview

The key attributes of the Japanese FTT are as follows:

Duration	1953 - 1999
Scope	equity
	corporate bonds
	debentures
	futures
Rates	0.12 - 0.3% for equity
	0.01 - 0.03% for bonds
	0.06 - 0.16% for debentures
	0.002 - 0.005% for futures
Key exemptions	gift of securities
	transfer of securities when setting up or terminating of trust
	transfer of bonds made within a year from the issuing date
	redeemable government bonds

A5.2.2 Experiences of implementation

The revenue raised by the Japanese FTT was significant. For example, in the late 1980s, revenue was US $12 billion per year (Singh, 2004) or over 4% of total government revenue (Japan Securities Research, 1992). At the

height of the Japanese stock market bubble, revenue from the FTT reached a historical high of 0.55% of GDP (Matheson, 2011).

As part of a package of financial market deregulation the rate of tax was subject to a series of reductions from 1989 onwards (Culp, 2010) and was eventually abolished in 1999 in order to reduce transactions costs and stimulate market activity (Kawakami, 2002).

The impacts of the Japanese FTT are difficult to observe from the body of literature that has been amassed on the experiences of its implementation. In a study of the effects of a rate reduction in 1989 on equities listed on the Tokyo Stock Exchange Liu (2007) finds *"significant decreases in estimates of the first-order autocorrelation in returns of Japanese stocks listed in Japan"*. This finding suggests that the Japanese FTT impeded the price discovery process, creating inefficiencies in the Japanese equity market (Liu, 2007; CME group, 2010; Matheson, 2011).

The reported benefits of abolition include; (a) "expected to contribute to the globalisation of the yen" (Ministry of Foreign Affairs of Japan, 1999); (b) made the securities market "easier to use" (Ministry of Foreign Affairs of Japan, 1999); (c) "reduced security transaction costs" (Kawakami, 2002), and; (d) contributed to the "big bang" liberalisation of the financial sector (Singh, 2004).

A5.3 UK stamp duty

A5.3.1 Overview

The key attributes of the UK's stamp duty are as follows:

Duration	currently implemented
Scope	equities registered in the UK
	options and rights
	convertible and profit-linked debt securities
Rates	0.5%
Key exemptions	primary market transactions
	transfers of UK registered equity where no chargeable consideration is given
	transactions executed by a registered intermediary on a UK-recognised exchange
	temporary transfers of securities (including repo transactions)
	UK sovereign debt
	non-convertible debt securities
	debt securities not linked to profit
	reliefs available for certain types of chargeable transactions conducted by UK resident corporations

A5.3.2 Experiences of implementation

UK stamp duty raised £2.3 billion in 2012-13 (OBR, 2013), which represented approximately 0.41% of total tax revenues for the period.

A letter to the G20 Finance Ministers by '1,000 economists' (2011) states that the UK stamp duty does not "unduly impact" on the competitiveness of the City of London.

However, although stamp duty is levied on the purchaser of UK registered equities and is therefore a direct impact on consumers, purchasers do not necessarily bear the incidence of the tax (Bond *et al.*, 2004).

In addition, there is some evidence to suggest that stamp duty has had a significant impact on the UK's FS sector and wider economy. Oxera (2007) states:

- that stamp duty creates a significant cost to savers and pensioners, reducing fund sizes of average occupational pensions at retirement by an estimated £6,441 to £11,538 (in 2006 money);
- that its abolition would benefit the wider economy, increasing GDP by 0.24%-0.78% and increasing UK Government revenues by £1.3-4 billion.

Oxera (2007) find anecdotal evidence to suggest that stamp duty has affected investor preferences for direct equity investment, suggesting that market participants may prefer to use equity derivatives, such as contracts for differences (CFD) that are not subject to the tax. However, the effect of stamp duty on trading volumes of UK equities is ambiguous, which may be a result of the fact that investors have become 'conditioned' to its collection due to its longstanding implementation.

A5.4 US FTT

A5.4.1 Overview

The key attributes of the US' FTT are as follows:

Duration	1914 - 1966[13]
Scope	equity
	equity in mutual funds
	bonds
	certificates of indebtedness
	rights to acquire these interests
Rates	varied over time but, for example, from 1960 to 1966 they were:
	0.1% when equity was issued
	0.04% when equity was transferred
	0.11% when bonds were issued
	0.05% when bonds were transferred
Key exemptions	state and federal obligations
	foreign equity exchanged in the US
	US equity transferred entirely outside the US
	transfers occurring in corporate mergers and consolidations (not issue of new equity)

A5.4.2 Experiences of implementation

The revenue raised by the US FTT was high. For example, in 1965 the revenue from securities transfers *alone* was approximately $195 million (in 1965 dollars) (Summers and Summers, 1989).

The wider impacts of the US FTT do not feature prominently in the small body of literature on this example of a national FTT. Although the reasons for the shortage of evidence in the literature are unclear, it may be in part due to abolition of the FTT before decimalisation, automation and deregulation of US financial markets, which could have made the wider impacts difficult to observe empirically.

