

**Evaluating the Revenues from  
a Financial Transaction Tax  
in 10 EU Member States  
through Enhanced Cooperation**

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Research assistance: Nathalie Fischer

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July 2018

Austrian Institute of Economic Research

Commissioned by the Federal Ministry of Finance

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## Abstract

This study estimates the potential revenues from introducing a financial transaction tax (FTT) through the enhanced cooperation set-up, as currently discussed between 10 EU countries (FTT10). In the EU the implementation of a financial transaction tax has been discussed for several years now, with the concept being redefined across several important dimensions. Using the methodology of the European Commission, we provide new country-specific estimates with the most recent data regarding the turnover volumes of key financial instruments for the FTT10 countries. We therefore can report both the overall revenue potential of an FTT as well as country-specific potential revenues. Depending on the key parameters (for elasticities, evasion effects and transaction costs) we estimate three different scenarios for the potential revenues from the FTT. We obtain potential revenues between 7.7 and 14.5 billion € for the FTT10 countries and between 158 and 380 million € for Austria. In the middle scenario, the estimated annual potential revenues are 11 billion € for the FTT10 countries and 242 million € for Austria. We also discuss the currently envisioned exemptions for certain types of products and market segments and estimate the revenue shortfall caused by these exemptions.

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2018/396-3/S/WIFO project no: 4718

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Verkaufspreis: 50 € • Kostenloser Download: <https://www.wifo.ac.at/www/pubid/62043>

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## 1. Introduction and Background

The financial transaction tax is an idea with a long history and debate behind it. The idea to tax (certain) financial transactions was first introduced by James Tobin in the beginning of the 1970s (Tobin, 1978) after the breakdown of the Bretton Woods System. The tax in its original design as proposed by Tobin aimed at currency transactions, as a way to reduce the volatility on currency markets and to limit what can be seen as “excessive”, purely speculative and potentially destabilizing trading. With the introduction of the common currency in an increasing number of EU Member States the original idea of taxing currency transactions has lost much of its relevance in the European context. During the last decade the focus of the academic as well as the policy debate has shifted towards a general financial transaction tax (FTT) levying a uniform tax rate on all financial transactions<sup>1)</sup>. The recent financial and economic crisis resulted in new momentum for this concept of a general FTT, also against the background of the general under-taxation of the financial sector (Cannas *et al.*, 2014). There is still an ongoing debate whether the FTT is the appropriate instrument to achieve the expected goals and whether the potential positive effects outweigh the negative ones. Besides the overall goal to reduce volatility, its proponents mention the possibility to discourage dangerous speculations and thus to contribute to reducing periods of excessive market optimism which can lead to significant deviations of prices from fundamentals - “bubbles”. Such “bubbles” and periods of excessive market growth were identified in some of the recent contributions in the literature as important precursors to deep economic crises (Brunnermeier – Oehmke, 2012; Jordà *et al.*, 2015). Theoretically less speculative trading should also mean that prices more accurately reflect the underlying values of assets and are less influenced by short-term expectations. One further positive effect expected from the FTT is to reduce the activities of High-Frequency Traders, which should also have a stabilizing effect. Latest events such as the Flash Crash of 2012 have shown the dangers of algorithm trading and the negative outcomes markets guided too heavily by automatic trading can cause. In a sense, the FTT may then be understood as a Pigouvian tax that aims to correct important market failures<sup>2)</sup>. Not least, the tax has the additional benefit of significant potential revenues which could either go into national budgets or be used as an innovative tax-based own resource for the EU budget (Nerudová *et al.*, 2017). For a more thorough survey on the positive and negative aspects of introducing the FTT, see Schulmeister (2008).

In the EU the introduction of an FTT has been discussed and pursued by a group of countries within the Enhanced Cooperation approach for several years now. Chapter 2 briefly summarises the most important results of the recent literature on the potential effects of an FTT, particularly focusing on market volatility and the elasticity of the tax base. Chapter 3 reviews the

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<sup>1)</sup> See Schulmeister *et al.* (2008) for an early concept for a general financial transaction tax.

<sup>2)</sup> For a thorough discussion of corrective taxation with regard to financial sector externalities, particularly in the context of the recent financial crisis, see Keen (2011).

discussion about and the process aiming at introducing an FTT in the EU and presents the envisaged design of the FTT. In chapter 4 the most recent data is used to provide new estimations on the potential revenues from an FTT under enhanced cooperation for the group of 10 EU Member States (FTT10 countries) in principle willing to introduce the tax. We also detail the estimations for Austria. Chapter 5 concludes.

## **2. Potential effects of an FTT on volatility and trading volume**

The academic and political debates around the financial transaction tax revolve around various issues. Among the most important ones is the relationship between transaction taxes and market volatility, and the impact of such taxes on trading volumes. Whether transaction taxes would indeed – as proponents of an FTT, hereby following *Tobin* (1978), argue – dampen volatility on financial markets or in the contrary would rather increase it, thus rather destabilizing financial markets, is theoretically disputed. Moreover, and related to the issue of volatility, expectations and assessments regarding the extent to which taxation would reduce financial transactions, and thus the potential tax base, differ widely. Therefore, this chapter provides a brief review of the existing empirical evidence on the impact of the taxation of financial transactions as an attempt to get a rough indication for the actual impact of an FTT.

It must be pointed out, however, that the results delivered by empirical analyses of existing taxes on financial transactions allow only limited conclusions regarding the potential effects of a general FTT implemented in a group of countries. First, existing taxes on financial transactions are taxing specific sub-markets only, e.g. stock market transactions. Therefore, there is a large variety of substitution options, which would not exist in the case of a broad-based FTT with no or only few exemptions. Secondly, all existing taxes on financial transactions are levied on the national level so that their regional scope is rather narrow, while transnational approaches to the taxation of financial transactions, which would limit relocation options, have not been implemented until now.

### **2.1 Effects of transaction taxes on market volatility**

A key dispute in the theoretical literature regards the impact of the FTT on volatility of financial markets. While the proponents of the FTT in the tradition of *Tobin* argue that it is able, as a corrective tax, to reduce volatility by increasing transaction costs, its opponents expect the opposite: namely, that the tax-induced increase of transaction costs will dampen trading volumes and accordingly market liquidity. As a consequence, volatility would rise and the tax would cause a market distortion, instead of eliminating one as envisaged by FTT proponents.

Meanwhile, a number of studies have investigated empirically the relationship between financial transaction taxes or transaction costs (which would be raised by a financial transaction tax) and price volatility on financial markets. These analyses focus on short-run price volatility, as measured by the variance of returns based on daily or even on intraday data.

*McCulloch – Pacillo* (2011) present an overview of studies on the relation between transaction costs and volatility. The authors conclude that the empirical literature suggests that an FTT



would probably rather increase volatility than decrease it. Also the previous review of empirical studies by *Schulmeister et al.* (2008) finds that the existing empirical evidence on the effects of financial transactions taxes on volatility is mixed at best, with the majority of studies included in the review finding a positive relationship between financial transaction taxes/transaction costs and volatility.

Based on this evidence it can be concluded that an FTT probably cannot be expected to dampen short-run volatility. It must be pointed out, however, that the existing studies, by focusing on short-run volatility, are not able to capture any long-run effects of financial transaction taxes on financial market stability (*McCulloch – Pacillo*, 2011). It therefore remains an open question whether an FTT is able to reduce financial market volatility in the long run.

## **2.2 Effects of transaction taxes on trading volumes**

While empirical evidence clearly shows that financial transaction taxes negatively affect trading volume<sup>3)</sup>, empirical results for the elasticity of trading volume – and thus the tax base – lie in a rather broad range. They differ across the various markets as well as the countries examined. Moreover, there is a large variety regarding the time periods studied (most studies focus on short-run elasticities, while there are only few estimations of long-run elasticities) as well as in terms of the data used and the methodological approaches. A first group of studies measures the influence of financial transaction taxes (which increase total transaction costs), while a second group focuses on the relationship between total transaction costs and turnover. A third group looks at bid-ask spreads (see the overview provided by *Matheson*, 2011). The review by *Matheson* (2011), which includes studies from all three groups, finds short-run elasticities between -0.1 (wheat futures, United States) and -2.3 (copper futures, United States) and long-run elasticities between -1.23 (S&P 500 Index Futures, United States) and -1.7 (stock market, United Kingdom). Studies focusing on transactions costs and financial transaction taxes identify short-run elasticities between -0.5 (stock market, United Kingdom) and -1.5 (stock market, multinational). *Jackson – O'Donnell* (1985) find a long-run elasticity of -1.7 for the stock market in the United Kingdom. A survey by *McCulloch – Pacillo* (2011) identifies a median estimate for the elasticity of equity volume with respect to transaction costs of -0.8. *Hemmelgarn et al.* (2016) report that all papers empirically studying the effect of the FTT introduced in France in 2012 find that it decreased trading volume by about 20%.

Altogether, empirical evidence points at rather large elasticities of trading volumes with regard to transaction costs and financial transaction taxes. However, several caveats apply. First, the existing studies are restricted to certain sub-markets (e.g. stock markets, or futures markets). It can therefore be expected that a broad-based FTT covering all relevant sub-markets would be associated with smaller short-run and long-run elasticities, as important substitution options would be eliminated. Secondly, the impact of an FTT on trading volumes crucially depends on the level of pre-taxation transactions costs, which are generally considerably higher in spot

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<sup>3)</sup> An exception is the analysis by *Hu* (1998), who, using stock market data in a cross-country study, finds no short-run effect of financial transaction taxes on trading volume.

markets compared to derivatives markets. Therefore, a general FTT would raise transaction costs in derivatives markets much more, thus dampening derivatives trading to a much larger extent than spot trading (which may enhance market efficiency if destabilizing speculation was concentrated in trading derivative instruments) (Schulmeister *et al.*, 2008). Moreover, elasticities should depend on the concrete design of the FTT (Hawkins – McCrae, 2002). It is also impossible to draw any conclusions whether an FTT would rather affect the “stable” (or “fundamental”) part of trading (which would be an undesirable effect of the tax) or the “destabilizing” trading component (which would be one of the envisaged positive effects of the tax) (Habermeier – Kirilenko, 2003).

### **3. The financial transaction tax in the European Union**

#### **3.1 A brief review of the history of the financial transaction tax in the European Union**

In 2010, a discussion at the EU level has started regarding the introduction of an FTT, after the failure of an agreement on the G20 level to introduce the tax on an internationally coordinated basis. Inspired by the recent financial and economic crisis, the European Commission initiated this discussion at the EU level by presenting an analysis of various options to tax the financial sector (European Commission, 2011). Their proposal of an EU-wide broad-based general FTT launched in 2011 envisaged the implementation of minimum tax rates as of 2014: 0.1% on stock and security transactions and 0.01% on transactions with stock and security derivatives. Currency transactions on the spot market and other transactions with derivatives as well as typical financial transactions of small savers, like loans, mortgages, insurance contracts and credit card transactions, were supposed to remain untaxed (Hemmelgarn *et al.*, 2016), as the tax was aimed at professional financial market actors, in particular banks, insurance companies, funds and hedge funds. The potential revenues of such an FTT were estimated at € 57 billion for the case of EU-wide implementation. Besides stabilizing the financial sector, the European Commission argued that the FTT would secure an adequate contribution of the financial institutions to the recovery of the costs of the recent crisis, would cover the costs of potential future financial crises and compensate for the VAT exemption of financial services. Moreover, it would bring about a certain convergence of the country-specific financial transaction taxes applied in a number of Member States, and would thus remove existing distortions on the European common market.

