SPECIAL INTEREST PAPER

London Economics

IRSG
INTERNATIONAL REGULATORY STRATEGY GROUP

Report prepared for the International Regulatory Strategy Group
by London Economics
April 2013

The Impact of a Financial Transaction Tax on Corporate and Sovereign Debt

City of London Economic Development
PO Box 270, Guildhall, London, EC2P 2EJ
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April 2013

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The International Regulatory Strategy group (IRSG) is a practitioner-led body comprising leading UK-based figures from the financial and professional services industry. It aims to contribute to the shaping of the international regulatory regime, at global, regional and national levels, so that it promotes open, competitive and fair capital markets globally that support sustainable economic growth. Its role includes identifying strategic level issues where a cross sectoral position can add value to the existing industry views. It is an advisory body both to the City of London Corporation and to TheCityUK, an independent practitioner-led body which has been established to coordinate the promotion of the UK-based financial services industry.

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Glossary

Terminology abbreviations

AIF	Alternative investment fund
Bps	Basis points
CSD	Central Securities Depositories
EC	European Commission
FTT	Financial transaction tax
TRS	Total return swap
UCITS	Undertakings for collective investments in transferable securities

Member State abbreviations

BE	Belgium	LU	Luxembourg
CZ	Czech Republic	HU	Hungary
DK	Denmark	MT	Malta
DE	Germany	NL	Netherlands
EE	Estonia	AT	Austria
EL	Greece	PL	Poland
ES	Spain	PT	Portugal
FR	France	SI	Slovenia
IE	Ireland	SK	Slovakia
IT	Italy	FI	Finland
CY	Cyprus	SE	Sweden
LV	Latvia	UK	United Kingdom
LT	Lithuania		

Executive Summary

Objective

London Economics was commissioned by the City of London to assess the impact of a financial transaction tax on corporate and sovereign debt.

The European Commission (EC) put forward a proposal for a financial transaction tax (FTT) on 14 February 2013 *inter alia* to:

- avoid distortions of competition between financial instruments, actors and market places;
- ensure the proper functioning of the internal market for transactions in financial instruments.

The main objective of this study is to consider these statements with regard to debt securities.

Quantification of impacts

Quantitative estimates of the impact of an FTT on returns illustrate differences in the incidence of the tax on different debt securities.

In the first instance, it is important to note that the EC proposal for an FTT does not exempt intermediaries in debt security transactions from the tax.

As such, the sale and purchase of a debt security liable for the tax would be charged at multiple stages of the chain of settlement, creating a "cascade effect" such that the effective tax rate would be in the order of 100 bps (or, 1%) rather than 10bps[1]. This would cripple activity on debt securities markets.

Expressed as a percentage of bond returns, the FTT would represent a significant proportion of the one-year return on many types of bonds, and in many cases would constitute greater than the one-year return. As such, if issuers wanted to utilise debt securities markets they would have to offer significantly higher returns than presently, raising their cost of capital and, in turn, cost of investment (in the case of firms) and cost of government debt and spending (in the case of governments).

The analysis following shows that we can further expect uneven effects across participating and non-participating Member States, corporate and sovereign issuers and short and long-term securities.

[1] A member of the Association for Financial Markets in Europe states that 10 transactions in the bond settlement chain is representative at the present time.

In particular, negative impacts *on a per transaction basis* are:

- Larger on returns for corporate bonds from non-participating Member States than participating Member States. The impact of the FTT (as a proportion of returns) is at least 10 basis points greater for non-participating Member States than participating Member States per transaction.
- Smaller on returns for bonds with longer maturity. For example, for corporate bonds with maturity of 8-10 years, the impact of the FTT is 6.4% per transaction, while for bonds with maturity of 0-2 years, it is 13.6%.
- Larger on sovereign bond returns than corporate bond returns. For example, for bonds with maturity of 4-6 years, the impact of the FTT on corporate debt is 6.8% per transaction, whereas for sovereign debt, it is 11.6%.

These results indicate that even if the tax does not lead to any distortions, in the form of market participant behavioural change, the FTT may not be fully consistent with its objectives to, for instance, avoid distortions of competition between financial instruments.

Interestingly, when we compute what the impact of the FTT would be on the cost of funding for corporations we find that non-participating Member States are more severely affected because debt securities represent a greater proportion of their corporations' capital structures. Based on current arrangements, that may involve ten steps per transaction between end-users[2], the increase in the cost of funding for non-participating Member State corporate issuers may be in the order of 100bps or more. The higher cost of funding would depress investment and GDP in turn.

The cost of funds for governments also increases with the introduction of the FTT. Using the forecasted value of gross issuance of non-index linked UK gilts, the estimated cost of the FTT on UK government debt is £3.95 billion based on a gross issuance of £128.08 billion of non-index linked gilts.

While due to data limitations we have not been able to carry out a similar analysis for other EU Member States, the impacts of the tax on the cost of funds for these governments would be of a similar nature. However, it is important to note that the cost of funds would be higher for participating Member States as all transactions would be FTT-liable regardless of the residence of the counterparties to a transaction (due to the issuance principle).

[2] *Ibid.*

Qualitative assessment of impacts

The quantification of the impacts of the FTT relates to the short-run; put another way, it is based on the assumption that the FTT could be implemented effectively without resulting in behavioural change.

In reality, if implemented, the FTT may result in behavioural change amongst market participants or lead to problems with collection. Such issues were identified by stakeholders who highlighted that this may imply: fewer revenues being collected than hoped; an uneven incidence of the FTT – across Member States, market participants, etc; and impacts on end-users of capital such as holders of retail mortgages.

Stakeholder views included those of representatives of the following institutions: a government debt issuing body, a government treasury official, a financial markets association, a European investment bank, a global asset manager and a central securities depository.