Nevertheless, the tax was abolished in 1966, although as part of a wider package of legislation in 1965 repealing almost all federal retail and manufacturing excise taxes (Summers and Summers, 1989).

[13] except from a brief period from 1916-1917

A5.5 French FTT

A5.5.1 Overview

The key attributes of the French FTT are as follows[14]:

Duration	August 2012 – present
Scope	equity issued by French firms with market cap > €1bn
	high frequency[15] order cancellations or modifications
	CDS derived from EU sovereign debt
Rates	0.2% for equity
	0.01% for high frequency[16] cancellations/modifications
	0.01% for CDS derived from EU sovereign debt
Key exemptions	primary market transactions
	central securities depositories
	transactions for the purposes of market making
	transactions executed under liquidity agreements
	intra-group transactions
	temporary transfers of securities (including repo transactions)
	acquisition of securities under employee savings regimes
	acquisition of convertible or exchangeable bonds

A5.5.2 Experiences of implementation

The French FTT is raising less revenue than expected. For example, the French government forecasted that it would raise € 530 million from the tax from August to November 2012 but it only raised € 200 million (International Tax Review, 2013; Crouzel, 2013).

Evidence of the impact on volatility is mixed. Becchetti *et al.* (2013) concludes that the French FTT has reduced intraday volatility. However, Credit Suisse (2013) reports that it may have led to more volatility on the effective date of index changes, especially towards the close, although it notes that its sample size is small.

[14] this summarises more detailed descriptions of the attributes of the French FTT, presented in Amafi (2012) and Blanluet and Boynes (2012)

[15] applies when cancellations/modifications exceed a certain threshold of orders submitted

[16] *ibid.*

The evidence on the volume of trading is also mixed, as outlined below.

On the one hand, TABB Group (2013) reports that the French FTT had a only a "limited impact" on equity trading volume, stating that French equity turnover as a percentage of market share fell from 17.3% in 2011 to 15.3% in 2012. This finding is echoed by Credit Suisse (2013), which reports that there was an immediate decline in August 2012 but that this was followed by a sharp recovery in September 2012 (although 40% of the recovery centred on just 5 French stocks).

On the other hand, as shown in the table below, CEPII (2013) finds that equities eligible for the French FTT (those of companies registered in France and with a market capitalisation in excess of €1 billion) experienced a larger fall in trading volume than equities of other similar companies. This conclusion is echoed by Becchetti *et al.* (2013), who find that the tax led to a significant reduction in trading volumes, and Alcaraz and Maujean (2013), who report that French equity trading declined by 15% more than other European equity trading by September 2013 according to calculations by NYSE Euronext.

Table 3: Comparing the percentage change in trading volume for equity subject to the French FTT and other equity (February 2012 – January 2013)

Change in trade volume, Feb 2012 – Jan 2013	**Euronext 100**	**Next 150**
French, market cap > €1bn	-20%	-30%
French, market cap < €1bn	-	-20%
Not French	-10%	-10%

Source: CEPII (2013)

A5.6 Hungarian FTT

A5.6.1 Overview

The key attributes of the Hungarian FTT are as follows:

Duration	January 2013 – present
Scope	bank transfers
	payments
	direct debits
	deposits
	withdrawals
Rates	0.3% for all transactions except cash withdrawals
	0.6% for cash withdrawals
	cap of HUF 6,000 (≈ €20) applies to all transactions under the scope of the tax except for withdrawals
Key exemptions	transfers between accounts held at the same bank by the same person
	cash pooling in bank account held by the corporations in the same financial institution
	transactions between the current account and the investment account held by the same individual in the same institution

A5.6.2 Experiences of implementation

The Hungarian FTT is currently raising less revenue than expected. For example, the Hungarian government forecasted that it would raise HUF 82 billion from the tax in the first four months of 2013 but it only raised HUF 38.8 billion (Hungarian Ministry for National Economy, 2013a and 2013b). A one-off FTT was introduced in 2013 to raise additional revenue in light of the shortfall between forecast revenue and actual revenue for the first four months of 2013 (Fitch Ratings, 2013). The rate of this additional FTT was set at 208% of the FTT paid by banks during January-April 2013 (Fitch Ratings, 2013).

Evidence on other effects of the Hungarian FTT is currently scarce. However, the Hungarian Minister for National Economy is reported[17] to have said:

> *"market players had reacted rather swiftly to the new levy and they rationalised their transactions"*

There is also anecdotal evidence that companies have relocated some of their financial activity overseas.