As the United Kingdom as well as Sweden, Bulgaria and the Czech Republic fiercely opposed this proposal, the unanimity required in tax matters could not be reached. The European Commission therefore suggested in 2012 the introduction of the FTT using the instrument of enhanced cooperation, which requires the participation of at least 9 Member States. In the end of 2012, 11 Member States<sup>4)</sup> accounting for about two third of EU27 GDP joined forces to ad-

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<sup>4)</sup> Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and the Slovak Republic.

vance the implementation of an FTT within the enhanced cooperation procedure. These countries decided to search for an agreement on a common system of the FTT under enhanced cooperation, based on the European Commission's initial proposal, paying particular attention to the fact that such an approach could lead to substantial evasive action, distortions and transfers to other jurisdictions by the financial sector. In the beginning of 2013, the European Commission released a slightly revised proposal which was expected to yield revenues between € 30 billion and € 35 billion (*European Commission, 2013*). In May 2014 all participating countries with the exception of Slovenia agreed on a progressive tax on transactions with securities and selected derivatives, to be implemented in 2016. After several fruitless negotiation rounds, Estonia left the "Coalition of the Willing" in the end of 2015.

Since then, even more negotiation rounds have taken place, the most recent one in mid-September, 2017, in Estonia. Here it was agreed to provide country-specific national estimations for all countries participating in the "Coalition of the Willing" with a focus on three points: First, the effects of the FTT on those countries with capital-funded pension systems should be determined. Secondly, the expected revenues and the implementation costs of the tax should be quantified. Thirdly, all possible scenarios and their effects in relation to the upcoming Brexit should be identified in cooperation with the European Commission. Simultaneously the European Commission was commissioned to present a draft directive to the finance ministers of the countries involved.

### **3.2 The European Commission's original proposal for an FTT of 2011**

According to the initial proposal put forward by the European Commission in 2011, the tax should be levied on a broad range of financial transactions including the purchase, sale and exchange of financial instruments (shares, bonds, derivatives and structured financial products), intra-group transfers of financial instruments, the conclusion of derivatives contracts, repurchase agreements (repos), reverse repurchase agreements (reverse repos), as well as securities, lending and borrowing agreements<sup>5</sup>). Transactions should be liable for taxation regardless whether carried out in an organized market or Over-the-counter (OTC). Private households and SMEs dealings would remain untaxed. For the tax to apply, one party to the transaction must be a "financial institution": a term encompassing a range of entities. Also, one party of the transaction, whether or not the financial institution, needs to be "established" in a Member State. As an anti-relocation mechanism, the FTT should be based on a broadly defined residence principle. It therefore matters who is trading with whom, independent of whether the place of transaction is within or outside the territory of the FTT jurisdiction and independent of whether the instruments have been issued within or outside the FTT jurisdiction.

The tax is then payable by each financial institution involved in the transaction to the Member State in which it is deemed to be established, at the rates set by this Member State. The tax should be levied at a minimum rate of 0.1% on shares and bonds and of 0.01% on derivative

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<sup>5</sup>) [https://www.sbs.ox.ac.uk/sites/default/files/Business\\_Taxation/Docs/Publications/Working\\_Papers/Series\\_13/WP1326.pdf](https://www.sbs.ox.ac.uk/sites/default/files/Business_Taxation/Docs/Publications/Working_Papers/Series_13/WP1326.pdf).

contracts at both ends of a taxable transaction. A number of exemptions were foreseen, including transactions on primary markets for securities and currencies. FTT revenues should go to the respective Member States.

The proposal of the European Commission from 2011 included an initial revenue assessment. Our estimations are based on this Impact Assessment, as well as on the study by *Anthony et al.* (2012). Both studies make use of the European Commission formula for estimating revenues either for the whole region under question or for a separate country.

The original Impact Assessment of the European Commission made use of the following formula:

$$Revenue = Tax * Volume * Evasion * \left(1 + \frac{Tax}{Transaction\ Cost}\right)^{Elasticity}$$

and estimated annual € 57 billion revenues for the whole EU.

This formula was introduced in a study by the French Ministry of Finance in 2000 on currency transaction taxes and then used in the now seminal study by *Jetin – Denys* (2005). It is important to note that the formula is used for different assumptions around the decrease of trade volume resulting from the introduction/the increase of a tax. This formula should be used to build the scenarios and estimations around assumed values for the reaction, since there is no structural model to explain the precise reaction for all market segments and market instruments, to derive a behavioural change expectation from a theoretical point of view.

### **3.3 Moving from EU27 to an enhanced cooperation proposal**

After the original proposal by the European Commission for an EU-wide introduction of an FTT failed and 11 Member States decided to implement the tax within the enhanced cooperation mechanism, the European Commission launched a revised proposal in 2013 (*European Commission*, 2013). This proposal stated that the FTT will apply to most trading in equity, sovereign debt, corporate debt, and derivatives. It would be levied at a minimum rate of 0.01% on the notional value of the underlying contract of derivative transactions and at a minimum rate of 0.1% on all other taxable transactions, and it would apply to both sides of a transaction (the buy and the sell side). The tax would be payable at each level of intermediation, thus creating a cascade effect leading to effective tax rates above the proposed headline rates of 0.01% and 0.1%.

After the change to an enhanced cooperation approach, to adjust to the possible evasion effects, it was decided that the FTT should be based on a strengthened issuance principle. The issuance principle stipulates that if none of the parties of a financial transaction is established in a participating Member State, but the transaction concerns a financial instrument issued in a participating Member State, the financial institutions involved in the transaction would still be taxed in the participating Member State of issuance of this instrument.

Adjusting for the strengthened issuance principle is a challenging task since it involves having detailed information on the place of establishment of financial institutions and of the issuance

of different financial instruments. Such information is not available. *Schulmeister – Sokoll (2013)* try to approximate this by calculating transaction matrices to provide information about the transaction shares between different countries of residence, differentiated by financial instruments. Based on the IMF/CPIS data (2011), the European Commission estimated the additional revenues from the strengthened issuance principle at € 312 million annually. This amount does not change considerably the overall revenues from the FTT, so we do not take it into account in our estimations below.

Moving from a common option for the whole EU27 (Option B in the Commission Proposal from 14<sup>th</sup> February 2013) to a narrower perspective of enhanced cooperation between willing countries only (Option C) raises important concerns and questions. The first one is whether enhanced cooperation would trigger different single market effects compared to an EU-wide FTT. The second question is whether it would result in different market reactions (such as turnover volumes, geographical reallocation and additional substitutional effects). And thirdly the revenue potential for the FTT10 jurisdiction, which is much smaller compared to the whole EU, is of interest.

Of these concerns, market reactions (turnover, relocation, substitution effects) are the most crucial ones. Pure market reactions should not be understood as a geographical relocation outside of the FTT jurisdiction. Market reactions are instead changes in the amount of financial transactions due to less frequent trading (a reduction in high frequency trading, which could have beneficial effects if it results in less speculation and less excessive market volatility), less risk exposure, more passive and conservative risk hedging, and a purely declining demand. Introducing the FTT through the enhanced cooperation mechanism only in the FTT10 of course results in a higher risk of relocation of activities. We take these relocation effects into account by properly calibrating the relevant elasticities and other parameters in our estimations.

The modeling assumption the European Commission used in its 2013 Impact Assessment on the changes in market turnover is a reduction of trading volume by -15% for shares and bonds and -75% for derivatives. In its previous, original assessment, the European Commission had assumed a decrease of -10% for shares and bonds and of -60% or even -90% for derivatives. In our estimations we run different scenarios under the different assumptions for the evasion and relocation effects.

The European Commission Impact Assessment is partly based on the idea that the FTT10 market is already big enough and that financial institutions will still have incentives to serve these markets even after the introduction of the FTT with such low rates. The responses of traded volumes to taxes and transaction costs are also carrying on in terms of the products and markets, as some products and markets have more or less available substitution possibilities and are influenced by different factors. However, due to the use of the broadly defined residence principle as explained above the risk of geographical relocation is assumed to be rather limited.

As the European Commission's most recent proposal does not cover any more all markets, all actors and all products, the efficiency of the FTT could be impaired. It might indeed rather spur relocation effects into activities that are taxed lower or not at all. Already in the European

Commission's original proposal, households and SMEs were exempted. Thus, enterprise borrowing and lending, mortgage loans and consumer credits, as well as insurance contracts, bank savings plans, payment transactions and credit-card transactions should not be influenced by the FTT. In the course of the negotiations between the members of the "Coalition of the Willing", many changes to the design of the FTT and a number of exemptions have been discussed which could influence potential revenues considerably, as revenues would be reduced significantly by the large extent of possible substitutions between instruments, sectors and countries.

#### **4. New country specific estimations of the FTT**

In our estimation approach we follow closely the methodology of the European Commission original Impact Assessment<sup>6)</sup> that has also been used as the basis for subsequent assessments of the European Commission, including the Impact Assessment for the case of Enhanced Cooperation<sup>7)</sup>. We use various data sources which we present in more detail below. Our aim is always, whenever possible, to gather data that is easily comparable between different Member States – and is gathered centrally. This is why our main sources are The Federation of European Stock Exchange (FESE), The World Federation of Exchanges (WFE) and the Bank of International Settlements (BIS). Additional sources are used when necessary, for smaller segments or for the proxy indicators calculated below. As the Federation of European Stock Exchanges is making efforts to ensure comparability of its data between individual members, we always prefer to use this data first to be able to compute comparable revenue estimations across all countries. Only if data for specific countries, which are crucial for our estimations, is not available we attempt to gather data from other sources.

We gather the available data for individual exchanges to be able to calculate the hypothetical revenues for each separate country in a first step and to sum them up for all FTT10 Member States in a second step in a bottom-up-approach. In some cases this is not possible, so we use a top-down approach, estimating total revenues for the FTT10 countries and then calculating the separate country revenues by using proxies, as the European Commission does in its estimations. This is a sub-optimal approach, but the only one available for some instrument types or market segments. Thus, the uncertainty for some of our estimations is large as it is driven by the many assumptions underlying important parameters of the estimation formula and at times also the proxies used. Similarly, the European Commission original estimations for an EU-wide FTT were marked by significant uncertainty, with estimations for the revenue ranging from € 10 to € 400 billion.

The following section is structured as follows. First, we present the specific estimations for different financial instruments – equities, bonds and derivatives (both exchange-traded and Over-the-counter derivatives). These are the financial instruments with the highest trading volumes in the EU, from which the highest potential revenues can be expected. Currently, the exemption

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<sup>6)</sup> SEC(2011) 1102.

<sup>7)</sup> SWD(2013) 29.

of bonds from the FTT is under discussion, making it all the more important to have an estimation at least of the relative effect such an exemption will have for the overall potential revenues from the FTT. In addition, we consider some additional categories of financial instruments that are included or exempted from the FTT – such as Asset Backed Securities (ABS), Exchange Traded Funds (ETFs), Undertakings for the Collective Investment of Transferable Securities (UCITS) and Alternative Investment Funds (AIFs). All estimations are crucially dependent on the parameters assumed for the evasion and relocation effects due to the tax, on the assumed transaction costs of trading the instrument, and on the assumed elasticity of the relevant tax bases. The assumptions regarding these parameters are prone to considerable uncertainty and there is little empirical evidence on which values would be most suitable. Therefore, we consider different scenarios, depending on the assumptions on these key parameters, and present them for each type of instrument: a conservative, a middle and an optimistic one. Hereby the middle scenario is taken as the baseline scenario. We then add up the results in the next section to present the overall revenue potential for the different scenarios.