Given the original objectives of the FTT, these issues suggest that should the tax be introduced, at least some elements of the design would require reconsideration prior to being brought into force.

Potential impact on the repo market

The impact of an FTT on the repo market may well be severe, as the FTT cost may be higher than financial-intermediary fees that those intermediaries receive for arranging transactions. One stakeholder suggested that the average fee for a repurchase agreement was in the order of 5 basis points (bps). A minimum FTT of 10bps on each counterparty to a transaction may well therefore result in a substantial reduction in activity in the repo market.

Further, repo markets would be impacted as the rise in debt security yields due to the FTT would reduce the amount that repo sellers could borrow, and increase the margins they have to pay (as collateral in the form of debt securities would be worth less).

The consequent reduction in repo market activity may have impacts on the real economy, as the likes of banks use repo markets for short-term funding that may relate to the amount they lend to the real economy. Moreover, other market participants may be unable to manage risks (through short positions) and foster enterprise (through taking leveraged positions) as they may wish to.

In addition, if an FTT on repos were to be brought into force as planned, it would place too high a burden on repo transactions compared to other financial instruments (namely, secured loans) because the former are liable for the tax and the latter are not (secured loans are indeed not liable for the tax) despite being economically similar.

1 Introduction

1.1 Objectives

London Economics was commissioned by the City of London to assess the impact of a financial transaction tax on corporate and sovereign debt.

The European Commission (EC) put forward a proposal for a financial transaction tax (FTT) on 14 February 2013 *inter alia* to:

- avoid distortions of competition between financial instruments, actors and market places; and
- ensure the proper functioning of the internal market for transactions in financial instruments.

The main objective of this study is to consider these statements with regard to debt securities, after defining the FTT as it may apply to debt securities (chapter 2).

Quantitative estimates of the impact of an FTT on returns to short and long-term debt and corporate and sovereign debt on a per-transaction basis are provided to illustrate any differences in the incidence of the tax on different debt securities, and therefore inform the debate as to whether an FTT preserves a level playing field between various financial instruments (namely, different forms of debt capital raising) present in the market.

Similarly, estimates of the impact of an FTT on returns to participating Member State and non-participating Member State debt securities are presented with a view to improving our understanding of how an FTT might affect the Single Market for financial services.

The EC FTT proposal also sought to ensure financial institutions account for their contribution to the recent crisis and cover some of the costs, and to prevent inefficient transactions to take place in the markets, which may distort the playing field. The extent to which an FTT may achieve these ends in connection with debt securities is also considered, qualitatively (chapter 4).

In addition, the potential impact of the FTT on the repo market is considered (chapter 5).

1.2 Methodology and approach

The FTT will first be defined as it may apply to debt securities (chapter 2). A review of key policy literature will be carried out for this purpose, namely:

- the EC proposal of 14 February 2013[3];
- the EC proposal of 28 September 2011[4]; and
- the EC services explanatory notes that provide the results of analysis and clarifications on how the FTT would work in practice of 4 May 2012[5].

This phase will clarify a number of design aspects of the FTT that will influence the subsequent analysis carried out. Of particular note is which reference point jurisdictions would use in exercising their right to tax.

The basic framework for then carrying out the economic analysis of a tax change consists of evaluating the utility, *u*, economic agents derive from their activities, *a*, given the current tax regime, *t*, against the utility, *u'*, they would derive from their activities, *a'*, given a new tax regime (one including an FTT), *t'*, taking into account any costs associated with non-compliance (i.e., a behavioural change) if incurred, *c(e)*, as per the equations below.

$u = u(a, t)$ ..... (1)

$u' = u(a'(c(e),\ldots), t')$ ..... (2)

If an FTT is implemented and does not result in behavioural change immediately ($a=a'$) then quantitative estimates of the *short-run* impact of an FTT on debt securities (short and long-term, corporate and sovereign and participating Member State and non-participating Member State) can be derived using market data (chapter 3).

Over time, an FTT will likely result in behavioural change ($e>0$), however. While it is unfeasible to quantify these impacts of the FTT *a priori*, the actions market participants may pursue can be described based on stakeholder views and other evidence (chapter 4).

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[3] European Commission (2013). 'Proposal for a Council Directive implementing enhanced cooperation in the area of financial transaction tax', COM/2013/17.

[4] European Commission (2011). 'Proposal for a Council Directive on a common system of financial transaction tax and amending Directive 2008/7/EC', COM/2011/594.

[5] Topics covered are: (i) tax contributions of the financial sector, (ii) territoriality of the tax, (iii) relocation, (iv) revenue estimates, (v) macroeconomic effects, (vi) tax collection and (vii) pension funds; and are available at: http://ec.europa.eu/taxation_customs/taxation/other_taxes/financial_sector/index_en.htm

Finally, the potential impact of the FTT on the repo market will be considered on the basis of the present evidence base (chapter 5).

1.3 Structure of report

The structure of the report reflects the objectives, and methodology and approach outlined above:

- chapter 2 defines an FTT as it may apply to debt securities;
- chapter 3 quantifies its impact;
- chapter 4 provides a qualitative assessment of impacts; and
- chapter 5 discusses the potential impact on the repo market.

2 Defining the financial transaction tax

The design of the FTT under the EC proposal involves a number of features that seek to ensure the formation of a consistent taxation system across the EU. Namely, these features include *inter alia*: the products and transactions covered and the taxable base and rate.

To keep in line with the existing classification of financial instruments and products in the Markets in Financial Instruments Directive (MiFID), the EC proposed a broad coverage of products that will be liable to the FTT. This includes all financial markets and transactions, as well as any close substitutes. Hence, both transactions on regulated markets and over-the-counter transactions will trigger the taxation.