[17] See Portfolio.hu (2013)

A5.7 Italian FTT

A5.7.1 Overview

The key attributes of the Italian FTT are as follows:

Duration	March 2013 – present
Scope	equity (issued in Italy)
	from March 1st 2013, high frequency trading (HFT[18]) on equity (issued in Italy)
	from September 1st 2013, derivatives and HFT of derivatives
Rates	0.1% for equity traded on exchanges (0.12% prior to January 1st 2014)
	0.2% for equity traded OTC (0.22% prior to January 1st 2014)
	0.02% for HFT (effective September 1st 2013)
	lump sum on equity derivatives linked to type of contact and notional value (effective September 1st 2013)
Key exemptions	transactions with 'institutional' counterparties
	transactions for the purposes of market making
	transactions executed under liquidity contracts
	pension funds or compulsory social security institutions established in EU or EEA Member States

A5.7.2 Experiences of implementation

Although the first payment deadline was October 16th 2013, it is currently too early to say how much revenue the Italian FTT is raising. This is partly because the Italian authorities have not yet made an announcement on the amount raised, and partly because some companies have experienced delays in establishing systems and procedures for making the FTT payments.

However, as outlined below, there are early indications that the Italian FTT has led to a decline in trading volumes.

The TABB Group (2013) claims the impact of the Italian FTT has been more severe than for the French FTT due to the wider scope of the tax. It states that, according to Thomson Reuters, Italian average daily turnover fell by 38% between the start of 2013 and 12th March 2013, whereas across Europe it rose by 2.64% over the same period. However, when interpreting these findings it must be borne in mind that during this period Italy was

[18] 2013 Stability Law defines HFT as electronically sending, cancelling or modifying orders that exceeds a threshold determined by a decree of the Ministry of Economy and Finance.

experiencing a significant political transition, which could have influenced investment decisions in the Italian financial markets.

Analysing data from Borsa Italiana, the Italian stock exchange, also suggests that trading volumes have fallen. As shown in the table below, average daily equity trading volumes fell by 8% between February 2013 and March 2013, whereas in the previous year they fell by 3% over the same period. Furthermore, between January 2013 and April 2013 a fall of 16% was observed, compared to a 9% rise over the same period in the previous year.

Table 4: Comparing the percentage change in trading volume for equity subject to the Italian FTT and other equity (February 2012 – January 2013)

Change in average daily equity trading volumes	February to March	January to April
2013	-8%	-16%
2012	-3%	9%

Source: Borsa Italiana (2012-2013), Di Vittorio (2013), Zacaner (2013)

A5.8 Summary

This annex has shown that a number of countries are currently implementing FTTs or have implemented them in the past, with varying experiences across the nations considered. This is by no means a comprehensive examination of all historical and contemporary FTTs, but is has illustrated that several countries have collected significantly less revenue than initially expected, which has been generally linked to a considerable fall in trading volume. Of the countries considered, the most adverse experience of implementing a FTT appears to be Sweden, where only 3% of expected revenue was generated (Campbell and Froot, 1993), with trading volumes of futures falling by 98% and bonds by 85% (Wrobel, 1996). The UK's experience with stamp duty has been less problematic despite an Oxera study (2007) estimating that stamp duty causes a GDP loss of between 0.24% - 0.78% per year, however it may influence investor preference for direct equity investments.

Though the causes of the heterogeneity in the nature and magnitude of the economic impacts have yet to be established empirically, it is clear to see that the imposition of a FTT creates significant implications for the economy of an implementing jurisdiction. Indeed, drawing from the experiences of historical and contemporary national FTTs, it can be seen that the EC's proposal has the potential to generate economic impacts that deviate considerably from those predicted in the impact assessments. However, as the discussion in previous annexes has shown, the likely direction of deviation has been the subject of considerable debate.

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Annex 7 – List of commissioning organisations

Financial transaction tax: The impacts and arguments was prepared by PricewaterhouseCoopers LLP (PwC) and was jointly commissioned by the following European business associations:

Alternative Investment Management Association (AIMA)	Association des Banques et Banquiers, Luxembourg (ABBL)
Association of British Insurers (ABI)	Association for Financial Markets in Europe (AFME)
Association of Foreign Banks (AFB)	The Association of the Luxembourg Fund Industry (ALFI)
British Bankers' Association (BBA)	CME Group
Confederation of British Industry (CBI)	European Banking Federation (EBF)
FIA European Principal Traders Association (FIA EPTA)	Futures and Options Association (FOA)
Ibec (formerly the Irish Business and Employers' Confederation)	ICE Group, Inc
International Capital Market Association (ICMA)	International Regulatory Strategy Group (IRSG)
International Securities Lending Association (ISLA)	International Swaps and Derivatives Association (ISDA)
Investment Management Association (IMA)	Irish Banking Federation (IBF)
Irish Funds Industry Association (IFIA)	MEFF Exchange / BME Clearing
Mouvement des entreprises de France (MEDEF)	Paris EUROPLACE
Swedish Securities Dealers Association (SSDA)	Wealth Management Association (WMA)
Wholesale Markets Brokers' Association (WMBA)	

Terms of reference

PricewaterhouseCoopers LLP ("PwC") has been commissioned by Futures and Options Association ("FOA") to produce an independent literature review of financial transactions taxes ("FTT"). FOA is the principal European association for members of the futures and options industry.

This document has been prepared only for the FOA and solely for the purpose and on the terms agreed with the FOA under the terms of our engagement letter dated 15th August 2013.

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131031-093724-AW-OS