#### **4.1 Equities**

Data for securities is gathered from The Federation of European Stock Exchanges (FESE), which provides more comprehensive data than the World Federation of Exchanges (WFE) with up-to-date data until 2017. The data available can be split into four categories: Electronic Order Book Transactions, Off-Electronic Order Book Transactions, Dark Pool Transactions, and Reporting Transactions. The latter two categories are not used for our estimations as they are not always consistent and fully available. Furthermore, the data can be divided into four groups: Equities traded on Regulated Markets (RM), on Multilateral Trading Facilities (MTF) and Systematic Internalizers (SI), and equity traded OTC. The available datasets provided by the Federation of European Stock Exchanges do not include equity trading in OTC markets. Following the European Commission Initial Impact Assessment, OTC equity trading is ignored subsequently, because the share of this trading in relation to the other types of equities trading can vary widely and is therefore difficult to assume theoretically. As this trading can constitute an additional source of revenues, it is possible that we under-estimate potential revenues resulting from equity trading.

Using the most recent data on domestic equity trading from the FESE, we can estimate the revenues from equities for the FTT10 countries. FESE provides data that in most cases covers the exchanges in 7 of the countries in question. As FESE does not provide information about Italy, we collected this data directly from the Borsa Italiana website. FESE does also not provide data for Slovakia and Slovenia. As the two countries have a very small financial sector in comparison to the other countries (combined less than 1% of the total volume for the FTT10 countries) this should not bias our estimations significantly. More importantly though, the Euronext exchange is a combined exchange for Paris, Brussels, Amsterdam and Lisbon. As Portugal, France and Belgium are part of the FTT enhanced cooperation proposal, but not the Netherlands, the turnover volumes from Euronext are overestimating the parts for France, Belgium and Portugal by

including also the turnover volumes from the Netherlands<sup>8)</sup>. We do not adjust for this possible upwards bias in our estimations below, so the revenues estimated could be slightly biased upwards.

Table 1: Overview of Assumptions from Previous Studies

Study	Evasion	TC	Elasticity (base)	Notes
Original Impact Assessment (2011)	10%	0.60%	-1.5	Whole EU27
Schulmeister - Sokoll (2013)	15%			

We use the assumptions on evasion effects and on the transaction costs for equities from the original Impact Assessment from the European Commission for equities trading. For calculating total revenues, the Commission uses the -1.5 elasticity value. Since the market reaction effects are expected to be lower for trading of shares than e.g. for derivatives, such an assumption might lead to an underestimation of the revenues from shares. Therefore, in our different scenarios below we switch the elasticity from -1.5 (conservative scenario) to a more realistic -1.0 (middle scenario) and to a more optimistic -0.50 (optimistic scenario). We note that some of the latest assessments of the European Commission even include a -0.5 elasticity for equities.

Table 2.1: Revenues from Equities; Domestic Equity Trading (Evasion Effects of 10%)

Year to Date: 2017, Relocation and Evasion: 10%; Tax Rate: 0.1%, TC\*: 0,6%

Domestic Equity Trading	Volume	Revenues			
		Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Athens Exchange	13,892.4	12.503	11.576	10.717	9.922
BME (Spanish Exchanges)	641,130.7	577.018	534.215	494.587	457.898
Boerse Stuttgart	13,546.6	12.192	11.288	10.450	9.675
CEESEG - Vienna	33,030.3	29.727	27.522	25.481	23.590
Deutsche Boerse	1,212,822.9	1,091.541	1,010.570	935.606	866.203
Euronext	1,755,662.0	1,580.096	1,462.884	1,354.368	1,253.901
Borsa Italiana	629,071.3	566.164	524.166	485.284	449.285
Total	4,299,156.2	3,869.241	3,582.221	3,316.492	3,070.475

Source: FESE. – \* Transaction Costs.

The estimated revenues from equities for the FTT10 countries for the conservative case of an elasticity of -1.5 are thus € 3.07 billion. For Austria they amount to € 23.6 million annually in the baseline scenario and could be up to € 29.7 million annually for an elasticity of 0.

For comparative purposes, to check the consistency of the data, we can compare the estimated revenues from equities based on turnover volumes for Austria from the Austrian Stock Exchange monthly statistics. As explained above, due to different statistical specifications,

<sup>8)</sup> We contacted the FESE to try to address this problem, but they were not able to provide information for the shares of turnover volumes traded at the different locations of Euronext.



these figures can differ significantly from the ones provided by the FESE. Also, as FESE uses single counting, while the Austrian Stock Exchange reports transactions with double counting, we divide the overall turnover volume by 2. We find that turnover volumes as reported by FESE and the Austrian Stock Exchange are very close to each other, and the revenues estimated from equities using the Austrian Stock Exchange data are very similar for Austria, ranging between € 30 million and € 22 million annually, based on 2017 data.

*Table 3.1: Revenues from Equities; Domestic Equity Trading*  
*Year to Date: 2017, Relocation and Evasion: 10%, Tax Rate: 0.1%, TC\*: 0.6%*

Vienna Stock Exchange	Volume Million €	Elasticity	Revenues Million €
	33,354.7	0.00	30.019
	33,354.7	-1.00	25.731
	33,354.7	-1.50	23.822
	33,354.7	-2.00	22.055

Source: Vienna Stock Exchange Monthly Statistics. – \* Transaction Costs.

It is important, however, to point out that a tax evasion and relocation effect of only 10% has been the initial assumption by the European Commission in their Initial Impact Assessment for an EU-wide FTT. The set-up under the enhanced cooperation regime might lead to more significant evasion and relocation effects. Therefore, we include also an estimation with larger evasion and relocation effects of - 15% and 20%, respectively. The results are presented below. The differences between the case of an evasion and relocation effect of 10% and 20% are in the range of € 300 million or more annually, which is significant, but in comparison to the total potential revenues from the FTT, the relative change in the total revenue is not that large. We stick to the baseline case of 10% evasion and relocation effects for the calculation of the total potential revenues from the FTT in our different scenarios in the next section.

Table 2.2: Revenues from Equities; Domestic Equity Trading (Evasion Effects of 15%)  
Year to Date: 2017, Relocation and Evasion: 15%, Tax Rate: 0.1%, TC\*: 0.6%

Domestic Equity Trading	Volume	Revenues			
		Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Athens Exchange	13,892.4	11.809	10.933	10.122	9.371
BME (Spanish Exchanges)	641,130.7	544.961	504.536	467.110	432.459
Boerse Stuttgart	13,546.6	11.515	10.660	9.870	9.138
CEESEG - Vienna	33,030.3	28.076	25.993	24.065	22.280
Deutsche Boerse	1,212,822.9	1,030.899	954.427	883.628	818.081
Euronext	1,755,662.0	1,492.313	1,381.613	1,279.125	1,184.240
Borsa Italiana	629,071.3	534.711	495.046	458.323	424.325
Total	4,299,156.2	3,654.283	3,383.208	3,132.242	2,899.893

Source: FESE. – \* Transaction Costs.

Table 2.3: Revenues from Equities; Domestic Equity Trading (Evasion Effects of 20%)  
Year to Date: 2017, Relocation and Evasion: 20%, Tax Rate: 0.1%, TC\*: 0.6%

Domestic Equity Trading	Volume	Revenues			
		Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Athens Exchange	13,892.4	11.114	10.289	9.526	8.820
BME (Spanish Exchanges)	641,130.7	512.905	474.857	439.632	407.021
Boerse Stuttgart	13,546.6	10.837	10.033	9.289	8.600
CEESEG - Vienna	33,030.3	26.424	24.464	22.649	20.969
Deutsche Boerse	1,212,822.9	970.258	898.285	831.650	769.958
Euronext	1,755,662.0	1,404.530	1,300.342	1,203.883	1,114.579
Borsa Italiana	629,071.3	503.257	465.925	431.363	399.365
Total	4,299,156.2	3,439.325	3,184.196	2,947.993	2,729.311

Source: FESE. – \* Transaction Costs.

Table 3.2: Revenues from Equities; Domestic Equity Trading

Year to Date: 2017, Relocation and Evasion: 15% and 20%, Tax Rate: 0.1%, TC\*: 0.6%

Vienna Stock Exchange	Volume Million €	Evasion	Elasticity	Revenues Million €
	33,354.7	0.85	0.00	28.351
	33,354.7	0.85	-1.00	24.301
	33,354.7	0.85	-1.50	22.499
	33,354.7	0.85	-2.00	20.830
	33,354.7	0.80	0.00	26.684
	33,354.7	0.80	-1.00	22.872
	33,354.7	0.80	-1.50	21.175
	33,354.7	0.80	-2.00	19.604

Source: Vienna Stock Exchange Monthly Statistics. – \* Transaction Costs.

## 4.2 Bonds

Estimating the revenues from bonds is more challenging and susceptible to error as there is no reliable public information to compare the volumes of bonds trading across the EU countries. The FESE database does not provide the full information for bonds trading at the Vienna Stock Exchange. The data for 2017 is only available for the Electronic Order Book Trades, which are a much smaller part of the trading in bonds in comparison to the Off Electronics Order Book Trades. To estimate the amount coming from the Off Electronic Order Book Trades we therefore have to use an approximation. The problem is further complicated by the fact that the FESE data on bonds presents puzzling information regarding the country split of turnover volume comparing the different exchanges. The Spanish exchange BME has a turnover many times multiple of all the other exchanges combined from its Off Electronic Order Book Transactions. For comparative purposes, we also compared data on bonds trading volumes from the WFE. The WFE overall covers less countries from the FTT10 group, which is the reason why we do not use this source. Even so, for the sake of comparison: the data from the WFE also shows an unusually high trading volume for the Spanish BME exchange, multiple times higher than e.g. on Euronext<sup>9)</sup>). These amounts are due to domestic public sector bonds. We therefore proceed to estimate the overall possible revenues for the FTT10 countries based on total bond trading volumes available from FESE data and then use these overall estimates and proxies to estimate how much would accrue to each country. This is especially difficult for Austria, given the fact that data on Off Electronic Order Book Trades, which would have provided us with the most consistent proxies, is not available. Therefore, we need to use other proxies to estimate country

<sup>9)</sup> <https://www.world-exchanges.org/home/index.php/research/wfe-research> - Total value of bond trading, Table Bond 5.1.

specific hypothetical revenues from bonds. As previously done for equities, we gather data on bonds trading in Italy directly from the Borsa Italiana statistical website<sup>10)</sup>.

These estimations should be taken with great caution due to the questions both the FESE and WFE data have raised. We contacted the FESE to understand better the significant differences in volumes traded on different exchanges, but they were also unable to explain these puzzling and significant differences. One possible explanation would be that major Latin and South American countries bonds trading occurs at the Spanish exchange. If that is the case, it is unclear how much of it would be relocated to US based exchanges in the case of an FTT under enhanced cooperation, but the volumes might be significant. At the same time, the WFE warns that comparability of turnover figures is restricted by different reporting rules and calculation methods. The FESE data is aiming exactly at overcoming such problems and at providing comparable data. Overall, we were not able to find consistent data on bond trading.

*Table 1: Overview of Assumptions from Previous Studies*

Study	Evasion	TC	Elasticity (base)	Notes
Original Impact Assessment (2011)	10%	0.60%	-1.5	Whole EU27
Schulmeister - Sokoll (2013)	15%			

Similar to equities, the evasion effects are assumed by the original European Commission Impact Assessment with 10% and transaction costs with 0.6%. We again make three different assumptions for the elasticity parameter: -1.5 (conservative scenario), -1.0 (middle scenario), and -0.5 (optimistic scenario). Some of the latest assessments from the European Commission have even used an elasticity parameter of -0.5, so our baseline scenario (the middle scenario) might lead to an underestimation of the revenues if indeed the elasticity is lower than 1.