The EC acknowledge that taxing the issuing of securities may have detrimental effects on the economy. This is because raising capital will be relatively more expensive, perhaps making it difficult for companies and governments to finance future investments. It is therefore proposed to tax secondary market transactions only.

Of particular note is which reference point jurisdictions would use in exercising their right to tax due to the potential for de-localisation. In its impact assessments, the EC considers the advantages and disadvantages of the various definitions for the location of the taxation and the taxpayer. It concludes that the residence principle complemented by the issuance principle would be the best configuration.

The 'residence principle' entitles the jurisdiction to levy the tax on every financial transaction involving entities that are considered to be residents in this jurisdiction, regardless of where the transaction takes place. And, the 'issuance principle' entitles the jurisdiction to levy the tax on every financial transaction relating to the issuer's jurisdiction, irrespective of the residence of the trading counterparties.

The tax rate is linked closely to the taxable base; hence to avoid distortions, the EC suggests a 0.1% rate for securities and 0.01% rate for derivatives be levied on financial institutions.

The EC discusses the prevention of evasion, avoidance and abuse of the proposed FTT in its proposal. It states that Member States are obliged to ensure the tax is levied accurately and in a timely way to prevent any cases of evasion, avoidance and abuse. Additionally, existing and forthcoming EU legislation on financial markets should minimise the occurrence of tax evasion, avoidance and abuse.

2.1 Conclusions

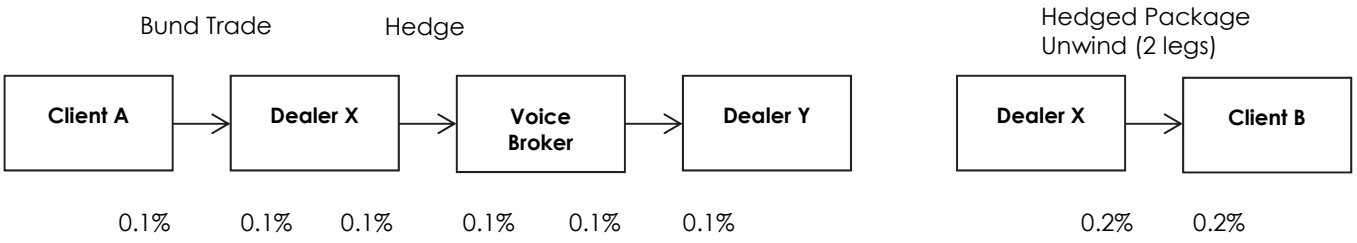
The EC proposal for an FTT (2013) involves the tax being paid by financial institutions, on transactions in financial instruments, if at least one of the parties or the issuer is located in the EU. Debt securities, sales and purchases on secondary markets or over-the-counter would be taxed at a rate of 0.1%.

3 Quantification of impacts

In this section, the quantitative impacts of the proposed EU-11 FTT are evaluated. On this basis, the effect on the cost of funds for corporations and government is computed.

In the first instance, it is important to note that the EC proposal for an FTT does not exempt intermediaries in debt security transactions from the tax. This is the case for other taxes, such as the UK SDRT and the French FTT among others, but not for the EC proposal for an FTT. As such, the sale and purchase of a debt security liable for the tax would be charged at multiple stages of the chain of settlement as well as for other associated transactions (namely, for hedging purposes), creating a "cascade effect"[6]:

Figure 3.1: Exemplified FTT "cascade effect" on debt security transaction



This suggests that the effective tax rate would be in the order of 100 bps (or, 1%) rather than 10bps, which would cripple activity on debt securities markets under current arrangements.

Expressed as a percentage of bond returns, the FTT would represent a significant proportion of the one-year return on many types of bonds, and in many other cases would constitute greater than the one-year return. As such, if issuers wanted to utilise debt securities markets they would have to offer significantly higher returns than presently, raising their cost of capital and in turn investment (in the case of firms) and cost of government debt and spending (in the case of governments).

The analysis following shows that we can further expect uneven effects that may be contrary to some of the aims of the tax.

[6] A member of the Association for Financial Markets in Europe states that 10 transactions in the bond settlement chain is representative at the present time.

A descriptive exercise is conducted to illustrate the impact on bond returns that may arise with the introduction of the tax, *on a per transaction* basis, differentiating between:

- participating and non-participating Member States
- sovereign and corporate debt
- short and long-term debt

Moreover, the impact on bond returns is translated into changes in the cost of funds for corporation. Also, the impact of the FTT on the cost of UK government debt is calculated.

The remainder of this chapter is structured as follows. Section 3.1 provides details of the descriptive exercise. Section 3.2 provides results on the impact of the cost of funds.

3.1 Descriptive exercise

3.1.1 Motivation

The motivation for this task is to understand the differences in the basic impact on bond returns that are likely to arise with the introduction of the FTT, focussing on differences between Member States that have voted for and against the tax, the issuer (corporate or sovereign) and the duration of the bond.

Quantitative estimates are provided in response to the question, "What would the impact of an FTT be if the patterns of issuance were to remain unchanged from what they are presently?"

An alternative interpretation is, "What is the short-run impact of an FTT - if it does not lead to an immediate behavioural response - in terms of a change in the pattern of issuance of debt securities?"

In either case, quantitative estimates on the impact of an FTT on debt securities can be derived using market data.

As mentioned in the EC proposal, primary market transactions are exempt from the FTT; however the primary market is intrinsically linked to the secondary market, which is subject to the tax.

Investors will be less willing to purchase debt securities in the secondary market due the introduction of the tax, as transaction costs effectively rise. Therefore, to maintain the incentive to purchase these securities for a given net-of-tax return to investors, issuers would need to offer larger pre-tax returns.

Estimates of the tax cost per transaction are computed to highlight *differences* in the basic impact on bond returns.