Bonds are a most important source of revenues to be exempted from the FTT in its first round of implementation. One of the reasons for that is the idea that it will avoid disruptions in the markets for sovereign bonds. Currently, bonds are considered to be exempted during the transition period; how they will be included afterwards is not yet decided. Therefore, the estimates presented below should be taken only for comparative purposes to understand better the scale of the effect on overall revenues from exempting bonds from the FTT.

<sup>10)</sup> [http://www.borsaitaliana.it/borsaitaliana/statistiche/mercati/motstat/2017/motstat201712.en\\_pdf.htm](http://www.borsaitaliana.it/borsaitaliana/statistiche/mercati/motstat/2017/motstat201712.en_pdf.htm).

Table 4.1: Revenues from Bonds; Domestic Bond Trading (Evasion Effects of 10%)  
Year to Date: 2017, Relocation and Evasion: 10%, Tax Rate: 0.1%, TC\*: 0.6%

Volumes traded	Volume	Revenues			
Bonds		Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Athens Exchange	168.3	0.151	0.140	0.130	0.120
BME (Spanish Exchanges)	6,033,500.0	5,430.150	5,027.342	4,654.414	4,309.150
Boerse Stuttgart	15,848.7	14.264	13.206	12.226	11.319
CEESEG - Vienna	113.4	0.102	0.094	0.087	0.081
Deutsche Boerse	4,653.6	4.188	3.878	3.590	3.324
Euronext	6,805.0	6.125	5.670	5.250	4.860
Borsa Italiana	207,080.0	186.372	172.547	159.747	147.897
Total	6,268,169.0	5,641.352	5,222.877	4,835.445	4,476.752

Source: FESE, Borsa Italiana Turnover Data 2017. – \* Transaction Costs.

Table 4.2: Revenues from Bonds; Domestic Bond Trading (Evasion Effects of 15%)  
Year to Date: 2017, Relocation and Evasion: 15%, Tax Rate: 0.1%, TC\*: 0.6%

Volumes traded	Volume	Revenues			
Bonds		Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Athens Exchange	168.3	0.143	0.132	0.123	0.114
BME (Spanish Exchanges)	6,033,500.0	5,128.475	4,748.045	4,395.836	4,069.753
Boerse Stuttgart	15,848.7	13.471	12.472	11.547	10.690
CEESEG - Vienna	113.4	0.096	0.089	0.083	0.076
Deutsche Boerse	4,653.6	3.956	3.662	3.390	3.139
Euronext	6,805.0	5.784	5.355	4.958	4.590
Borsa Italiana	207,080.0	176.018	162.961	150.873	139.681
Total	6,268,169.0	5,327.944	4,932.717	4,566.809	4,228.043

Source: FESE, Borsa Italiana Turnover Data 2017. – \* Transaction Costs.

Table 4.3: Revenues from Bonds; Domestic Bond Trading (Evasion Effects of 20%)  
Year to Date: 2017, Relocation and Evasion: 20%, Tax Rate: 0.1%, TC\*: 0.6%

Volumes traded	Volume	Revenues			
Bonds		Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Athens Exchange	168.3	0.135	0.125	0.115	0.107
BME (Spanish Exchanges)	6,033,500.0	4,826.800	4,468.748	4,137.257	3,830.356
Boerse Stuttgart	15,848.7	12.679	11.738	10.868	10.062
CEESEG - Vienna	113.4	0.091	0.084	0.078	0.072
Deutsche Boerse	4,653.6	3.723	3.447	3.191	2.954
Euronext	6,805.0	5.444	5.040	4.666	4.320
Borsa Italiana	207,080.0	165.664	153.375	141.998	131.464
Total	6,268,169.0	5,014.535	4,642.557	4,298.173	3,979.335

Source: FESE, Borsa Italiana Turnover Data 2017. – \* Transaction Costs.

Because the distribution of the revenues to individual countries based on the revenue estimates above does not seem reliable due to the very high volumes for Spain, we also use a top down approach, which the European Commission has often used for their revenue Impact Assessments. Accordingly, total revenues from bonds trading are distributed to the individual countries based on a proxy. Different proxies have been listed by the European Commission, such as the relative size of the financial sector in each country or the relative size of the economy of each country in terms of its GDP. In this case we take the relative size of the financial sector for each country based on the total assets of banks in the relevant country as a first proxy. This seems a well-suited proxy for more standard financial products such as equities and bonds. But as every proxy used, it is prone to errors. Especially, it might overestimate the revenues for Germany, as Germany has a mostly bank based financial system and some bank assets are to a certain degree exempted from the revenue calculations (mortgage loans, SME loans and others e.g.). Section VI below presents the different possible proxies that can be used for such top-down estimations. The country specific revenues are thus presented in table 5.

Table 5: Overall Revenues from Bonds

Relative size of financial sector assets in EU – Banks EU10 – 2016, Evasion: 10%

	Banks Revenues	
	% Amount of EU10	Million €
		4,476.8
Belgium	4.36	195.27
Germany	33.93	1,519.14
Greece	1.59	71.17
Spain	11.37	508.99
France	27.68	1,239.19
Italy	15.26	683.15
Austria	3.19	142.87
Portugal	1.99	89.07
Slovenia	0.20	8.93
Slovakia	0.42	18.97

Source: Eurostat.

### 4.3 Derivatives

Over-the-counter (OTC) trading or national electronic markets not operated and supervised by a recognized exchange are not included in the statistics provided by FESE. Therefore, we use the BIS data on derivatives, which can be divided in two major categories:

- Exchange traded derivatives data, measured quarterly and available in notional amounts for the main derivative contracts: foreign exchange (FX), interest rate (IR) and equity index contracts.
- Over-the-counter (OTC) traded derivatives: we use the semi-annual survey of the BIS and the triennial survey on turnover. The semi-annual survey provides data on amounts outstanding at the end of June and the end of December of each year, in terms of stocks measured in terms of gross notional and gross market values. This is further broken down into the different categories of instruments: foreign exchange (FX), interest rate (IR), equity linked, commodity and credit instruments. The triennial survey presents turnover data in terms of gross notional values and covers FX and IR forwards, swaps and options, expressed in terms of daily averages. To calculate the annual turnover, we assume 252 trading days.

For derivatives, we use the traditional approach of the notional amount as taxable amount. There have been different suggestions for calculating the taxable amount, which could have very important implications for the final revenues, but as data on any other measurement of turnover of derivatives is not accessible, we continue using the notional amount, as previously done by the European Commission.

The original Impact Assessment by the European Commission took a cautious approach to the estimation of revenues from derivative transaction based on the notional value. It assumed that large parts of the tax base will disappear – partly due to the fact that the taxation of derivatives based on notional values is connected with very high uncertainty. The main benefit of using the notional values is that they are easy to observe.

It is important to note, however, that the notional value is not a measure of the economic value of contracts. In fact, the BIS data shows for 2004 and 2007 that the gross market value of contracts is a tiny fraction of the notional value – between 2.5% and 2.9%. Until now, the European Commission estimations were based on a tax rate for derivatives of 0.01%. This is one-tenth of the tax rate for securities exactly because of the assumption that the notional value is a multiple of the real value and should thus be taxed at a much lower rate. As the original Impact Assessment of the *European Commission* (2011) states: “Alternatively, one could set the tax rate at the same level as the one for securities trading while taking as the taxable amount only one tenth of the notional value of the underlying”. The European Commission assumption is thus that the relation between the notional value and the real value is 10 to 1. But as stated above, given the BIS data on gross market value of contracts in relation to the notional value, this relation could be around 30 to 1. This would mean that switching from a notional value to another measurement would imply significant losses in terms of revenues from the FTT.

There is limited empirical evidence available on the effects of taxing derivative markets, but it shows that derivative markets are extremely sensitive to taxation. As the European Commission's own Impact Assessment acknowledges, derivatives transactions will be severely affected by the FTT and will also reduce the ability of funds to manage risk through hedging. The Swedish experience is often cited as a good example<sup>11)</sup>, as it implemented rates between 0.002% and 0.015%, which are not very far from the ones currently discussed. The transaction tax in Sweden was on fixed-income securities and related derivatives such as futures on bonds. According to *Campbell – Froot* (1994), the trading in futures on bonds fell by 98% already in the first week of the introduction of the tax.

### **Exchange traded derivatives**

The BIS data on exchange traded derivatives provides information only for Europe as a whole. As country specific information from the BIS is not available, we use proxies to estimate the turnover for each separate country for exchange traded derivatives. The proxy used in this case is the country specific share of nominal GDP in relation to the nominal GDP of the whole EU. Finding the appropriate proxy for derivatives is more challenging, as the relative volumes of derivatives trading in different countries is affected by other factors than the sheer size of the financial sector or the banks in a specific country. Therefore, we take the most simplified proxy which is always the GDP based one. This approximation causes a bias by omitting the share of the traded volumes from the non-EU member states in Europe. As the BIS region of Europe also

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<sup>11)</sup> See for a brief description of the Swedish transaction tax *Schulmeister et al.* (2008).



includes the Russian Federation, this upward bias could be significant, but we have not estimated in this survey. The BIS data can be divided by instruments into futures and options, and then within each category into interest rate instruments (long-term or short-term) and foreign exchange instruments. The overall turnover volumes of these instruments for the whole Europe region for 2017 are presented in table 6.

Table 6: Exchange-Traded Futures and Options, by Location of Exchange

Europe		Daily	Annual	Annual
		Billion \$	Billion \$	Billion €
Futures	All	1,636.0	412,272.0	350,750.4
	Interest rate	1,633.0	411,516.0	350,107.2
	Short term	1,388.0	349,776.0	297,580.4
	Long term	245.0	61,740.0	52,526.8
	Foreign Exchange	3.0	756.0	643.2
Options	All	260.0	65,520.0	55,742.7
	Interest rate	259.0	65,268.0	55,528.3
	Short term	227.0	57,204.0	48,667.7
	Long term	33.0	8,316.0	7,075.0
	Foreign Exchange	0.0	0.0	0.0

Source: BIS.

The assumptions used for exchange traded derivatives in previous studies are as follows:

Table 7: Overview Derivatives

Study	Evasion	TC	Elasticity (base)	Notes
Original IA 2011 (Whole EU)	90%	0.30%	-1.5	- Consider also a lower rate (0.005% tax rate) - for the whole EU27
Impact Assessment 2013	75%			
Schulmeister (2011)	60%, 70%			

We use an assumption on transaction costs of 0.3% for all estimations, while we vary the tax evasion parameters for the different cases: 90% (conservative scenario), 85% (middle scenario), and 80% (optimistic scenario). Similarly, for the elasticity parameter we start from the conservative assumption of -1.5 elasticity and switch to -1.0 in the middle and the optimistic scenario, which reflects latest estimations which have also used -1.0 for the elasticity of derivatives. Tables 8.1 and 8.2 present the overall sums for all exchange traded futures and exchange traded options and their estimated revenues. The decomposition by different instruments (interest rate instruments (long-term or short-term) and foreign exchange instruments) is presented in the Annex.