Details on the exact methodology used to derive these results are provided in the Annex.

3.1.2 Results and analysis

Figure 3.2 shows the impact of the FTT on corporate bond returns for a mix of participating and non-participating Member States (assuming trades between those liable for the tax in the latter case).

For bonds with shorter-term maturity, the impact of the FTT is 1.4% greater per-transaction for non-participating Member States than for participating Member States. Hence, issuers in non-participating Member States may be more severely affected by the FTT than issuers in the participating Member States.

Also, for both jurisdictions, the impact on returns for the shorter-term bonds (0-2 year maturity) is more than double the impact on returns for the longer term bonds (8-10 year maturity). One would expect this, as returns tend to be smaller for lower durations. However, it is still relevant to note that the incidence of the tax would be greater on short compared to long-term funding.

Figure 3.2: Estimated average impact of FTT on corporate bond returns for participating and non-participating Member States per transaction, FTT as a percentage of annualised returns

Participation	Number of bonds*	Maturity (Years)		
		0-2	4-6	8-10
Participating Member States	235	12.8%	6.2%	6.0%
Non-participating Member States	142	14.2%	7.6%	7.0%

Sources: London Economics' analysis using Bloomberg®
Note: * indicates the number of bonds for which data is available. Negative annualised returns were excluded from the calculations

For sovereign bonds, the pattern mentioned above between participating and non-participating Member States (as well as the duration of the bond) is not clear-cut, despite a larger sample size. See Figure 3.3 below.

We observe that for bonds with maturity between 4 and 10 years, the per-transaction impact on returns due to the FTT is greater for participating Member States than those not participating. (While the opposite is true for bonds of 10+ year durations, this is an artefact of the UK not issuing these long-dated bonds – see also note to Figure 3.3.)

The per-transaction impact on bonds of duration 0-2 years is especially high expressed as a percentage of annualised returns. In general, returns are lower for shorter durations and for sovereigns due inter alia to less liquidity risk (and therefore the FTT impact is higher).

At the present time, returns are especially attenuated because demand is very high for these bonds. Private inflows are high because of the low inflation environment and the weak economy affecting returns to other asset classes (e.g. equity). Public inflows are also high because central banks policies, such as quantitative easing (QE), have also increased demand and lowered returns for sovereign bonds. These factors combined imply that the FTT impact expressed as a percentage of short duration sovereign bonds is high.

Figure 3.3: Estimated average impact of FTT on sovereign bond returns for participating and non-participating Member States per transaction, FTT as a percentage of annualised returns

Participation	Number of bonds*	Maturity (Years)			
		0-2	4-6	8-10	10 +
Participating Member States	554	128.2%	13.2%	8.8%	6.6%
Non-participating Member States	173	208.4%	9.8%	7.0%	7.4%†

Sources: London Economics' analysis using Bloomberg®
Note: * indicates the number of bonds for which data is available. Negative annualised returns were excluded from the calculations
† The incidence of the FTT is higher for bonds with a 10+ year tenor than an 8-10 year tenor for non-participating Member States, as the former set of bonds does not include any UK issues (which generally have a smaller return and therefore higher FTT incidence).

Figure 3.4 below provides a comparison between the estimated average impact of the FTT on returns for corporate and sovereign bonds per transaction. The impact on returns for sovereign bonds is greater than that for corporate bonds for all maturities.

Figure 3.4: Comparison of the estimated average impact of FTT on corporate and sovereign bond returns per transaction

Participation	Number of bonds*	Maturity (Years)			
		0-2	4-6	8-10	10 +
Corporate	377	13.6%	6.8%	6.4%	-
Sovereign	917	168.2%	11.6%	8.0%	7.0%

Sources: London Economics' analysis using Bloomberg®
Note: * indicates the number of bonds for which data is available. Negative annualised returns were excluded from the calculations

3.1.3 Conclusions

The introduction of the FTT is likely to have negative impacts on the investor per transaction, specifically:

- Larger on returns for corporate bonds from non-participating Member States than participating Member States. The impact of the FTT (per transaction, as a proportion of returns) is at least 10 basis points greater for non-participating Member States than participating Member States.
- Smaller on returns for bonds with longer maturity. For example, for corporate bonds with maturity of 8-10 years, the impact of the FTT is 6.4% per transaction, while for bonds with maturity of 0-2 years, it is 13.6%.
- Larger on sovereign bond returns than corporate bond returns. For example, for bonds with maturity between 4-6 years, the impact of the FTT on corporate debt is 6.8% per transaction, whereas for sovereign debt, it is 11.6%.

In the following analysis, the estimated average impacts of the FTT on corporate and sovereign bond returns are used to assess the likely impact on the cost of funds.

3.2 Impact on cost of funding for corporations, investment and GDP due to the FTT

In this section, the results from the previous section on the changes in bond returns, with the introduction of the FTT, are used to quantify the possible effect on the cost of funds for corporations and the cost of government debt.

3.2.1 Corporate debt securities and the cost of funds

The impact on cost of funds due to the FTT on corporate debt securities is calculated assuming corporations' mix of different types of capital remains unchanged.

A decrease in bond returns due to the FTT can be interpreted as an increase in the cost to transact in the market. Faced with higher transaction costs, investors would require a higher return to maintain the incentive to hold the security. As a result the price of the security would be bid down. Hence, the cost of funds will increase with the rise in transaction costs.

It is taken as given that additional transactions need to be carried out in the chain of settlement for each transaction between end-users such that ten transactions are carried out in total per transaction between end-users[7].

[7] *Ibid.*

We also assume that a similar number of transactions are liable for the tax across participating and non-participating Member States. This is because on the one hand, non-participating Member State issuers and counterparties are not liable for the tax. On the other hand, non-participating Member State debt securities (e.g. UK government bonds) may be more heavily traded than participating Member State debt securities. Qualitatively therefore, and due to a lack of appropriate data, it is assumed that a similar number of transactions are liable for the tax across participating and non-participating Member States[8].

We consider two scenarios for trading. In the first, it is assumed that each corporate debt security is traded twice between end-users in its first year; therefore it is subject to the taxation twice and the impact on returns is doubled. This assumption may be reasonable insofar as corporate debt securities tend to be infrequently traded. In the second, we illustrate what the impact of the tax would be if corporate debt securities were traded two additional times (once per year over the following two years) before being held in portfolios to illustrate how steep the cost of additional trading can be in the presence of the FTT.

Based on data made available from Eurostat, for each country, the share of debt securities as a proportion of total funds for corporations is calculated by participating and non-participating countries for 2011 (latest year available).

Given these shares, it is assumed that the cost of loans and equity capital remain unchanged due to the FTT. Hence, with no substitution effect between the forms of funding: the change in the cost of funds (due to the FTT on debt) is equal to the change in the cost of debt securities, weighted by its share.

All impacts are calculated in present value terms assuming a discount rate of 3.5%.

Figure 3.5 shows the change in the cost of funds due to the FTT. It is clear that the impact on the cost of funds for businesses in non-participating Member States is significantly higher than that for participating Member States.

The interpretation is that debt securities form a larger part of total funds for non-participating Member States, with debt securities have a share of 54.9% compared to 11.3% in corporate capital structures for participating Member States. Therefore, the impact of the tax is larger for non-participating Member States.

[8] A similar assumption in spirit is made in the EC impact assessment (European Commission, 2013, pp.21-22)

Figure 3.5: Change in the cost of funds for non-financial corporations due to the FTT, bps

	Scenario 1	Scenario 2
Participating Member States	22.6	43.7
Non-participating Member States	109.8	212.4

Sources: London Economics' analysis using Bloomberg®
Notes: Scenario 1 – Two secondary market transactions between end-users of funds in the first year of issue. Scenario 2 – two secondary market transactions between end-users of funds in the first year of issue and one transaction per year over the subsequent two years.
* indicates the number of bonds for which data is available. Blank cells indicated missing data.

With the cost of raising funds increasing for corporations to high levels, especially in non-participating Member States, they may face difficulties in raising funds in the future, which are likely to deter investment, and hence have a negative impact on GDP. Based on current arrangements, that may involve ten steps per transaction between end-users, the increase in the cost of funding for non-participating Member State corporate issuers may be in the order of 100bps or more.

3.2.2 Investment and GDP impacts

London Economics (2002) derived quantitative estimates of the relationship between the cost of funds and investment and GDP. This showed that, in the long run, a permanent increase of 20bps in the cost of funds decreased business investment by 1.8% and the level of GDP (at constant prices) by 0.5%.

In the present context, these impacts (on business investment and GDP) may be magnified because the effective tax rate is likely to be many times greater than 20bps. The effective tax rate is likely to rise as many debt securities are turned over several times in secondary markets rather than once. Further, any one transaction between end-users also involves several intermediate transactions that may also be subject to the tax. Marginal business investment projects that would have taken place at a tax rate of 20bps may therefore not take place at a higher effective tax rate with an attendant impact on the level of GDP.

The impacts on business investment and GDP may be further magnified due to the uneven incidence of the tax on different debt securities. For instance, as short-term funding is affected to a greater degree than long-term funding by the tax, working (and other forms of) capital that may be used to relieve credit constraints that arise over the course of making longer term investments, may not be available. Business investment and GDP may therefore further falter due to the FTT impact on particular forms of capital.

Moreover, the competitive balance between firms in different Member States would be affected by the uneven incidence of the tax across Member States. At the margin, firms that issue lower-rate debt that trades less frequently by counterparties not liable for the tax will be less affected by the tax, at the expense of other firms.

In summary, the quantitative estimates provide a lower bound for the FTT impact on business investment and GDP. Given the effective tax rate is likely to be higher (due to debt security turnover and intermediate transactions) and markets for particular types of debt securities damaged (e.g. short-term funding), the impacts may well be several times larger.

3.3 Impact on cost of funding for government due to the FTT

In this section, the impact of the FTT on government debt securities is illustrated. We focus on the UK, for which a forecast for gross issuance in 2013 of non-index linked UK gilts of different durations is available.

Given an assumption for the average holding period for these debt securities (they are traded, on average, twice per year between end-users) and that ten steps per transaction between end-users are involved, the impact of the FTT on the government deficit is computed.

It is assumed that half of the gross issuance is traded twice in its first year between end-users and then forms a part of portfolio holdings. The remaining half is traded over the various years of their terms.

It is also assumed that approximately three-out-of-ten transactions (31.1%[9]) are liable for the tax, in proportion with the UK-to-overseas split of UK gilt ownership[10].

On this basis the total discounted FTT incidence over the lifetime of the each bond is computed. To simplify calculations, for the given bands of bond durations, we take the mid-point year as the duration and assume the bond trades take place every six months.

Figure 3.6 below provides the estimated impact of the FTT on the cost of government debt. The total estimated cost is £3.95 billion in 2013. The government therefore has to seek alternative channels through which to fund its £3.95 billion shortfall (e.g. general taxation) or reduce spending. While due to data limitations we have not been able to carry out a similar analysis for other EU Member States, the impacts of the tax on the cost of funds for these governments would be of a similar nature. However, it is important to note that the cost of funds would be higher for participating Member States as all transactions would be FTT-liable regardless of the residence of the counterparties to a transaction (due to the issuance principle).

[9] The average UK-to-overseas ownership over Q12007 and Q32012 is 68.9%-to-31.1%.