Table 8.1: Country Specific Revenue Estimations for Exchange Traded Derivatives (Futures), Middle Scenario

Evasion: 15%, Tax Rate: 0.01%, TC\*: 0.3%

ETD Futures	GDP-EU28 % Amount	Volume	Revenues Billion €			
Elasticities assumed:						
			0.00	-0.75	-1.00	-1.50
Austria	2.4	8,418.0	0.126	0.123	0.122	0.120
Germany	21.3	74,709.8	1.121	1.093	1.084	1.067
Greece	1.2	4,209.0	0.063	0.062	0.061	0.060
Italy	11.2	39,284.0	0.589	0.575	0.570	0.561
France	14.9	52,261.8	0.784	0.765	0.759	0.746
Spain	7.6	26,657.0	0.400	0.390	0.387	0.381
Belgium	2.9	10,171.8	0.153	0.149	0.148	0.145
Portugal	1.3	4,559.8	0.068	0.067	0.066	0.065
Slovakia	0.6	2,104.5	0.032	0.031	0.031	0.030
Slovenia	0.3	1,052.3	0.016	0.015	0.015	0.015
Total		223,428.0	3.351	3.270	3.243	3.191

Source: BIS. – \* Transaction Costs.

Table 8.2: Country Specific Revenue Estimations for Exchange Traded Derivatives (Options), Middle Scenario

Evasion: 15%, Tax Rate: 0.01%, TC\*: 0.3%

ETD Options	GDP-EU28 % Amount	Volume	Revenues Billion €			
Elasticities assumed:						
			0.00	-0.75	-1.00	-1.50
Austria	2.4	1,337.8	0.020	0.020	0.019	0.019
Germany	21.3	11,873.2	0.178	0.174	0.172	0.170
Greece	1.2	668.9	0.010	0.010	0.010	0.010
Italy	11.2	6,243.2	0.094	0.091	0.091	0.089
France	14.9	8,305.7	0.125	0.122	0.121	0.119
Spain	7.6	4,236.4	0.064	0.062	0.061	0.060
Belgium	2.9	1,616.5	0.024	0.024	0.023	0.023
Portugal	1.3	724.7	0.011	0.011	0.011	0.010
Slovakia	0.6	334.5	0.005	0.005	0.005	0.005
Slovenia	0.3	167.2	0.003	0.002	0.002	0.002
Total		35,508.1	0.533	0.520	0.515	0.507

Source: BIS. – \* Transaction Costs.

## OTC Derivatives

For Over-the-counter (OTC) Derivatives, country specific data is available from the BIS so we can easily calculate both the country specific and the FTT10 estimates.

The assumptions used for exchange traded derivatives in previous studies are as follows:

Table 9: Overview OTC Derivatives

Study	Evasion	TC	Elasticity (base)	Notes
Original IA 2011	90%	0.7% / 0.024%	-1.5	Consider very low rate (0.005%) Whole EU27
Impact Assessment 2013	75%			
Schulmeister (2011)	60%, 70%			

For our baseline scenario we assume a tax evasion of 80% and transaction costs of 0.30%. The original *European Commission Impact Assessment (2011)* uses a value of 0.024% for transaction costs on all foreign exchange derivative transactions, but of 0.7% for all interest rate derivatives. We use the 0.30% transaction costs assumed also above for foreign exchange traded derivatives and a value of 0.70% for interest rate derivatives. Again, as in the case of exchange traded derivatives, we vary the elasticity parameters and the evasion effect assumption throughout our different scenarios. The evasion effects vary between 90% (conservative scenario), 85% (middle scenario) and 80% (optimistic scenario). The elasticities are again between -1.5 (conservative scenario), -1.0 (middle scenario) and -0.75 (optimistic scenario). Tables 10.1 to 10.6 show the revenue estimations for the different types of instruments.

## FX Spot Contracts

Table 10.1 Country Specific Revenue Estimations for OTC FX Spot Contracts

Evasion: 15%, Tax Rate: 0.01%, TC\*: 0,3%

Spot	Volume	Revenues Billion €			
Elasticities assumed:					
		0.00	-0.75	-1.00	-1.50
Austria	857.6	0.013	0.013	0.012	0.012
Germany	4,931.1	0.074	0.072	0.072	0.070
Greece	0.0	0.000	0.000	0.000	0.000
Italy	428.8	0.006	0.006	0.006	0.006
France	4,931.1	0.074	0.072	0.072	0.070
Spain	2,144.0	0.032	0.031	0.031	0.031
Belgium	857.6	0.013	0.013	0.012	0.012
Portugal	214.4	0.003	0.003	0.003	0.003
Slovakia	428.8	0.006	0.006	0.006	0.006
Slovenia	0.0	0.000	0.000	0.000	0.000
Total		0.222	0.217	0.215	0.211

Source: BIS. – \* Transaction Costs.

## FX Swap

Table 10.2 Country Specific Revenue Estimations for OTC FX Swaps

Evasion: 15%, Tax Rate: 0.01%, TC\*: 0.3%

FX Swaps	Volume	Revenues Billion €			
Elasticities assumed:					
		0.00	-0.75	-1.00	-1.50
Austria	2,787.1	0.042	0.041	0.040	0.040
Germany	18,223.6	0.273	0.267	0.265	0.260
Greece	214.4	0.003	0.003	0.003	0.003
Italy	2,787.1	0.042	0.041	0.040	0.040
France	29,372.1	0.441	0.430	0.426	0.419
Spain	4,073.5	0.061	0.060	0.059	0.058
Belgium	3,859.1	0.058	0.056	0.056	0.055
Portugal	428.8	0.006	0.006	0.006	0.006
Slovakia	214.4	0.003	0.003	0.003	0.003
Slovenia	0.0	0.000	0.000	0.000	0.000
Total		0.929	0.907	0.899	0.885

Source: BIS. – \* Transaction Costs.

## FX Outright Forward

Table 10.3 Country Specific Revenue Estimations for FX Outright Forwards

Evasion: 15%, Tax Rate: 0.01%, TC\*: 0.3%

Forwards	Volume	Revenues			
		Billion €			
Elasticities assumed:					
		0.00	-0.75	-1.00	-1.50
Austria	428.8	0.006	0.006	0.006	0.006
Germany	1,286.4	0.019	0.019	0.019	0.018
Greece	0.0	0.000	0.000	0.000	0.000
Italy	214.4	0.003	0.003	0.003	0.003
France	3,215.9	0.048	0.047	0.047	0.046
Spain	643.2	0.010	0.009	0.009	0.009
Belgium	214.4	0.003	0.003	0.003	0.003
Portugal	0.0	0.000	0.000	0.000	0.000
Slovakia	0.0	0.000	0.000	0.000	0.000
Slovenia	0.0	0.000	0.000	0.000	0.000
Total		0.090	0.088	0.087	0.086

Source: BIS. – \* Transaction Costs.

## OTC Currency Swaps

Table 10.4 Country Specific Revenue Estimations for OTC Currency Swaps

Evasion: 15%, Tax Rate: 0.01%, TC\*: 0.3%

Currency Swaps	Volume	Revenues			
		Billion €			
Elasticities assumed:					
		0.00	-0.75	-1.00	-1.50
Austria	0.0	0.000	0.000	0.000	0.000
Germany	214.4	0.003	0.003	0.003	0.003
Greece	0.0	0.000	0.000	0.000	0.000
Italy	0.0	0.000	0.000	0.000	0.000
France	428.8	0.006	0.006	0.006	0.006
Spain	0.0	0.000	0.000	0.000	0.000
Belgium	0.0	0.000	0.000	0.000	0.000
Portugal	0.0	0.000	0.000	0.000	0.000
Slovakia	0.0	0.000	0.000	0.000	0.000
Slovenia	0.0	0.000	0.000	0.000	0.000
Total		0.010	0.009	0.009	0.009

Source: BIS. – \* Transaction Costs.

## OTC Options

Table 10.5 Country Specific Revenue Estimations for OTC Options  
Evasion: 15%, Tax Rate:0.01%, TC\*: 0.3%

Options	Volume	Revenues			
		Billion €			
Elasticities assumed:					
		0.00	-0.75	-1.00	-1.50
Austria	0.0	0.000	0.000	0.000	0.000
Germany	0.0	0.000	0.000	0.000	0.000
Greece	0.0	0.000	0.000	0.000	0.000
Italy	214.4	0.003	0.003	0.003	0.003
France	857.6	0.013	0.013	0.012	0.012
Spain	214.4	0.003	0.003	0.003	0.003
Belgium	0.0	0.000	0.000	0.000	0.000
Portugal	0.0	0.000	0.000	0.000	0.000
Slovakia	0.0	0.000	0.000	0.000	0.000
Slovenia	0.0	0.000	0.000	0.000	0.000
Total		0.019	0.019	0.019	0.018

Source: BIS. – \* Transaction Costs.

## OTC Interest Rate Derivatives

Table 10.6 Country Specific Revenue Estimations for OTC Interest Rate  
Evasion: 15%, Tax Rate: 0.01%, TC\*: 0.7%

IR	Volume	Revenues			
		Billion €			
Elasticities assumed:					
		0.00	-0.75	-1.00	-1.50
Austria	214.4	0.003	0.003	0.003	0.003
Germany	6,646.2	0.100	0.099	0.098	0.098
Greece	0.0	0.000	0.000	0.000	0.000
Italy	3,001.5	0.045	0.045	0.044	0.044
France	30,229.7	0.453	0.449	0.447	0.444
Spain	1,286.4	0.019	0.019	0.019	0.019
Belgium	3,644.7	0.055	0.054	0.054	0.054
Portugal	0.0	0.000	0.000	0.000	0.000
Slovakia	0.0	0.000	0.000	0.000	0.000
Slovenia	0.0	0.000	0.000	0.000	0.000
Total	45,023.0	0.675	0.668	0.666	0.661

Source: BIS. – \* Transaction Costs.

#### 4.4 Other products

We also aim to estimate the revenues from a number of other important financial instruments, categories and segments. These are either financial instruments with relatively small volumes in comparison to the above estimated groups of equities, bonds and derivatives, but which can still make a significant contribution to the overall potential revenue, or are financial instruments that have been considered for exemption in the final implementation of the FTT<sup>12)</sup>.

##### Asset Backed Securities (ABS)

The turnover volumes for Asset Backed Securities (ABS) are included in the statistical reports of the Securities Industry and Financial Markets Association (SIFMA). To obtain the relevant volumes for our estimations, we use the SIFMA data on Issuance and Outstanding Amounts<sup>13)</sup>. We use the same assumptions for the various estimation parameters for ABS as for equities, since there are no separate studies that have examined the specific reactions of ABS to the introduction of an FTT.

Table 11: Potential Revenues from Asset Backed Securities (ABS)

Evasion: 10%, Tax Rate: 0.1%, TC\*: 0.6%

ABS 2017	Volume	Revenues Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Austria	302.3	0.272	0.252	0.233	0.216
Germany	161,048.6	144.944	134.192	124.237	115.022
Greece	33,631.6	30.268	28.023	25.944	24.020
Italy	310,324.5	279.292	258.574	239.393	221.635
France	249,396.3	224.457	207.806	192.391	178.120
Spain	346,611.4	311.950	288.810	267.386	247.551
Belgium	139,085.8	125.177	115.892	107.295	99.336
Portugal	48,768.6	43.892	40.636	37.622	34.831
Slovakia	0.0	0.000	0.000	0.000	0.000
Slovenia	0.0	0.000	0.000	0.000	0.000
Total	1,289,169.1	1,160.252	1,074.185	994.502	920.730

Source: SIFMA. – \* Transaction Costs.

##### Collective Investment Funds and Exchange Traded Funds (ETFs)

The taxation of collective investment funds can be designed in different ways. The European Commission proposal regards issuance to be not taxable, while other transactions in shares of

<sup>12)</sup> It is important also to note that exempting households and SME transactions in itself would reduce the overall trading volumes for the estimations.