[10] The estimate that three-out-of-ten UK gilt transactions are liable for the tax based on UK-to-overseas ownership of UK gilts is an upper bound in the sense that overseas owners are not all from tax-participating Member States.

Figure 3.6: Impact of the FTT on the cost of government debt, £ billion

	Maturity (Years)				
	All maturities (traded in first year only)	**0-3**	**3-7**	**7-15**	**15 +**
Gross Issuance (£ billion)	64.04	12.32	14.78	13.96	22.99
Proportion of gilts*	-	19%	23%	22%	36%
Number of end-user trades	2	3	11	19	45
Incidence of tax applicable (present value, bps)	200	295	1,011	1,635	3,160
Impact of FTT on the cost of government debt (£ billion)	0.40	0.11	0.47	0.71	2.27

Sources: London Economics' analysis using data from UK DMO
Note: *Non-index-linked

3.3.1 Conclusions

The cost of funds for corporations increases with the introduction of the FTT. This impact is greater for non-participating Member States than participating Member States, due to debt securities as a proportion of total capital being higher for corporations in these countries. Based on current arrangements, that may involve ten steps per transaction between end-users, the increase in the cost of funding for non-participating Member State corporate issuers may be in the order of 100bps or more. As such, the higher cost of raising funds may depress investment and hence GDP.

The cost of funds for governments also increases with the introduction of the FTT. Using the forecasted value of gross issuance of non-index linked UK gilts, the estimated cost of the FTT on UK government debt is £3.95 billion based on a gross issuance of £128.08 billion of non-index linked gilts. The impacts of the tax on the cost of funds for other EU governments would be of a similar nature. However, it is important to note that the cost of funds would be higher for participating Member States as all transactions would be FTT-liable regardless of the residence of the counterparties to a transaction (due to the issuance principle).

4 Qualitative assessment of impacts

The quantification of the impacts of the FTT (chapter 3) related to the short-run; or put another way, was based on the assumption that the FTT could be implemented effectively without resulting in behavioural change.

In reality, there may be implementation issues associated with an FTT such as problems with collection and behavioural change among market participants. While it is infeasible to quantify these impacts of the FTT *a priori*, these potential consequences are illustrated below on the basis of stakeholder views.

4.1 Collection

Collection issues may arise in administering the FTT, as highlighted by the stakeholders consulted.

While the UK stamp duty reserve tax (SDRT) is administered through CREST – the electronic settlement and registration system – which allows for collection of the FTT smoothly, the French FTT's administration presently involves market participants' self-declaring their liability for the tax. This difference in FTT administration across Member States is likely to lead to an uneven incidence of the tax, due *inter alia* to potential greater non-compliance in self-declaring Member States.

The information requirements associated with administering the FTT may also be cumbersome. At the level of the security, gross transaction values are required to calculate liability and in most Member States only net transaction values are presently available via the central securities depositories (CSDs). Given the present lack of appropriate data, administering the FTT may also be felt unevenly for this reason.

The information requirements associated with implementing the residence principle are also likely to lead similar problems for collection.

4.2 Capital substitution

The EC proposal for an FTT presently involves equity and debt capital being taxed at a minimum rate of 0.1%. If an FTT is implemented and the tax rate differs between equity and debt capital then corporations may prefer one form of capital more than the other due to the FTT at the margin[11].

[11] While the FTT may not be implemented on primary markets and therefore not directly affect corporate debt and equity issues, its implementation on secondary markets would indirectly affect these securities as investors demand a higher rate of return to compensate for the increased cost of trading resulting from the FTT.

However, our present understanding of the EC proposal for an FTT is that the tax rate on equity and debt would be the same and therefore no capital substitution effect between these asset classes should be observed.

Alternatively, corporations may prefer bank loans, which may not fall under the scope of the FTT. This may in turn lead to unintended consequences. For instance, a greater reliance on bank loans would see more project risks allocated to the banking sector than would otherwise be the case, in the absence of the FTT.

4.3 Instrument substitution

Market participants may substitute towards instruments taxed at a lower effective rate to avoid an FTT all else being equal (that is, given the amount liable). The EC proposals for an FTT state that debt securities would be taxed at a minimum rate of 0.1% and derivatives at a rate of 0.01%. This may translate to a lower effective rate on derivatives and may see greater use of derivatives. One stakeholder, identified that total return swaps (TRS) can be used to replicate the cash flows of a bond, and if financial institutions purchase an entire bond issuance and undertake TRS transactions with all counterparties, the minimisation of bond trading and maximisation of trading in derivatives of the bond would minimise the incidence of the FTT.

More generally, even if total return swaps were under the scope of the FTT, financial institutions may have the incentive to create other instruments that are not. Another example mentioned to replicate the cash flows of a bond by the stakeholder consulted was a bond index option, based on a European call and put option, which would have a notional value of a fraction of the bond it is replicating, therefore significantly minimising the incidence of the FTT.

Among other things, instrument substitution to avoid an FTT could also lead to a significant redistribution of counterparty risk.

That being said, there is a limit to the extent of instrument substitution insofar as the gains would have to exceed the cost of the tax, which will not be the case for the most complex derivatives.

4.4 Geographic substitution

The scope for geographic substitution under the residence principle is feasible, as described in Oxera (2011). In general, non-EU investors and companies can avoid the tax by using non-EU financial institutions rather than EU financial institutions. EU investors and companies may also be able to reduce their exposure to the tax in this way. In addition, over-the-counter trades can be carried out outside of FTT-implementing Member States (as long as the registered seat of the issuer is not taken into account in the determination of whether transactions are liable for the tax).

Under the issuance principle, however, the incentive for geographic substitution would be reduced insofar as trading in securities issued within FTT-implementing Member States would still be liable for the tax.