<sup>13)</sup> <https://www.sifma.org/resources/research/afme-securitisation-data-report-fourth-quarter-2017/>.

the funds and transactions in taxable instruments to be taxable. Another approach would be to exempt the issuance and redemption of shares in funds and include an exemption of transactions in shares of funds. Transactions of the funds are then taxed as far as taxable products are concerned.

Exchange Traded Funds (ETFs) might be the most relevant type of collective investment funds in terms of revenue to be exempted from the proposed FTT. Therefore, we estimate the revenues also from ETFs to assess how relevant their exemption might be. Data on ETFs is available from FESE, although it comes only from a number of exchanges and not from the exchanges in all FTT10 countries. Again, we use the same assumptions as for equities.

Table 12: Potential Revenues from ETFs

Year to Date: 2017, Relocation and Evasion: 10%; Tax Rate: 0.1%, TC\*: 0.6%

ETFs	Volume	Revenues			
		Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Athens Exchange	9.5	0.008	0.008	0.007	0.007
BME (Spanish Exchanges)	4,464.1	4.018	3.720	3.444	3.188
Boerse Stuttgart	11,923.2	10.731	9.935	9.198	8.516
CEESEG - Vienna	6.1	0.005	0.005	0.005	0.004
Deutsche Boerse	141,236.3	127.113	117.683	108.954	100.872
Euronext	121,298.0	109.168	101.070	93.573	86.632
Borsa Italiana		0.000	0.000	0.000	0.000
Total	278,937.2	251.043	232.421	215.180	199.218

Source: FESE, Borsa Italiana Turnover Data 2017. – \* Transaction Costs.

### Undertakings for the Collective Investment of Transferable Securities (UCITS) and Alternative Investment Funds (AIFs)

The investment funds sector is a very significant part of the financial sector, with a growing importance in Europe. Most of all, the assets under management segment represents the Units of Undertakings for the Collective Investment of Transferable Securities (UCITS) and Alternative Investment Funds (AIFs), which can be crucial investment vehicles. In 2017 the European investment fund industry surpassed the € 15 trillion mark for net assets of UCITS and AIFs, while back in 2011 the overall net assets managed were at around € 11 trillion, which is an increase by 37% in only 6 years. At the end of 2017, 62.2% of total European investment fund accrued to UCITS (€ 9,715 billion), while the remaining 37.8% (equivalent to € 5,909 billion) accrued to AIFs<sup>14</sup>). This shows the growing importance of this sector, which will most probably continue to increase in the future. It is important therefore to consider whether exempting it from the FTT, as currently

<sup>14</sup>) <http://www.efama.org/Publications/Statistics/Quarterly/Quarterly%20Statistical%20Reports/Quarterly%20Statistical%20Release%20Q4%202017.pdf>.



discussed, is reasonable. On the one hand, it might be reasonable to interpret the issuance of shares and units of UCITS and AIFs as a transaction on a primary market aimed at raising capital. In that sense, these transactions should not be taxed. But these same transactions could also be perceived as transactions on a secondary market for shares and units, which would mean they should be treated equally with trading in shares and bonds of other undertakings. To overcome this problem, one could take the approach to only tax the redemptions from UCITS and AIFs. We therefore estimate the possible revenues their taxation would yield.

We gather data on UCITS and AIFs from the Quarterly Statistical Report of the European Fund and Asset Management Association (EFAMA). The total net assets of UCITS from the 10 Member States in question were € 1,935,657 million in 2017, while the total net asset of AIFs from the 10 Member States in question were € 3,026,984 million in 2017. We use the turnover volumes to estimate the hypothetical country specific revenues as above. The assumptions are similar to the case of equities above – transactions costs are 0.6%, evasion varies between 90% and 80% and the elasticity between -1.5 and -0.50. The estimated revenues from UCITS and AIFs, which are exempted from the FTT, are then presented in table 13 and table 14.

Table 13: UCITS

Evasion: 10%, Tax Rate: 0.1%, TC\*: 0.6%

UCITS	Volume	Revenues Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Austria	39,411.9	35.471	32.839	30.403	28.148
Germany	178,193.7	160.374	148.478	137.464	127.267
Greece	2,362.0	2.126	1.968	1.822	1.687
Italy	122,597.3	110.338	102.153	94.575	87.559
France	418,844.9	376.960	348.998	323.109	299.141
Spain	108,043.3	97.239	90.026	83.348	77.165
Belgium	50,442.0	45.398	42.030	38.912	36.026
Portugal	4,230.8	3.808	3.525	3.264	3.022
Slovakia	2,361.0	2.125	1.967	1.821	1.686
Slovenia	1,273.5	1.146	1.061	0.982	0.910
Total	927,760.4	834.984	773.045	715.701	662.610

Source: EFAMA. – \* Transaction Costs.

Table 14: AIFs

Evasion: 10%, Tax Rate: 0.1%, TC\*: 0.6%

AIFs	Volume	Revenues			
		Million €			
		Elasticities assumed:			
		0.00	-0.50	-1.00	-1.50
Austria	45,294.3	40.765	37.741	34.941	32.349
Germany	749,885.9	674.897	624.833	578.483	535.572
Greece	1,307.7	1.177	1.090	1.009	0.934
Italy	29,242.4	26.318	24.366	22.558	20.885
France	474,861.2	427.375	395.672	366.321	339.148
Spain	31,430.7	28.288	26.189	24.247	22.448
Belgium	22,946.0	20.651	19.119	17.701	16.388
Portugal	6,416.1	5.774	5.346	4.950	4.582
Slovakia	743.4	0.669	0.619	0.573	0.531
Slovenia	0.0	0.000	0.000	0.000	0.000
Total	1,362,127.5	1,225.915	1,134.977	1,050.784	972.837

Source: EFAMA. – \* Transaction Costs.

### Pension Funds

Closely related to the issue of UCITS and AIFs is also the question of how to proceed with pension funds and whether they should be exempted from the proposed FTT. This has led to prolonged discussions on what is the best approach to handle the trading in financial instruments related to pension funds.

Representatives of the pensions industry, as well as some institutions have argued for exempting pension funds from the FTT scope. A review from the *Central Plan Bureau* (CPB) (2012) argues against imposing the FTT for pension funds. One argument is that an FTT “raises transaction costs that will increase funding costs for firms and therefore reduce returns for pensioners”. The paper also cites an estimation by Dutch pension providers according to which the FTT would cost Dutch funds around € 3 billion per year. The estimated revenues are so high because of the assumed long investment chains in which pension funds are involved, in which at each stage of the purchase of a financial instrument the FTT is paid. If the FTT results in such cascade effects, it is probable that costs are transferred to pension funds and thus indeed have significant undesirable effects. Furthermore, a reduction in investment activities might also be harmful if it decreases excessively the feasibility of hedging activities, which are seen by the industry as important sources of risk diversification, risk mitigation and thus as a way ensuring the long-term stability of investments.

But there is also a good argument for including the FTT for pension funds. As one of the aims of the FTT is to limit short-term speculative activity, it might help motivate pensions funds to invest over the longer horizon and to pursue a “buy and hold strategy” rather than a more “active

management" approach. *Gray – Griffith-Jones (2012)* argue that pension funds have historically favoured a low turnover approach so levying the FTT at the points of entry and exit only should not constitute a very large burden on them if they stick to this approach. In recent years however, partly due to low interest rates, pension funds have been moving to a more active management with higher turnover rates. These turnover rates also lead to increased management costs and an overall increase in overall transaction costs, which constitute a much bigger drag on returns than a possible FTT with a low rate. The aim would thus be to address especially high frequency trading and thus reduce it. *Gray – Griffith-Jones (2012)* thus argue that long-term investment oriented pension funds will not be burdened with a significant cost by the FTT, so that there is no justification for an exemption of pension funds from the FTT. What is more, the FTT would have a corrective effect, according to the authors, in that it will move even further pension funds to take an approach toward lower turnover and less active management strategy, thus avoiding high frequency trading and speculation. Moreover, it is questionable whether pension funds would be affected by the effect of the FTT on derivatives turnovers, as is often presumed. If pension funds buy derivatives mostly for insurance, rather than for short-term speculation, they will continue holding OTC derivatives until they reach maturity, which can mean several decades, and the FTT would thus have a very marginal effect on their trading activities. The crucial question related to the issue of taxing or exempting pension funds is about the frequency of turnover of their portfolios.

In light of these discussions, there are different approaches in discussion currently on how pension funds should be treated – one is no exemption, the other is an exemption regarding a so-called "optional non-taxation of pension schemes to be defined", which is supported by a number of the FTT10 countries. In this case, countries will have the opportunity to decide for themselves whether to impose the tax for pension funds or exempt them, but as the default option will be the exemption, it will most probably be kept in most countries.

Even more important for the overall revenue outcomes than the exemption of pension funds themselves is how UCITS and AIFs will be addressed. Belgium has proposed the approach of full exemption not only for pension funds, but also for life insurances, UCITS and AIFs. The Belgian proposal considers tax benefits as important mechanisms to incentivise private pension arrangements. Furthermore, in many countries, pension funds act mainly through pooling entities such as UCITS and AIFs – in the case of small pension funds they allocate up to 100% of their assets in such entities according to Belgian authorities. Taxing pension funds and UCITS and AIFs might therefore lead to cascade effects. In the current Belgian financial transaction tax (TOB) not only pension funds, but also all other entities used for investment by pension funds, such as private and institutional UCITS, are exempted. To avoid cascading effects, the Belgian proposal is also to pursue this approach for the FTT10 implementation. In its essence, the proposal is again of optional non-taxation, where Member States can still decide if they want to tax pension funds, and also have the freedom to choose whether to exempt or include UCITS and AIFs from the FTT.

As we have shown in the estimations above, the taxation of UCITS and AIFs is associated with considerable revenue potential and their exemption will be much more far reaching than the exemption only of pension funds. The currently considered exemption of the UCITS and AIFs would considerably erode the revenue potential of the tax and would imply foregoing around € 773 million from UCITS and € 1,134 billion from AIFs for the FTT10 countries, as shown in the previous section.

### **Small capital companies**

Regarding small capital companies, there are also different proposals. Besides the case for an exemption, there is a proposal from Slovakia to only consider companies with market capitalization above € 200 million. Data on the shares of unlisted companies is not easily accessible and since the estimated revenues from these are insignificant in relation to the overall sum (according to European Commission estimations around € 5 million for all 10 Member States), potential revenues and the effects of the possible exemptions won't be estimated here.

## **5. Proxies to estimate country-by-country breakdown of revenues**

We constructed proxies to estimate country-by-country breakdown of revenues, as also used in a similar assessment by the European Commission. The three proxies for the country specific revenues presented below are an approximation for the relative size of the financial sector in the 10 FTT countries by the total assets of banks operating in these countries, the relative size of the financial sector in the 10 FTT countries by insurance companies and pension funds, and the share of GDP in overall GDP of the FTT10. While the GDP proxy might considerably bias the results due to the relative differences in the importance of the financial sector across different countries in the EU, overreliance on the first two indicators might also lead to biases due to country specific financial sector models that change overall data. Data was gathered from Eurostat.