The combination of the residence and issuance principle means that geographic substitution will arise due to the FTT, but only among non-

participating Member State financial institutions trading with one another that switch from trading tax-liable to non-tax-liable debt securities.

Geographic substitution therefore implies less revenue would be generated through the FTT than would be the case if it did not lead to behavioural change by some market participants.

Additionally, one stakeholder highlighted that transactions across participating and non-participating Member States may decline with attendant consequences for government revenue (for example, through corporate and income tax from banks), employment, etc.

4.5 Retail markets (for example, for retail mortgages)

In general, stakeholders expect the incidence of the FTT to be passed through to end-users of funds rather than remain with financial institutions.

One transmission mechanism highlighted is through financial instruments (e.g., debt securities) issued in order to fund retail banking activities that become subject to the FTT and therefore entail a higher cost of funding.

A case in point highlighted was that the cost of retail mortgages would rise as a result of the FTT. Another example that arose through the consultation was that pension funds could become more expensive.

4.6 Conclusions

This chapter touched upon various ways in which the FTT, if implemented, may result in behavioural change amongst market participants or problems with collection that leads to: fewer revenues being collected than hoped; an uneven incidence of the FTT – across Member States, market participants etc; and impacts on end-users of capital such as holders of retail mortgages. Given the original objectives of the FTT, discussed in section 1.1, these issues suggest that should the FTT be implemented, the design would require reconsideration.

5 Note on the repo market

Background

A repurchase agreement (repo) is the sale of a security coupled with an agreement to repurchase it, at a specified price, at a later date with title to the security being temporarily transferred to a third party.

Repos are under the scope of the EC proposal for an FTT. As such, we explore its potential impacts on the repo market and the real economy below.

Economic importance of repos[13]

Repo markets play an important role in monetary policy, firstly as a monetary policy instrument. Given stocks of repos issued at different durations, central banks can control liquidity relatively precisely, as injections of liquidity are reversed when repos mature. Central banks can therefore absorb liquidity by not renewing a fraction of repos, as required. They can also withdraw liquidity directly by issuing reverse repos.

Repo markets are also a source of information on market expectations. Central banks can gauge short-term interest rates through the repo rates associated with transactions used to manage liquidity. In addition, central banks can influence expectations of short-term interest rates by fixing the repo rates it will transact at.

Repos are also useful to central banks for monetary policy due to their features. As they are collateralised, the pose less credit risk than other monetary policy instruments. They are flexible insofar as their features (amount, maturity, frequency, etc.) can be tailored to liquidity conditions. Further unlike the discount rate, they utilise established markets accessible to a broad range of institutions and may therefore be less subject to competition issues.

Repo markets are important to commercial banks in the context of regulatory requirements. One stakeholder highlighted that bank liquidity coverage ratios requires that eligible liquidity buffers be traded on large, deep and active repo or cash markets. In the absence of large, deep and active repo markets, lower-yield cash based instead of higher-yield securities based liquidity buffers would be required to be held, increasing their costs[14].

[13] BIS (1999)

[14] See also Oxera (2011)

As well as central and commercial banks, repos play an important role for other market participants. They are used to obtain funds on a comparatively secure and safe basis due to the use of collateral. They are also used to fund long positions (or build up leveraged long positions). And, they are used in derivatives trades such as funding short positions to hedge interest rate risk.

Impacts of the FTT on the repo market

An FTT on repos would have deleterious effects on the repo market. One stakeholder suggested that the average fee for a repurchase agreement was in the order of 5 basis points (bps). A minimum FTT of 10bps may well therefore result in a substantial reduction in activity in the repo market.

Another stakeholder highlighted the particular importance of the duration effect in regard to buyers' and sellers' willingness to engage in repo markets. We observed for debt securities the FTT burden as a proportion of returns was larger for shorter-dated debt securities when denominated in years. This effect would be magnified many times in repo markets as the durations concerned can be in the order of days or less.

Thirdly, the tri-party segment of the repo market would be negatively impacted insofar as intermediaries' inventory management transactions would be affected by the FTT. Intermediation in the tri-party repo market would therefore only take place at a significant premium

Moreover, repos will be impacted indirectly through debt security yields rising (described in chapter 3). The amount that repo sellers could borrow would fall, as collateral in the form of debt securities would be worth less. Moreover, repo sellers would face higher margins as the effect of the tax feeds through debt securities markets.

Economically, this could affect the real economy through the commercial-bank and other market participant channels described above (although we would expect that central bank transactions would be exempt from the FTT). Commercial banks may face higher costs associated with liquidity buffers, which may be passed on to end-users of capital and other market participants may be unable to manage risks (through short positions) and foster enterprise (through taking leveraged positions) as they may wish to.

Finally, these effects feedback to debt securities markets, as lack of activity on repo markets imply debt securities are less actively traded, affecting their value through liquidity and price discovery channels.

Implementation

Insofar as implementing the tax on repos goes, the present rules suggest the incidence may be too high compared to what is justified economically.

If an FTT on repos were to be brought into force as planned, it would place too high a burden on repo transactions compared to other financial instruments (namely, secured loans) because the former are liable for the tax and the latter are not (secured loans are indeed not liable for the tax) despite being economically similar.

Conclusions

This chapter briefly outlined the relevance of an FTT to the repo market.

The impact of an FTT on the repo market may well be severe, as an FTT may represent a substantial portion of financial intermediary fees financial intermediaries receive for arranging transactions.

The consequent reduction in repo market activity may have impacts on the real economy, as the likes of banks use repo markets for short-term funding that may relate to the amount they lend to the real economy. This is particularly relevant in the case of a particular type of repo transaction known as a collateral upgrade.

In addition, if an FTT on repos were to be brought into force, it may face the issue of placing too high a burden on repo transactions compared to other financial instruments (namely, secured loans), which are economically similar.