Table 15.1: Relative Size of Financial Sector Assets in EU; Banks

	2014		2015		2016	
	Assets	% Amount	Assets	% Amount	Assets	% Amount
Sum 10	22,952,427.10	100.0	22,964,132.10	100.0	23,617,622.00	100.0
Belgium	973,224.70	4.2	993,173.40	4.3	1,030,177.50	4.4
Germany	7,730,492.00	33.7	7,707,679.00	33.6	8,014,393.00	33.9
Greece	387,405.80	1.7	384,252.30	1.7	375,456.40	1.6
Spain	2,716,094.00	11.8	2,650,300.00	11.5	2,685,243.00	11.4
France	6,313,062.00	27.5	6,386,477.00	27.8	6,537,503.00	27.7
Italy	3,459,035.00	15.1	3,486,341.00	15.2	3,604,057.00	15.3
Austria	769,607.10	3.4	758,782.50	3.3	753,716.60	3.2
Portugal	472,905.60	2.1	464,025.30	2.0	469,921.90	2.0
Slovenia	48,012.00	0.2	46,088.00	0.2	47,088.00	0.2
Slovakia	82,588.90	0.4	87,013.60	0.4	100,065.60	0.4

Source: Eurostat.

Table 15.2: Relative Size of Financial Sector Assets in EU; Insurance Corporations and Pension Funds

	2014		2015		2016	
	Assets	% Amount	Assets	% Amount	Assets	% Amount
Sum 10	6,216,775.60	100.0	6,464,551.40	100.0	6,802,486.50	100.0
Belgium	331,683.30	5.3	332,944.60	5.2	336,363.10	4.9
Germany	2,227,900.00	35.8	2,290,553.00	35.4	2,421,852.00	35.6
Greece	15,480.60	0.2	15,536.40	0.2	16,348.00	0.2
Spain	409,147.00	6.6	433,707.00	6.7	441,800.00	6.5
France	2,266,995.00	36.5	2,331,456.00	36.1	2,463,838.00	36.2
Italy	734,595.00	11.8	832,138.00	12.9	890,135.00	13.1
Austria	127,604.30	2.1	128,731.50	2.0	131,586.00	1.9
Portugal	79,055.80	1.3	77,161.80	1.2	75,806.00	1.1
Slovenia	8,843.00	0.1	8,961.00	0.1	9,463.00	0.1
Slovakia	15,471.60	0.2	13,362.10	0.2	15,295.40	0.2

Source: Eurostat.

Table 15.3: Percentage share of each FTT10 country from overall GDP of the FTT10 region

	2014		2015		2016	
	GDP	% Amount	GDP	% Amount	GDP	% Amount
Sum 10	8,938,285.50	100.0	9,199,151.10	100.0	9,429,617.00	100.0
Belgium	400,058.40	4.5	410,290.50	4.5	422,677.60	4.5
Germany	2,932,470.00	32.8	3,043,650.00	33.1	3,144,050.00	33.3
Greece	178,656.50	2.0	176,312.00	1.9	174,199.30	1.8
Spain	1,037,820.00	11.6	1,079,998.00	11.7	1,118,522.00	11.9
France	2,147,609.00	24.0	2,194,243.00	23.9	2,228,857.00	23.6
Italy	1,621,827.20	18.1	1,652,622.30	18.0	1,680,948.10	17.8
Austria	333,062.60	3.7	344,493.20	3.7	353,296.90	3.7
Portugal	173,079.10	1.9	179,809.10	2.0	185,494.00	2.0
Slovenia	37,614.90	0.4	38,836.60	0.4	40,418.10	0.4
Slovakia	76,087.80	0.9	78,896.40	0.9	81,154.00	0.9

Source: Eurostat.

## 6. Results

We present the results of FTT revenue estimations for three different scenarios, based on the main assumptions made for different types of instruments, their reactions to the introduction of the FTT, and the elasticity parameters used: a conservative, a middle and an optimistic scenario. For securities (equities and bonds, but also ABS, UCITS and AIFs) we always assume a relocation and evasion effect of 10%, thus following the initial estimation from the *European Commission* (2011). For these instruments, we just vary the elasticity accordingly. As explained in the previous section, changing the evasion and relocation effect for equities e.g. from 10% to 20% leads to a change in the potential revenues from equities in the range of € 300 million for the whole FTT10 region, which does not considerably change the total revenue potential. The scenarios vary only in what regards different estimation parameters, but not in regards to the exemption of certain products in terms of what has been proposed for specific instruments by some countries (e.g. special treatment of pension funds, including or not including UCITS and AIFs, etc.) and discussed briefly in the previous section.

In the conservative scenario, we examine the highest possible evasion and relocation effects for derivatives and the highest elasticity values. We then move to the middle scenario, which we take as the most realistic one and as our baseline case. The parameters for this case are calibrated in the middle of the range for them found in various empirical studies. The optimistic scenario then assumes the lowest evasion and relocation effects, as well as low elasticities. For the overall potential revenue from the FTT for the middle and the optimistic scenario, we also include the additional € 312 million that the European Commission has estimated would be gathered by the introduction of the enhanced issuance principle for the FTT.

## 6.1 Conservative Scenario

The most conservative approach is based on an elasticity of -1.5 for all financial instruments covered. Interestingly this corresponds to the baseline case used for the European Commission's original Impact Assessment presented in 2011, although later studies have consistently used much smaller values, especially for securities. We also assume the highest possible evasion and relocation effects for derivatives used in all Impact Assessments so far of 90% market reaction, leaving only 10% of the original turnover volume before taxation. In this conservative scenario we do not include either the possible additional revenues from applying the enhanced issuance principle.

Table 16: Conservative Scenario

<b>Summary Table</b>	Revenues	
	FTT10	Austria
	Million €	
<b>Equities</b>	<b>3,070.475</b>	<b>23.590</b>
Asset Backed Securities	920.730	0.216
<b>Exchange Traded Derivatives</b>	<b>2,465.085</b>	<b>92.876</b>
ETD Options	338.039	12.736
ETD Futures	2,127.046	80.140
<b>OTC Derivatives</b>	<b>1,246.967</b>	<b>40.879</b>
Spot	140.833	8.164
Forward	57.149	4.082
FX Swaps	589.864	26.534
Currency Swaps	6.123	0.000
Options	12.246	0.000
Interest Rate Derivatives	440.751	2.099
<b>Total</b>	<b>7,703.257</b>	<b>157.561</b>
<b>Exempted</b>	FTT10 Austria	
	Million €	
ETFs	199.218	0.004
UCITs	662.610	28.148
AIFs	972.837	32.349
Bonds	4,476.752	142.868

### Assumptions

Elasticity for all instruments -1.5

Evasion Derivatives -0.9

This scenario delivers around € 7.7 billion overall for the whole FTT10 region and a mere € 158 million annually for Austria. Regarding the exemptions, we calculate the most important ones that would most significantly influence the overall results. As expected, omitting bonds from the FTT would imply to miss a very important source of revenues. Our estimation on the revenues from bonds is most probably significantly underestimating the potential revenues from taxing bonds due to data issues explained in Section 4. The government bonds data available from sources that aim to harmonize data from different exchanges (FESE, WFE) suffers either from lack of country reporting or from puzzling differences in country volumes. We are in contact with both data providers, but they have not been able yet to explain the puzzling data. Even so, while the turnover volumes for bonds we have obtained from FESE is expected to be an underestimation of the real turnover from trading in bonds, if bonds were taxed through the FTT, they would cause more than 50% increase of the revenues accrued in the conservative scenario (€ 4.5 billion annually).

The exemption of UCITS, AIFs and ETFs as most important instruments/sectors to be newly exempted from the proposal would also result in a significant loss of revenues – combined they make up € 1.833 billion additional revenues yearly.

For bonds and for UCITS, AIFs and ETFs we take the most conservative scenario of an elasticity of -1.5 as well, which is unrealistically high. This means these instruments can bring even more revenues in the more realistic cases below.



## 6.2 Middle Scenario

Table 17: Middle Scenario

Summary Table	Revenues	
	FTT10	Austria
	Million €	
<b>Equities</b>	<b>3,582.221</b>	<b>27.522</b>
Asset Backed Securities	1,074.185	0.252
<b>Exchange Traded Derivatives</b>	<b>3,758.750</b>	<b>141.617</b>
ETD Options	515.440	19.420
ETD Futures	3,243.310	122.197
<b>OTC Derivatives</b>	<b>1,895.147</b>	<b>62.302</b>
Spot	214.741	12.449
Forward	87.141	6.224
FX Swaps	899.422	40.458
Currency Swaps	9.337	0.000
Options	18.673	0.000
Interest Rate Derivatives	665.833	3.171
<b>Total</b>	<b>10,310.302</b>	<b>231.693</b>
<b>Strengthened issuance principle</b>	<b>312.000</b>	<b>9.953</b>
<b>Total (including additional revenues from issuance principle)</b>	<b>10,622.302</b>	<b>241.646</b>
<b>Exempted</b>	FTT10	Austria
	Million €	
ETFs	232.421	0.005
UCITs	773.045	32.839
AIFs	1,134.977	37.741
Bonds	5,222.877	167.156
<b>Assumptions</b>		
Elasticity for derivatives	-1.0	
Elasticities for securities	-0.5	
Evasion Derivatives	-0.85	

The middle case scenario is based on the more often used assumption of an elasticity of -0.5 for securities, while also reducing the elasticity for derivatives to -1.0. The evasion and relocation effects for derivatives are also slightly decreased to 85%. These are small changes, but they bring a considerable boost to the revenues estimated, especially given the importance of derivatives for the overall amount of potential revenues. We also include the additional revenues from the application of a strengthened issuance principle, which has been estimated by the

European Commission in 2016 to bring in additional € 312 million annually for the FTT10 countries. Thus, this scenario delivers around € 11 billion overall for the whole FTT10 region and € 242 million annually for Austria.

As explained above, what regards exempted products (bonds, AIFs, UCITS and ETFs), we have assumed very conservative elasticities in our first estimation in section 3.1. When moving to the more realistic case, also used in the latest estimations of the Commission, of an elasticity for all securities of -0.5, the revenues from the exempted products become even more significant and reach € 5.2 billion from bonds and € 2,139 billion combined from UCITS, AIFs and ETFs for the FTT10 countries. We stress once more that the revenues from bonds are certainly underestimated, due to data issues.

### 6.3 Optimistic Scenario

Table 18: Optimistic Scenario

Summary Table	Revenues	
	FTT10	Austria
	Million €	
<b>Equities</b>	<b>3,582.221</b>	<b>27.522</b>
Asset Backed Securities	1,074.185	0.252
<b>Exchange Traded Derivatives</b>	<b>6,318.019</b>	<b>238.042</b>
ETD Options	859.067	32.367
ETD Futures	5,458.952	205.675
<b>OTC Derivatives</b>	<b>3,179.384</b>	<b>104.667</b>
Spot	360.847	20.919
Forward	146.431	10.459
FX Swaps	1,511.375	67.986
Currency Swaps	15.689	0.000
Options	31.378	0.000
Interest Rate Derivatives	1,113.663	5.303
<b>Total</b>	<b>14,153.809</b>	<b>370.482</b>
<b>Total (including additional revenues from issuance principle)</b>	<b>312.000</b>	<b>9.953</b>
<b>Total (including additional revenues from issuance principle)</b>	<b>14,465.809</b>	<b>380.435</b>
<b>Exempted</b>	FTT10	Austria
	Million €	
ETFs	232.421	0.005
UCITs	773.045	32.839
AIFs	1,134.977	37.741
Bonds	5,222.877	167.156

#### Assumptions

Elasticity for derivatives -0.75

Elasticities for securities -0.5

Evasion Derivatives -0.75 (European Commission revised assessment of Mai 2018)

The optimistic scenario uses again the assumption of an elasticity of -0.5 for securities, while further reducing the elasticity for derivatives to -0.75, which is also the elasticity used by the European Commission for their latest revised assessment. The evasion and relocation effects for derivatives are further decreased to 75% - again an assumption made by the European Commission in their latest Impact Assessment. Given some limited experience, e.g. for Sweden, as

well as based on theoretical considerations one could expect very significant relocation effects for derivatives, so the assumption of a relocation effect of only 75% might be too lax and thus overestimate possible revenues. We add the additional € 312 million from the strengthened issuance principle here as well. Thus, this scenario delivers around € 14.5 billion overall for the whole FTT10 region and € 380 million annually for Austria. Regarding exemptions, we retain the assumptions from the middle scenario.