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Annex 1 Methodology for quantification of impacts

This annex sets out the methodology for the descriptive exercise on the quantification of impacts.

To measure the impact of the FTT as a proportion of bond returns quantitatively, data on returns for debt securities is needed.

Bloomberg® provides the relevant measures on bonds, such as the coupon type and maturity date, which are needed to calculate returns. Additionally, for each bond, it distinguishes between issuer, maturity type, and country.

To aid the calculation of bond returns, Bloomberg®'s Total Return Calculator for bonds is used. Bloomberg®'s Total Return Calculator determines the annualised return (as well as other measures) for each individual bond in a portfolio selected by the user over a specified holding period.

Due to the complex nature of many bonds available, the possibility of a sizable sample and the large number of countries in the EU, the following considerations are made to simplify the task, but maintain a grasp of the fundamental environment.

Since the purpose of this exercise is to illustrate the effect of the FTT on the different Member States that have voted for and against the tax, the issuer and the duration of the bond; the following considerations are made.

The analysis considers bullet bonds due to their simple nature, i.e. the entire face value is paid once at the maturity date, allowing us to focus on differences in the incidence of the FTT on various Member States by participation, the type of issuer (corporate or sovereign) and the tenor of the security.

The issue date for all bonds is restricted to the four-year period beginning 1st January 2009 to 31st December 2012.

Moreover, given the variety of maturity levels of bonds on the market, three ranges for the maturity are considered. Namely, bonds with maturity of 0-2, 4-6 and 8-10 years (and 10+ years for sovereign bonds). This allows us to show the likely impact that would arise on short and more long-term debt with the imposition of the FTT.

Finally, the number of Member States considered in the analysis is reduced to six. All countries were not considered since the exercise is provided for illustrative purposes.

The selection of the six Member States is based on two factors: whether they voted in favour of the tax or not and their size, to capture a mix of large, medium and small Member States (measured by absolute GDP level in 2012). The table below shows the selected countries and their GDP level in 2012. Further details on the selection method used are provided in the following Annex.

Table A1.1: Selection of Participating and Non-participating Member States, based on GDP level (in EUR billions)

Participating Member State	GDP level (billion) in 2012	Non-participating Member State	GDP level (billion) in 2012
Germany	2.6	United Kingdom	1.9
Spain	1.0	Netherlands	0.6
Belgium	0.4	Sweden	0.4

Sources: Eurostat

Given the large number of firms in these countries and the number of bonds issued by them, the number of firms is limited to the top 10 companies ranked by their current market capitalisation.

Based on these search parameters, the Bloomberg bond search engine was used to identify the relevant bonds and their Bloomberg identifier. The unique identifier was plugged into the Total Return Calculator to provide the annualised total returns for each bond.

Using the annualised return and the 0.1% FTT, an analysis of the differential impacts that are likely to arise are carried out by calculating the likely percentage impact on returns with the introduction of the tax for the categories below.

The exact calculation for country *i* is determined by:

$$\gamma_i = \frac{FTT\ Rate}{Average\ Annualised\ Return_i}$$

- For participating and non-participating Member States:

  The difference in impacts of the FTT on participating and non-participating countries is likely to have an impact on the effective functioning of the Single Market.

- For sovereign and corporate debt

  Sovereign debt issues tend to, on average, have less credit risk and traded more frequently than corporate debt issues. Hence the impact of the FTT is likely to be larger for sovereign debt than corporate debt.

- For short and long-term debt

  Short-term debt is likely to have lower returns than long-term debt for various reasons. The probability of counterparty default is lower for short-term debt; hence the reward for holding the debt is likely to be less than that for long-term debt.

Moreover, other uncertainties, such as the state of the economy, are relatively difficult to predict over a longer time horizon, thus the risk of holding long-term debt is matched by higher returns.

Therefore, with lower returns, the FTT is likely to represent a greater proportion of returns on short-term debt. This may deter investors from holding such debt.

Annex 2 Methodology for selecting sample of Member States

The number of Member States considered in the analysis is reduced to six. All countries are not considered since this exercise is provided for illustrative purposes.

The selection of the six Member States is based on two factors: whether they voted in favour of the tax or not and their size, to capture a mix of large, medium and small Member States (measured by absolute GDP level in 2012).

Data on GDP in 2012 was made available from Eurostat and ranked by highest to lowest for the 11 participating and 16 non-participating Member States. See table below.

For the large Member State, Germany was selected and the nearest (in terms of GDP level) participating Member State was the United Kingdom.

Spain was then selected as the medium-size participating Member State and it's nearest non-participating Member State was the Netherlands.

Belgium was chosen as the small Member State; although its GDP level is larger than six other participating Member States. This is because the number of the debt issues by these smaller Member States is low; hence lowering the number of observations in the sample. Following a similar argument, Sweden was chosen as the closest non-participating Member State to Belgium, despite Poland being closer in GDP level.

Table A2.1: Ranking of countries in the EU27 by GDP level (billion) in 2012 and by participation to FTT

Participating Member State	GDP level (billion) in 2012	Non-participating Member State	GDP level (billion) in 2012
Germany	2.65	United Kingdom	1.91
France	2.03	Netherlands	0.61
Italy	1.57	Sweden	0.41
Spain	1.05	Poland	0.38
Belgium	0.38	Denmark	0.25
Austria	0.31	Finland	0.19
Greece	0.20	Ireland	0.16
Portugal	0.17	Czech Republic	0.15
Slovakia	0.07	Romania	0.13
Slovenia	0.04	Hungary	0.10
Estonia	0.02	Luxembourg	0.04
		Bulgaria	0.04
		Lithuania	0.03
		Latvia	0.02
		Cyprus	0.02
		Malta	0.01

Sources: Eurostat

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