## 7. Conclusions

In this study we estimate the potential revenues from introducing an FTT through the enhanced cooperation set-up, as currently discussed between 10 EU countries, using the latest available data from the most relevant data sources. Based on the methodology of the European Commission, we deliver new country-specific estimates with the most recent data regarding the turnover volumes of key financial instruments and therefore can report both the overall revenues the potential FTT could raise, as well as country-specific revenues. We present three different scenarios with different assumptions regarding the key parameters to estimating country-specific revenues and overall revenue potential of the tax. Based on the assumptions for different parameters, our middle scenario delivers an estimate for the potential annual revenues of the FTT of around € 11 billion overall for the whole FTT10 region and € 242 million annually for Austria. Given different parameter assumptions, if we take a very conservative approach, we estimate the scenario to deliver around € 7.7 billion overall for the whole FTT10 region and a mere € 158 million annually for Austria. If we take more optimistic parameter values, the FTT could bring up to € 14.5 billion overall for the whole FTT10 region and € 380 million annually for Austria.

Regarding the currently envisioned exemptions for certain types of products and market segments, exempting bonds from the tax would constitute a large shortfall in total revenues. Even based on the partly unreliable data that does not take into account all the bond trading on the exchanges in question, we estimate a significant shortfall of at least € 4.5 billion from not taxing bonds, which is more than any of the other single groups of instruments (equities, exchange-traded derivatives or OTC derivatives) can yield as revenues. Furthermore, exempting UCITS, AIFs and ETFs would imply a loss of € 2.1 billion (middle scenario) in potential revenues for the FTT10 countries.

It is important to note that the revenues expected have normally been closely correlated to the business cycle because the value of assets increases in upturns and decreases in downswings. However, this might not necessarily hold for the upcoming years, since asset values and financial markets overall have been significantly influenced by the accommodative monetary policy of the European Central Bank throughout recent years. That means that expecting revenues to increase further with future economic growth might not be realistic as the European Central Bank winds down its quantitative programme and starts normalizing monetary policy and asset prices decrease again.

In this study, we provide new estimations for the revenue potential from the introduction of an FTT in the 10 EU Member States currently discussing it. We calculate the country specific potential revenues for different scenarios, given different parameters (regarding evasion, transaction costs, and tax base elasticity), for different financial instruments. We also estimate the potential revenues from instruments or market segments which are currently discussed to be exempted from the final implementation of the tax. It is important to point out the considerable uncertainties around these estimations that are due to the assumed parameters. What is more, the possible implementation of the FTT during the Brexit-transition period is also prone to uncertainty due to even higher risks of relocation and evasion. Our total estimated potential revenues, besides in the optimistic scenario, are below previous estimations from the European Commission. The stark differences compared to some results of the initial European Commission Impact Assessment are caused by the fact that the initial proposal covered all European Union Member States, and later included all markets and all transactions. The significant number of exemptions discussed and already accepted since these initial discussions has significantly eroded the revenue potential of the FTT.

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## 9. Annex

Table 19: Revenues from ETD Futures IR

Evasion: 0.1, Tax Rate: 0.01%, TC\*: 0.3%

ETD Future IR	GDP-EU28 % Amount	Volume	Revenues Billion €			
			Elasticities assumed:			
			0.000	-0.500	-1.000	-1.500
Austria	2.4	8,402.6	0.084	0.083	0.081	0.080
Germany	21.3	74,572.8	0.746	0.734	0.722	0.710
Greece	1.2	4,201.3	0.042	0.041	0.041	0.040
Italy	11.2	39,212.0	0.392	0.386	0.379	0.373
France	14.9	52,166.0	0.522	0.513	0.505	0.497
Spain	7.6	26,608.1	0.266	0.262	0.257	0.253
Belgium	2.9	10,153.1	0.102	0.100	0.098	0.097
Portugal	1.3	4,551.4	0.046	0.045	0.044	0.043
Slovakia	0.6	2,100.6	0.021	0.021	0.020	0.020
Slovenia	0.3	1,050.3	0.011	0.010	0.010	0.010
Total		223,018.3	2.230	2.194	2.158	2.123

Source: BIS. – \* Transaction Costs.

Table 20: Revenues from ETD Futures ST

Evasion:0.1, Tax Rate: 0.01%, TC\*: 0.3%

ETD Future ST	GDP-EU28 % Amount	Volume	Revenues Billion €			
			Elasticities assumed:			
			0.000	-0.500	-1.000	-1.500
Austria	2.4	7,141.9	0.071	0.070	0.069	0.068
Germany	21.3	63,384.6	0.634	0.624	0.613	0.603
Greece	1.2	3,571.0	0.036	0.035	0.035	0.034
Italy	11.2	33,329.0	0.333	0.328	0.323	0.317
France	14.9	44,339.5	0.443	0.436	0.429	0.422
Spain	7.6	22,616.1	0.226	0.222	0.219	0.215
Belgium	2.9	8,629.8	0.086	0.085	0.084	0.082
Portugal	1.3	3,868.5	0.039	0.038	0.037	0.037
Slovakia	0.6	1,785.5	0.018	0.018	0.017	0.017
Slovenia	0.3	892.7	0.009	0.009	0.009	0.008
Total		189,558.7	1.896	1.865	1.834	1.805

Source: BIS. – \* Transaction Costs.

Table 21: Revenues from ETD Futures LT

Evasion: 0.1, Tax Rate: 0.01%, TC\*: 0.3%

ETD Future LT	GDP-EU28 % Amount	Volume	Revenues Billion €			
Elasticities assumed:						
			0.000	-0.500	-1.000	-1.500
Austria	2.4	1,260.6	0.013	0.012	0.012	0.012
Germany	21.3	11,188.2	0.112	0.110	0.108	0.107
Greece	1.2	630.3	0.006	0.006	0.006	0.006
Italy	11.2	5,883.0	0.059	0.058	0.057	0.056
France	14.9	7,826.5	0.078	0.077	0.076	0.075
Spain	7.6	3,992.0	0.040	0.039	0.039	0.038
Belgium	2.9	1,523.3	0.015	0.015	0.015	0.015
Portugal	1.3	682.8	0.007	0.007	0.007	0.007
Slovakia	0.6	315.2	0.003	0.003	0.003	0.003
Slovenia	0.3	157.6	0.002	0.002	0.002	0.002
Total		33,459.6	0.335	0.329	0.324	0.319

Source: BIS. – \* Transaction Costs.

Table 22: Revenues from ETD Futures FE

Evasion: 0.1, Tax Rate: 0.01%, TC\*: 0,3%

ETD Future FE	GDP-EU28 % Amount	Volume	Revenues Billion €			
Elasticities assumed:						
			0.000	-0.500	-1.000	-1.500
Austria	2.4	15.4	0.000	0.000	0.000	0.000
Germany	21.3	11,188.2	0.112	0.110	0.108	0.107
Greece	1.2	630.3	0.006	0.006	0.006	0.006
Italy	11.2	5,883.0	0.059	0.058	0.057	0.056
France	14.9	7,826.5	0.078	0.077	0.076	0.075
Spain	7.6	3,992.0	0.040	0.039	0.039	0.038
Belgium	2.9	1,523.3	0.015	0.015	0.015	0.015
Portugal	1.3	682.8	0.007	0.007	0.007	0.007
Slovakia	0.6	315.2	0.003	0.003	0.003	0.003
Slovenia	0.3	157.6	0.002	0.002	0.002	0.002
Total		32,214.4	0.322	0.317	0.312	0.307

Source: BIS. – \* Transaction Costs.



Table 23: Revenues from ETD Options IR

Evasion: 0.1, Tax Rate: 0.01%, TC\*: 0.3%

ETD Options IR	GDP-EU28 % Amount	Volume	Revenues Billion €			
Elasticities assumed:						
			0.000	-0.750	-1.000	-1.500
Austria	2.4	1,332.7	0.013	0.013	0.013	0.013
Germany	21.3	11,827.5	0.118	0.115	0.114	0.113
Greece	1.2	666.3	0.007	0.007	0.006	0.006
Italy	11.2	6,219.2	0.062	0.061	0.060	0.059
France	14.9	8,273.7	0.083	0.081	0.080	0.079
Spain	7.6	4,220.2	0.042	0.041	0.041	0.040
Belgium	2.9	1,610.3	0.016	0.016	0.016	0.015
Portugal	1.3	721.9	0.007	0.007	0.007	0.007
Slovakia	0.6	333.2	0.003	0.003	0.003	0.003
Slovenia	0.3	166.6	0.002	0.002	0.002	0.002
Total		35,371.5	0.354	0.345	0.342	0.337

Source: BIS. – \* Transaction Costs.

Table 24: Revenues from ETD Options ST

Evasion: 0.1, Tax Rate: 0.01%, TC\*: 0.3%

ETD Options ST	GDP-EU28 % Amount	Volume	Revenues Billion €			
Elasticities assumed:						
			0.000	-0.500	-1.000	-1.500
Austria	2.4	1,168.0	0.012	0.011	0.011	0.011
Germany	21.3	10,366.2	0.104	0.102	0.100	0.099
Greece	1.2	584.0	0.006	0.006	0.006	0.006
Italy	11.2	5,450.8	0.055	0.054	0.053	0.052
France	14.9	7,251.5	0.073	0.071	0.070	0.069
Spain	7.6	3,698.7	0.037	0.036	0.036	0.035
Belgium	2.9	1,411.4	0.014	0.014	0.014	0.013
Portugal	1.3	632.7	0.006	0.006	0.006	0.006
Slovakia	0.6	292.0	0.003	0.003	0.003	0.003
Slovenia	0.3	146.0	0.001	0.001	0.001	0.001
Total		31,001.3	0.310	0.305	0.300	0.295

Source: BIS. – \* Transaction Costs.

Table 25: Revenues from ETD Options LT

Evasion: 0.1, Tax Rate: 0.0001, TC\*: 0.3%

ETD Options LT	GDP-EU28 % Amount	Volume	Revenues Billion €			
			Elasticities assumed:			
			0.000	-0.500	-1.000	-1.500
Austria	2.4	169.8	0.002	0.002	0.002	0.002
Germany	21.3	1,507.0	0.015	0.015	0.015	0.014
Greece	1.2	84.9	0.001	0.001	0.001	0.001
Italy	11.2	792.4	0.008	0.008	0.008	0.008
France	14.9	1,054.2	0.011	0.010	0.010	0.010
Spain	7.6	537.7	0.005	0.005	0.005	0.005
Belgium	2.9	205.2	0.002	0.002	0.002	0.002
Portugal	1.3	92.0	0.001	0.001	0.001	0.001
Slovakia	0.6	42.5	0.000	0.000	0.000	0.000
Slovenia	0.3	21.2	0.000	0.000	0.000	0.000
Total		4,506.8	0.045	0.044	0.044	0.043

Source: BIS. – \* Transaction Costs.